

Calling the Shots: A Social History of Vaccination in the U.S., 1962 - 2008

by

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## Acknowledgements

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## Abstract

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In two centuries of vaccination in the U.S., the last five decades constituted a unique era. American children received more vaccines than any previous generation, and laws requiring their immunization against a litany of diseases became common. Vaccination rates soared, preventable infections plummeted, and popular acceptance of vaccines remained strong—even as an increasingly vocal cross-section of Americans questioned the safety and necessity of vaccines and the wisdom of related policies. This dissertation examines how and why, between the 1960s and 2000s, Americans came to accept the state-mandated vaccination of all children against a growing number of infections despite the growing prominence of vaccine doubts. I argue that vaccines and vaccine policies fundamentally changed the ways health experts and lay Americans perceived the diseases they were designed to prevent. Second, I demonstrate that vaccination policies and their acceptance throughout this period were as contingent on political, social, and cultural concerns as they were on scientific findings. Thirdly, I show how, as new vaccine policies took shape, feminism, environmentalism, and other social movements laid challenge to scientific and governmental authority, with profound—but previously overlooked—implications for how Americans perceived vaccination. Finally, I argue that the relationship between vaccination beliefs and political ideology is more complex than historians have heretofore asserted, for selective and blanket vaccination doubts at the end of the twentieth century were as informed by leftist critiques of

capitalism and social hegemonies as by traditional American libertarian ethics. This work draws on a diverse set of sources, including presidential archives; government agency records and publications; popular and scientific print media; television broadcasts; newsletters; internet archives; documents and publications at chiropractic libraries; and the personal files of vaccine scientists and critics. It contributes to the histories of disease, women, the environment, and health politics, as well as the sociology of social movements. By placing public health knowledge in historical context, this dissertation illuminates the many meanings of vaccination that lay between that of gold-standard disease preventive and hotly contested enterprise at the end of the twentieth century and the beginning of the twenty-first.

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## Introduction

Late in 2005, the *Boston Globe* magazine featured an article about Marjorie and Jared Hansen, a Utah couple who said they had always describe themselves as “very pro-vaccine”—until two of their four children were diagnosed with autism. The diagnosis prompted the Hansens to conduct their own research into autism treatments and theories of causation. In the process, they learned that thimerosal, a mercury-based preservative, had been present in the vaccines their children had received. Thimerosal was removed from vaccines beginning in 1999, and countless studies and scientific reviews failed to turn up evidence of a link between thimerosal and autism. But that didn’t matter to Jared Hansen, a former research chemist who said he was “incensed” when he learned that thimerosal had been in his children’s vaccines, because he recalled treating mercury as carefully as radioactive materials when he was a student. Their faith in official recommendations shaken, the Hansens decided to conduct their own risk-benefit calculations on the recommended vaccines for their children. They concluded that shots against hepatitis B, flu, chicken pox, and pneumococcus weren’t worth getting, since in their assessment the infections either posed little risk to children or were rarely deadly. But they continued to vaccinate their children against other infections, including polio, diphtheria, pertussis, tetanus, measles, rubella, and mumps.<sup>1</sup>

The author of the article in the *Globe*, pediatric cardiologist Darshak Sanghavi, condemned the Hansens for committing “an ancient error” by concluding, based on personal experience, that the mercury in vaccines could have caused their children’s

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<sup>1</sup> Darshak Sanghavi, "The Secret Truth," *The Boston Globe Magazine*, December 4, 2005, 42.

autism. Sanghavi called the Hansens loving, devoted parents, but then accused them of failing to be “truly scientific and objective.” Their case convinced Sanghavi that policies making vaccines mandatory for children were wise, since “sometimes, personal freedom can be a dangerous thing.”<sup>2</sup> In a follow-up letter to the editor, Jared Hansen asked that “parents like us” not be summarily dismissed as “unreasonable” and “dangerous,” and listed his own demands of the medical profession: “Your patients are not ‘the herd,’ but individuals. When doctors stop asking ‘Has this child been vaccinated?’ and begin asking ‘Should this child be vaccinated?’ they will again be healers we can trust with the health of our children.”<sup>3</sup>

The dispute between Sanghavi and the Hansens was emblematic of the polarized debate over vaccination that was increasingly featured on talk shows, magazine covers, and headlines in both the popular and scientific press in the first decade of the twenty-first century. Much as it was popular fodder for the media, this debate also drew scrutiny from both scientists and scholars of the medical humanities.<sup>4</sup> But all of this attention has come at the expense of a more nuanced understanding of the myriad factors influencing Americans’ attitudes toward vaccines and vaccine policies. While polarized, the debate over vaccines is not easily defined as one that pits pro-vaccine forces against anti-vaccinators. As the Hansens’ story shows, attitudes and beliefs toward vaccination in

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<sup>2</sup> Ibid.

<sup>3</sup> Jared Hansen, “Letters: Vaccines and Autism,” *The Boston Globe Magazine*, January 1, 2006, 6.

<sup>4</sup> Sanghavi’s own article is an illustration of this trend. See also James Colgrove and Ronald Bayer, “Could It Happen Here? Vaccine Risk Controversies and the Specter of Derailment,” *Health Affairs* 24, no. 3 (2005): 729-739; Howard Markel, “Life, Liberty and the Pursuit of Vaccines,” *New York Times*, March 1, 2011, D5; Robert Johnston, “Contemporary Anti-Vaccination Movements in Historical Perspective,” in *The Politics of Healing: Histories of Alternative Medicine in Twentieth-Century North America*, ed. Robert Johnston (New York: Routledge, 2004), 259-286.



modern America are far more complex, involving doctors and health officials who sympathize with skeptical parents to different degrees, and parents (as well as others) who question individual vaccines to varying extents.

More importantly, however, this debate is only one small piece of the larger story of vaccines and American culture, politics, and society at the end of the twentieth century and the beginning of the twenty-first. It is this larger story, with all of its complexities and nuances, that this dissertation analyzes, by examining the myriad factors shaping vaccination policies and reception from the 1960s to the early 2000s. This work is driven by two overarching research questions: First, how and why did the universal vaccination of children against a list of diseases ranging in severity become such a widely accepted political, social, and cultural norm in this period? And second, what forces gave rise and shape to the vaccine doubts whose pervasiveness gradually increased in this period?

### *A New Era of Vaccination*

This dissertation focuses on the social history of vaccination in the U.S. from the 1960s to the early 2000s because, as I argue in the opening chapters, these five decades constituted a unique era in the more than two centuries of vaccination in the U.S. During this time period, the federal government assumed, for the first time, a prominent and authoritative role in the area of vaccination policy and practice. As their authority was consolidated, federal health officials began a push for universal vaccination against what they called the “milder” diseases, including measles, mumps, and rubella—which (in the 1960s at least) were viewed as less severe than polio, smallpox, and diphtheria, the previous targets of mass vaccination campaigns. This push was accomplished largely

through the vaccination of children, even when this meant vaccinating children against infections that posed a greater threat to other members of the population (as rubella did to pregnant women, or mumps did to adolescent males and grown men). To a significant extent, the mass vaccination of children was realized through the adoption and strengthening of a patchwork of laws at the state level, which made vaccines mandatory for school enrollment.<sup>5</sup>

The ease with which such laws were adopted in the 1970s created a new norm for vaccination policies in the 1980s, 1990s, and 2000s, when laws requiring the vaccination of children for school enrollment (or day care) became the de facto policy approach for many new vaccines. Since the 1960s, vaccines have been recommended by a federal committee, the Centers for Disease Control’s Advisory Committee on Immunization Practices, which drafts the nation’s recommended immunization schedules. The ACIP’s guidelines are not enforceable rules, but they are generally used as the basis for legislative acts or regulations that make vaccinations mandatory at the state or local level for children. State laws and regulations requiring children’s immunization against the litany of targeted diseases—hepatitis B, rotavirus, diphtheria, tetanus, pertussis, *Haemophilus Influenzae* type b (Hib), pneumococcus, polio, flu, measles, mumps, rubella, and varicella (chicken pox)—are now common. As a result, American children today receive more vaccines and vaccine doses than any previous generation. Between

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<sup>5</sup> These laws are typically referred to as vaccine “mandates,” even though exemptions exist for each required vaccine. In all states, children may be exempted from required vaccines for medical reasons; in most states (save Mississippi and West Virginia) they may be exempted for religious reasons. Eighteen states also permit “personal” or “philosophical” exemptions. See National Conference of State Legislatures, “States with Religious and Philosophical Exemptions from School Immunization Requirements,” March 2011. Available at <http://www.ncsl.org/default.aspx?tabid=14376>, accessed May 2011.

birth and age six, children currently typically receive at least 32 recommended vaccinations, which protect them against at least 13 different infections.<sup>6</sup> Over the last four decades, different federal administrations have supported the cause of childhood vaccination to varying extents, but on the whole from the 1960s to the early 2000s, vaccination rates soared, preventable infections plummeted, and popular acceptance of vaccines held strong.

At the same time, an increasingly vocal cross-section of Americans questioned the safety and necessity of vaccines and the wisdom of related policies. The current reality, then, is this: national immunization rates are unprecedentedly high, but vaccine skeptics and detractors—like the Hansens—continue to grab headlines and bear much of the blame for preventable disease outbreaks. Scientific studies investigating the reasons behind vaccination status tend to turn up proximal explanations for parental choices—parents who vaccinate their children trust their doctors, fear the preventable diseases, and want the best care for their kids, while parents who don't get all of the recommended vaccines for their children either lack access to the health care system; distrust the medical profession, government officials, and pharmaceutical companies; or subscribe to

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<sup>6</sup> The Centers for Disease Control recommends that all children receive vaccines against hepatitis B, rotavirus, diphtheria, tetanus, pertussis, *Haemophilus Influenza* type b (Hib), pneumococcus, polio, flu, measles, mumps, rubella, and varicella (chicken pox). Some of these are administered as combined vaccines; all of the recommended vaccines (combined or not) are administered in multiple doses, usually totaling between 2 and 4 doses. Children with certain risk factors are also advised to be vaccinated against hepatitis A and meningococcus. Centers for Disease Control, "Recommended Immunization Schedule for Persons Aged 0 – 6 Years—United States, 2011." Available at <http://www.cdc.gov/vaccines/recs/schedules/default.htm>, accessed May 2011. See also Centers for Disease Control, "General Recommendations on Immunization; Recommendations of the Advisory Committee on Immunization Practices (ACIP)," *Morbidity and Mortality Weekly Report* 60, no. 2 (2011).

belief systems that preclude vaccination. But there are far more distal reasons that shape these responses, and they vary by disease and vaccine and over time.

Identifying and resolving these reasons requires asking a much broader set of questions about the very nature of our vaccine policies and attitudes and how they came to be. What forces lent shape to our current policy approach and its various iterations? Further, what do our vaccination policies and popular responses to them reveal about American values and cultural and political preoccupations? Why, for instance, did some parents question the chicken pox vaccine, while accepting vaccines against similarly mild (or even milder) infections, such as mumps or rubella? How and why, for instance, did health officials recommend and American parents come to accept the vaccination of their children against hepatitis B, when this infection is categorically different from smallpox and polio in its severity and its threat to children? As this dissertation shows, parents and society at large are not always willing to accept the mandated vaccination of children against every preventable disease, no matter how serious or widespread. Rather, the deployment and acceptance of these vaccines and others was shaped in each case by its social, cultural, political, and scientific historical moment.

Four key themes guide this dissertation's inquiry into the socio-cultural underpinnings of American vaccination policies and attitudes from the 1960s through the 2000s. The first is the state's interest in disease prevention through vaccination. The pursuit of public health—specifically, the prevention and management of epidemics—has long served the economic and political interests of the state, broadly construed, as

historians Dorothy Porter, Elizabeth Fee, and others have shown.<sup>7</sup> Disease prevention (and in the case of smallpox, eradication) through vaccination has been hailed as a crowning achievement of twentieth-century public health. But in the century and a half leading up to the mid-twentieth century, however, vaccination was on the whole a local, reactive affair; cities, municipalities, and states primarily promoted vaccination as a means of protecting local populations against impending epidemics. The federal government assumed an authoritative role in *regulating* vaccines in 1902, when Congress approved the Biologics Control Act. But Washington largely avoided telling states which members of the population should be vaccinated against which diseases until mid-century, when popular agitation over access to the polio vaccine drove the Eisenhower administration to adopt federal vaccination legislation. The administration's Poliomyelitis Vaccination Assistance Act of 1955 laid the foundation for federal involvement in vaccination guidance and funding, upon which subsequent administrations—Democratic ones in particular—built, each in an attempt to meet its own political and economic objectives. Significantly, in the 1970s and again in the 1990s, federal childhood immunization programs served as important tools of health reform, as described in chapter 3.

The second major theme running through this work is the framing of disease, a concept borrowed from historian Charles Rosenberg.<sup>8</sup> Per Rosenberg, we understand and

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<sup>7</sup> Dorothy Porter, *Health, Civilization, and the State* (London; New York: Routledge, 1999); Elizabeth Fee, "Public Health and the State: The United States," in *The History of Public Health and the Modern State*, ed. Dorothy Porter (Atlanta: Rodopi, 1994), 224-275.

<sup>8</sup> Charles Rosenberg, "Disease in History: Frames and Framers," *Milbank Quarterly* 67, no. Supplement 1 (1989): 1-15; Charles Rosenberg, "Framing Disease: Illness, Society, and History," in *Framing Disease: Studies in Cultural History*, ed. Charles Rosenberg and Janet Golden (New Brunswick, NJ: Rutgers

explain diseases with the intellectual tools of our time. To date, however, historians have not explored the process by which vaccines and the practice of vaccination refashion and interact with these tools, even though, as I argue in this work, this has had significant implications for how both scientists and lay Americans perceived their disease targets over time. Diseases are described and understood in very different terms over the course of their vaccines' use—and, more importantly, *because* of their vaccines' use. Again, the ontology of an infection is inescapable in our understanding of it—smallpox virus, for example, mutated into a milder form in the early twentieth century, which influenced lay rejection of enforced smallpox vaccination in the Progressive Era, as historian James Colgrove, among others, has noted.<sup>9</sup> Mumps, on the other hand, caused the same symptoms and complications in 1980 as it had in 1965, but cultural and scientific descriptions of the infection at these two points in time (an effective vaccine was approved for market in 1967) suggest two very different diseases. As described in chapter 2, one was comical and largely harmless, the other destructive if not deadly. Vaccines refocus our attention on their disease targets, which are then re-analyzed and understood anew within the context of their times. On occasion this re-analysis supports the cause of vaccination; at other times it works against it. For instance, the timing of the hepatitis B vaccine's approval, in the 1980s, shaped popular and scientific conceptualizations of the vaccine in a manner that supported the mass vaccination of children against the disease.

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University Press, 1997), xxi - xxvi; Charles Rosenberg, "What Is Disease?," *Bulletin of the History of Medicine* 77 (2003): 491-505.

<sup>9</sup> James Keith Colgrove, *State of Immunity: The Politics of Vaccination in Twentieth-Century America*, California/Milbank Books on Health and the Public (Berkeley: University of California Press, 2006), 45-52.

By contrast, the socio-cultural context into which the vaccine against human papillomavirus (HPV) was introduced, in 2006, subjected the vaccine to the specific criticism that its target disease was not intractable enough to warrant the mass compulsory vaccination of children.

The third key theme of this dissertation is the interaction between shifting social norms and scientific authority. As new vaccine policies took shape in the 1960s and 1970s, feminism, environmentalism, and other social movements were laying challenge to scientific and governmental authority, with profound—but previously overlooked—negative implications for how Americans came to think about vaccination. A robust body of literature has examined lay resistance to vaccines and vaccine resistance in the nineteenth and early twentieth century, outlining dominant refrains in the process. Vaccination critics of a century ago decried vaccines for being unsafe and impure, and rejected enforced vaccination for representing a form of tyranny contradicting the principle of personal liberty on which this nation was founded. Religious, rights-based, and safety objections to vaccination are by now historically familiar, but the revival of vaccination skepticism in the late twentieth century was in large part born of the rise of the New Left and its critiques of not just political but social hegemonies. The complex ideological underpinnings of late twentieth-century vaccine skepticism—specifically, the ways in which it was informed as much by traditional libertarianism as by second-wave feminism and new environmentalism—are a major new contribution of this work to the historical literature.

The fourth and final major theme of this work is that of the role of children as citizens, and specifically (to borrow a concept from Porter) health citizens. In the last half

century, vaccines and vaccine policies fundamentally changed the very nature of what it meant to be a child in the U.S. Infections such as mumps, rubella, chicken pox, and even certain types of diarrhea are no longer the common experiences of childhood that they once were. Instead, their vaccines and the laws and regulations requiring them for school now shape the experience of being a child. This experience—that is, the act of being vaccinated—also constitutes the health citizenship responsibilities of children, whose very participation in public life is now contingent on their immunization status. Policies requiring vaccines for children built on conceptualizations of children as reservoirs of infection in their communities, as described in chapter 2. They also built on the practical and political expedience of vaccinating children, who with the rise of pediatric care in the first half of the twentieth century had more regimented and malleable contact with health care professionals than civilian adults had. In the second half of the century, I argue, both vaccination policies and vaccine acceptance reflected changing cultural valuations of and beliefs about children as family members and as citizens.

This dissertation thus considers the contemporary history of vaccines within the context of a broad set of social trends, values, and movements. In the process, it bridges the history of vaccination to several subfields of history, including the history of women, the environment, childhood, and politics. In doing so, it sheds light on the diversity of factors that shaped both state and individual decision-making with respect to vaccination at the end of the twentieth century, in order to expand our general understanding of popular and expert attitudes toward and beliefs about vaccines.



### *Historiographical Relevance*

Compulsory vaccination has been an effective means of ensuring widespread adherence to immunization recommendations in the U.S., but the approach has also been hampered by resistance and noncompliance due to a variety of factors, a phenomenon that several historians of American medicine and social history have described. Ideological resistance to vaccination on the part of anti-vaccinationists has been a particularly popular subject of vaccination histories. An early historiography on the subject—Martin Kaufman’s work is an oft-cited example—was judgmental and dismissive of individuals who voiced their opposition to vaccines and vaccination campaigns in the nineteenth and early-twentieth century. Kaufman identified anti-vaccination sentiment with so-called irregular medical practitioners, including eclectics, hydropaths, homeopaths, and other believers in the “healing powers of nature.” In Kaufman’s assessment, such practitioners and their adherents wrongly rejected vaccination as part and parcel of a wholesale rejection of orthodox medicine.<sup>10</sup>

More recently, however, historians have begun to demonstrate that opposition to vaccination has long been a far more complex social and political phenomenon than once thought. Nadav Davidovitch, for instance, has shown that many Victorian-era homeopaths did not reject vaccination as part of their rejection of orthodox medicine; in fact, many accepted it as a vindication of their law of similars.<sup>11</sup> Other historians have

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<sup>10</sup> Martin Kaufman, "The American Anti-Vaccinationists and Their Arguments," *Bulletin of the History of Medicine* 41, no. 5 (1967): 463-478.

<sup>11</sup> Nadav Davidovitch, "Negotiating Dissent: Homeopathy and Anti-Vaccinationism at the Turn of the Twentieth Century," in *The Politics of Healing: Histories of Alternative Medicine in Twentieth-Century North America*, ed. Robert Johnston (New York: Routledge, 2004), 11-28.

related attitudes toward vaccination to a broader set of political values. Michael Willrich has argued that vaccination was a key issue for Progressive Era Americans who demanded the preservation of individual liberties in a time of mounting state power.<sup>12</sup> Colgrove has described how Progressive Era opponents of enforced vaccination in New York believed such policies infringed upon their rights to freedom and privacy.<sup>13</sup> Robert Johnston has described a similar dispute in Progressive Era Portland, Oregon, where, he argued, anti-vaccinationists equated a lack of freedom in medical decision-making with political and religious oppression.<sup>14</sup> These historians and others have illuminated the deeper meanings of anti-vaccinationist activity, namely by placing such activity in robust historical context. Johnston, for instance, has argued that Progressive Era anti-vaccinationists were neither “ignorant, deluded, [nor] marginal,” and has urged other historians to view their struggle as a populist crusade rooted in a belief in the ideal of full political participation of an informed citizenry.<sup>15</sup>

Much of the existing scholarship on “anti-vaccination” has focused on the clashes between medical professionals, health officials, and active opponents of vaccination a century ago or more. Johnston and Colgrove, however, have also analyzed contemporary opposition to vaccination. Colgrove has investigated the success of state efforts to

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<sup>12</sup> Michael Willrich, “The Least Vaccinated of Any Civilized Country”: Personal Liberty and Public Health in the Progressive Era,” *The Journal of Policy History* 20, no. 1 (2008): 76-93; Michael Willrich, *Pox: An American History* (New York: Penguin Press, 2011).

<sup>13</sup> James Keith Colgrove, “Science in a Democracy”: The Contested Status of Vaccination in the Progressive Era and the 1920s,” *Isis* 96 (2005): 167-191.

<sup>14</sup> Robert Johnston, *The Radical Middle Class: Populist Democracy and the Question of Capitalism in Progressive Era Portland, Oregon* (Princeton: Princeton University Press, 2003).

<sup>15</sup> *Ibid.*

encourage vaccination—and popular faith in vaccines—during the 1960s and 1970s, as well as the growing number of individuals who challenged vaccine policies in the 1980s and 1990s, on the one hand echoing earlier activists’ assertions of freedom, and on the other demanding safer vaccines.<sup>16</sup> Johnston, meanwhile, has described how contemporary anti-vaccine groups have strained to shake off the “anti-vaccinationist” label, arguing that they are not against vaccines on principle, but rather are in favor of safer vaccines as well as the parental right to choose which vaccines their children receive. Johnston has argued that contemporary anti-vaccinationism has distanced itself from its historical antagonism, and has moved instead “toward an emphasis on what it views as the best traditions of modern medicine: better vaccines, better science, and informed consent.”<sup>17</sup> Indeed, the term anti-vaccinationist *is* an inadequate term for describing vaccination resistance in the late twentieth and early twenty-first century, as it fails to encompass lay Americans’ varied and selective objections to vaccines in this period, from blanket rejection of all vaccines to circumspection about only certain vaccines or vaccine types—a position well illustrated by the decisions of the Hansen family described at the beginning of this introduction.

This dissertation also engages with extant scholarship on popular responses to vaccination policies in other democracies, such as Roy and Dorothy Porter’s and Nadja Durbach’s analyses of the anti-vaccination movement in late-nineteenth and early-twentieth century England, and Paul Greenough’s account of resistance to the global

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<sup>16</sup> Colgrove, *State of Immunity: The Politics of Vaccination in Twentieth-Century America*.

<sup>17</sup> Johnston, "Contemporary Anti-Vaccination Movements in Historical Perspective."

smallpox eradication campaign as it was carried out in South Asia in the 1970s.<sup>18</sup> Much of the work described thus far, however, analyzes the phenomenon of vaccination resistance; far less scholarship has focused, as does this dissertation, on the range of attitudes toward vaccination and their meanings that evolved at the end of the twentieth century in the U.S. Specifically, this dissertation breaks new ground by revealing the process by which vaccines frame disease; illustrating how vaccination policies and attitudes have been influenced by shifting gender norms and environmental values; and demonstrating the importance of vaccination to Democratic political agendas and reforms.

Several scholars have examined the role that vaccines have played in the history of disease. The most familiar example comes from the history of smallpox, the disease against which the first vaccine was developed at the end of the eighteenth century; in the twentieth century, smallpox's vaccine was deployed in a successful and much-storied effort to eradicate the disease from the face of the earth.<sup>19</sup> The role of vaccines has dominated other disease histories as well. As historian Evelyn Hammonds has noted, no aspect of diphtheria's story in the early twentieth century has received more attention than the development of its immunization, one of the earliest and most visible products of

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<sup>18</sup> Nadja Durbach, *Bodily Matters: The Anti-Vaccination Movement in England, 1853-1907* (Durham: Duke University Press, 2005); Dorothy Porter and Roy Porter, "The Politics of Prevention: Anti-Vaccinationism and Public Health in Nineteenth-Century England," *Medical History* 32, no. 3 (1988): 231-252; Paul Greenough, "Intimidation, Coercion and Resistance in the Final Stages of the South Asian Smallpox Eradication Campaign, 1973-1975," *Social Science and Medicine* 41, no. 5 (1995): 633-645.

<sup>19</sup> Donald A. Henderson, *Smallpox: The Death of a Disease* (New York: Prometheus Books, 2009).

the bacteriological developments of the late nineteenth century.<sup>20</sup> In the middle of the twentieth century, “furious competition” for a vaccine dominated the story of polio, as David Oshinsky has described.<sup>21</sup> These works regard vaccines as a singular, though important, component in the larger history of disease. This dissertation, by contrast, regards diseases as one component in the larger story of vaccines. Vaccines would not exist without their target diseases, of course, and the role of vaccines in eradicating or controlling diseases is well established. But vaccines also fundamentally reconfigure the way in which we interact with and understand their target infections; I argue that they therefore play an important role in the social construction and framing of disease, a phenomenon that has not been explicitly explored by other historians.

Also unexplored is the influence of the social changes of the last half century on vaccine policies and reception, even though the influence of shifting social dynamics has been a major focus of scholarship in the history of medicine in recent decades. In the last few decades, for instance, a growing number of historians have turned a feminist lens on the history of pharmaceuticals. In particular, the work of such historians as Elizabeth Watkins, Andrea Tone, and Susan Speaker has situated the history of specific drugs within the context of the feminist and women’s health movements of the 1960s and 1970s. Their findings have shown how gender has influenced patterns of drug promotion, development, and use; they and others have also shown how the social movements of the 1960s and 1970s, including the feminist, women’s health, and consumer rights

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<sup>20</sup> Evelyn Maxine Hammonds, *Childhood's Deadly Scourge: The Campaign to Control Diphtheria in New York City, 1880 - 1930* (Baltimore: Johns Hopkins University Press, 2002), 88.

<sup>21</sup> David M. Oshinsky, *Polio: An American Story* (New York: Oxford University Press, 2005).

movements, had a detectable and lasting effect on women's health and women's relationships with both their own physicians and the medical profession at large in the decades that ensued.<sup>22</sup> While women were never the sole target of a vaccination campaign prior to 2006 (the year when states proposed mandatory human papillomavirus vaccination for girls), they were on occasion primary targets, as in the case of both the rubella vaccine and, briefly, the hepatitis B vaccine; in the current era of universal childhood vaccination, women have also often been the primary caregivers responsible for the medical decision-making for their children, including the decisions of whether, when, and against which diseases to vaccinate. The history of women's interactions with the medical profession is thus directly relevant to the history of vaccination.

Johnston and Colgrove have described the emergence in the early 1980s of a group of parents, largely mothers, who organized to advocate for safer vaccines and vaccine policies in the U.S., following case reports of hazards allegedly stemming from the pertussis component of the DPT vaccine, which protects against diphtheria, pertussis, and tetanus.<sup>23</sup> Women emerged as leaders among these advocates, and much of the advocates' publicity efforts, including the publication of the book *DPT: A Shot in the Dark*, featured first-hand accounts from mothers whose children were reportedly harmed

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<sup>22</sup> Elizabeth Watkins, *On the Pill: A Social History of Oral Contraceptives, 1950-1970* (Baltimore: Johns Hopkins University Press, 1998); Elizabeth Watkins, *The Estrogen Elixir: A History of Hormone Replacement Therapy in America* (Baltimore: Johns Hopkins University Press, 2007); Andrea Tone, *The Age of Anxiety: A History of America's Turbulent Affair with Tranquilizers* (New York: Basic Books, 2009); Susan Speaker, "From 'Happiness Pills' to 'National Nightmare': Changing Cultural Assessment of Minor Tranquilizers in America, 1955-1980," *Journal of the History of Medicine* 52 (1997): 338-376; Sandra Morgen, *Into Our Own Hands: The Women's Health Movement in the United States, 1969-1970* (New Brunswick, New Jersey: Rutgers University Press, 2002).

<sup>23</sup> Johnston, "Contemporary Anti-Vaccination Movements in Historical Perspective."; Colgrove, *State of Immunity: The Politics of Vaccination in Twentieth-Century America*.

by vaccines.<sup>24</sup> Despite women's prominent roles as vaccine activists, women's attitudes toward vaccines and the role of gender in shaping responses to vaccines and vaccine policies in the late twentieth century U.S. have received little specific attention from scholars of the medical humanities. And yet there is substantial evidence to suggest that gender has played a measurable role in vaccine reception and vaccine policy; sociologist Jacob Heller's research on the rubella vaccine, for instance, has suggested that attitudes toward women and women's health issues (specifically, abortion) shaped the discourse around that disease as well as vaccine policy from the 1940s through the 1960s.<sup>25</sup> This dissertation therefore builds on this existing scholarship to demonstrate two previously unexplored phenomena from the last half of the twentieth century: changing gender norms had a discernable role in shaping new vaccination policies in the 1960s and 1970s, and the rise of second-wave feminism and the related women's health movement informed consumer doubts about the safety and necessity of vaccines and the wisdom of vaccination policies.

Likewise, little historical work has directly related environmental ethics to beliefs about vaccines and vaccine-preventable disease in the late-twentieth century U.S. In recent years, scholars in the history of medicine and health sciences have increasingly bridged the field with that of environmental history, revealing the unexpected ways in which environmental factors have influenced understandings of health and experiences of illness and disease. Conevery Bolton Valencius's work, for instance, has illustrated the

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<sup>24</sup> Harris Coulter and Barbara Loe Fisher, *A Shot in the Dark: Why the P in the DPT Vaccination May Be Hazardous to Your Child's Health* (Garden City Park, N.Y.: Avery Publishing Group, 1991).

<sup>25</sup> Jacob Heller, *The Vaccine Narrative* (Nashville: Vanderbilt University Press, 2008).

common metaphors nineteenth century settlers of the American west used to make sense of both their bodies and their physical environment.<sup>26</sup> Greg Mitman's study of allergy in the nineteenth and twentieth centuries has shown how the experience of allergy was shaped by environmental factors and simultaneously influenced how people treated and perceived the environments around them.<sup>27</sup> Michelle Murphy's analysis of sick building syndrome has investigated how the construction and manipulation of the physical (and social) environment can direct the experience of illness as well as responses to it.<sup>28</sup> This form of analysis has reiterated that attitudes toward and beliefs about health and medicine are influenced by and simultaneously influence environmental values and beliefs.

So far, however, this type of cross disciplinary analysis—exploring understandings of and responses to the environment in order to illuminate popular understandings of the body and illness—has yet to be done with a focus on vaccination in the late twentieth century. Scholars have produced evidence to suggest that attitudes toward vaccination are indeed shaped by environmental values, and it is well-established that vaccination resisters from the Victorian era through the twentieth century decried vaccines as unnatural and therefore unsafe.<sup>29</sup> But the precise ways in which these beliefs in the late twentieth century were informed by contemporaneous environmental politics

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<sup>26</sup> Conevery Bolton Valencius, *The Health of the Country: How American Settlers Understood Themselves and Their Land* (New York: Basic Books, 2002).

<sup>27</sup> Gregg Mitman, *Breathing Space: How Allergies Shape Our Lives and Landscapes* (New Haven: Yale University Press, 2007).

<sup>28</sup> Michelle Murphy, *Sick Building Syndrome and the Problem of Uncertainty: Environmental Politics, Technoscience, and Women Workers* (Durham: Duke University Press, 2006).

<sup>29</sup> See for example Durbach, *Bodily Matters: The Anti-Vaccination Movement in England, 1853-1907*; Emily Martin, *Flexible Bodies: Tracking Immunity in American Culture from the Days of Polio to the Age of AIDS* (Boston: Beacon Press, 1994).



and values has not yet been examined. This dissertation shows that vaccine skepticism based on theories of natural healing in this period drew on century-old beliefs about the benignity of nature as well as uniquely late-twentieth century ideas about ecology, chemical exposures, scientific uncertainty, and risk, all of which were popularized by new environmentalism.

Finally, no historian of vaccination has been able to ignore the challenges faced by the practice of compulsory immunization in nations founded on principles of individual liberty. As Dorothy Porter has recounted, opponents to Britain's Compulsory Vaccination acts, enacted in 1853 and 1867, cited vaccination failures, dangers, and the acts' encroachment on individual rights to justify their resistance. Indeed, struggles over enforced vaccination throughout history—in Britain, the U.S., and beyond—have highlighted public health's ongoing struggle for balance between personal rights and the common good in democratic societies. The question of how far governments may go in curtailing individual rights for the greater good is not limited to the history of vaccination; it is also a key source of dispute in the history of efforts to manage sexually transmitted diseases and mental health.<sup>30</sup> The popularity of universal childhood immunization campaigns among late-twentieth century Democratic administrations in the U.S. raises additional questions, not only about what ideological positions such efforts (and resistance to them) reflected, but also what political goals they served. This dissertation builds on existing analyses of the political meanings embedded in socio-

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<sup>30</sup> See for example Allan M. Brandt, *No Magic Bullet: A Social History of Venereal Disease in the United States since 1880* (New York: Oxford University Press, 1985); Paul A. Lombardo, *Three Generations, No Imbeciles: Eugenics, the Supreme Court, and Buck V. Bell* (Baltimore: Johns Hopkins University Press, 2008).

political vaccination discourses by revealing that the mass vaccination of children in the late twentieth century served as an important testing ground for Democratic presidents to gauge popular acceptance of the expansion of universal health care programs; it also served as an expedient means for achieving budgetary and health reform goals for administrations with an express interest in expanding the reach of welfare state.

### *The Science and Regulation of Vaccines*

Any discussion of the socio-politics of vaccination must be understood in the context of the science of vaccines. Vaccines protect against disease by prompting the body's immune system to generate antibodies and other immune cells that recognize and attack bacteria and viruses. Vaccines protect individuals, but they also protect communities—when a sufficient fraction of the population is vaccinated against a virus or bacterium, the entire population is protected, because the decreased number of susceptible people means the pathogen no longer has enough “hosts” to sustain itself in that population. The phenomenon of herd immunity means that not every individual in a community needs to be vaccinated to control or even eradicate a disease. As long as enough members of the herd are protected, the whole “herd” is protected—including those who didn't get vaccinated or couldn't, for reasons such as, for example, age or pre-existing diseases affecting the immune system.

Vaccines themselves contain all or part of the target pathogen, sometimes in its live form, and sometimes killed or in a weakened state. The Salk polio vaccine (the polio vaccine currently in use), for example, consists of inactivated or killed polio virus, which triggers the immune system to manufacture antibodies that are effective against live polio

virus. Pertussis vaccine in its original form contained killed whole pertussis bacteria; the “acellular” pertussis vaccine now in use contains only key proteins from the bacteria.

Vaccines against smallpox, measles, mumps, rubella, and rotavirus are live virus vaccines, meaning they contain a live version of the target virus. In each case, the virus in the vaccine has been weakened or altered, either through passage in animal cells or (more recently) through genetic engineering.<sup>31</sup> The altered virus doesn’t cause disease, but it is still familiar enough to the immune system to trigger the formation of antibodies. So-called “recombinant protein” vaccines, such as the vaccines against hepatitis B virus and HPV, contain antigens that were produced by genetically engineered or recombinant microorganisms; the hepatitis B vaccine, for example, contains antigens manufactured by recombinant yeast.<sup>32</sup>

Vaccines are highly effective, but because of their very nature as biological products, they have been, on rare occasion, implicated in the spread of disease. Nineteenth century smallpox vaccination in the U.S. and Europe, which in one form involved transferring pus from the arm of one vaccinated person to the next, sometimes transmitted other infections as well, notably syphilis.<sup>33</sup> In the U.S., the Biologics Control Act was signed into law in 1902 in response to an episode in which 20 children were sickened and 14 died after receiving diphtheria immunizations contaminated with

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<sup>31</sup> The rotavirus vaccine, for example, is made from weakened cow rotavirus that contains segments of human rotavirus. Stanley Plotkin and Susan Plotkin, "A Short History of Vaccination," in *Vaccines*, ed. Stanley Plotkin, Walter Orenstein, and Paul Offit (Philadelphia: Elsevier, 2008), 1-16.

<sup>32</sup> *Ibid.*

<sup>33</sup> Dorothy Porter and Roy Porter, "The Enforcement of Health: The British Debate," in *AIDS: The Burdens of History*, ed. Elizabeth Fee and Daniel Fox (Berkeley: University of California Press, 1988), 97-120; Donald Hopkins, *The Greatest Killer: Smallpox in History* (Chicago: University of Chicago Press, 1983).

tetanus.<sup>34</sup> The act was the first federal effort to oversee the safety of vaccines, which were regulated by the Public Health Service and Marine Hospital Service's Hygienic Laboratory's Biological Control Service.

Yet another contamination episode, the so-called Cutter incident—in which polio vaccine manufactured by Cutter Labs was contaminated with live polio virus, causing the disease in more than 200 people—prompted further federal involvement in vaccine regulation in the 1950s. The incident led to the establishment of the Division of Biologics Standards within the National Institutes of Health (which had been created two decades earlier from the PHS/MHS Hygienic Laboratory) to more carefully monitor vaccine safety. But following reports in the late 1960s and early 1970s that DBS had failed to properly screen vaccines for safety and effectiveness, oversight of vaccines was strengthened and transferred once again, this time to the Food and Drug Administration's new Bureau of Biologics.<sup>35</sup> The bureau, now called the Center for Biologics Evaluation and Research, currently regulates and licenses both vaccines and vaccine manufacturers, in addition to other biological products and their makers.<sup>36</sup>

Before licensing a vaccine for use, the FDA's CBER evaluates the vaccine's safety profile, its ability to provoke an immune response, its ability to protect against disease, and its interaction with other drugs and vaccines. Safety and efficacy standards for vaccines are flexible. While vaccines are extremely safe, many do pose small inherent

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<sup>34</sup> Norman Baylor and Karen Midthun, "Regulation and Testing of Vaccines," in *Vaccines*, ed. Stanley Plotkin, Walter Orenstein, and Paul Offit (Philadelphia: Elsevier, 2008), 1611-1628.

<sup>35</sup> See chapter 2.

<sup>36</sup> Baylor and Midthun, "Regulation and Testing of Vaccines."

risks of adverse events or side effects, and these risks are weighed against the risks of the target infection before a vaccine is approved.<sup>37</sup> Though federal health officials discussed in the 1960s and 1970s the need for a means of compensating citizens who were harmed by approved and recommended vaccines, no such program was implemented until the National Childhood Vaccine Injury Act was signed into law in 1986. The act was prompted by reports that pertussis vaccine posed non-disclosed risks of encephalitis, brain damage, and death. In addition to establishing a National Vaccine Injury Compensation Program, the 1986 law also created the Vaccine Adverse Events Reporting System. To this day, any individual may submit information on a vaccine reaction to VAERS, which is administered jointly by the FDA and CDC.

#### *How This Dissertation Is Organized*

This dissertation traces the interaction between vaccine science, politics, and society from 1962, when Congress approved the Vaccination Assistance Act, to 2008, when proposals to make HPV vaccination mandatory for schoolgirls were universally rejected in state legislatures. Chapter 1 describes the growing federal role in setting national vaccination policy and guiding the form and content of policies adopted at the state level from the beginning of the twentieth century to the 1960s. It focuses closely on the Vaccination Assistance Act of 1962 and contemporaneous events, which set the stage for strong federal involvement in promoting the universal vaccination of children against a range of diseases in the decades that followed. Chapter 2 examines the history of one disease, mumps, whose vaccine was a product of the scientific developments of the 1940s

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<sup>37</sup> Ibid.

and 1950s that ushered in what vaccine scientists call the “golden age of vaccine development.”<sup>38</sup> Mumps’ pre- and post-vaccine history reveals the role that vaccine technologies and policies played in reshaping conceptions of and approaches to infectious disease; its story also serves as a window onto evolving vaccine science and policy more broadly in the 1960s and 1970s. Chapter 3 analyzes the dramatic push for childhood vaccination made by the Carter administration, and contrasts this approach with the subsequent push made by the Clinton administration fifteen years later. Taken together, both efforts were key in making school vaccine laws the norm, making vaccinations available to all children, and ensuring that vaccination rates steadily climbed (as they generally, if imperfectly, did) from the 1970s through today.

Chapters 4 and 5 examine the influence of shifting social norms and new social movements on vaccine policy and reception from the 1970s through the 1990s. Chapter 4 considers the impact of changing ideas about gender and, more specifically, the rise of second wave feminism and the women’s health movement on vaccine policies and how women (especially mothers) received them. Chapter 5 examines the influence of a contemporaneous social movement, environmentalism, on how lay Americans understood vaccines and the risks they posed relative to the risks of the diseases against which they protected. Chapter 6 returns to a case study of a disease, using the story of hepatitis B to examine changing vaccine policies, the framing of vaccine-preventable disease, and the continued growth of vaccination resistance from the 1980s through the turn of the twenty-first century. The dissertation’s conclusion uses these trends to analyze

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<sup>38</sup> Plotkin and Plotkin, "A Short History of Vaccination," 7.

the fate of the vaccine against HPV, which was introduced in 2006, and which remains much debated in the media and medical literature through today.

The story outlined in this work highlights several unresolved questions about the very nature and purpose of vaccines. Vaccines are developed in response to disease threats, but they also fundamentally change how we think about disease. They are an important medical technology, but have been just as important as political tools in an era plagued by tensions over the cost and provision of health care. Resistance to vaccination and vaccine policy in recent decades has been complicated and deeply layered, and informed by social trends whose influence has yet to be fully explored. But just as interesting a line of historical inquiry concerns the question of how and why Americans came to accept the universal vaccination of their children against such a long and varied list of infections in the last decades of the twentieth century. The answer, as this dissertation demonstrates, has varied by vaccine and by historical moment, but has always reflected cultural attitudes toward technology, state power, social hegemonies, children, and even toward disease itself.

## Chapter 1

### **When is One Case Too Many? The Federal Government and Disease Prevention Through Vaccination, 1900-1968**

In a speech before the American Medical Association in 1963, Dr. James Goddard, head of the nation's Communicable Disease Center,<sup>1</sup> summed up Americans' prevailing notions regarding vaccines: that they were for children; that they were needed only upon school entry; and, thanks to the nation's experience fighting polio, that a one-time vaccination campaign was all that was needed to wipe out an infectious disease. Goddard, a physician himself, pressed the assembled doctors to counteract these notions in their patients and urge them to get vaccinated against not just polio, but also smallpox, diphtheria, pertussis, and tetanus. For, said Goddard, although these diseases were "of relatively minor importance in this country," they were—thanks to vaccines—"diseases about which we could say that one is too many."<sup>2</sup>

Goddard's speech was part of a larger federal push to promote vaccination, which was expedited by legislation signed into law by president John F. Kennedy in late 1962. Kennedy's Vaccination Assistance Act, a personal project of the president, provided states with federal funds to fight vaccine-preventable diseases broadly, and it set a precedent for federal involvement in vaccination promotion that subsequent Democratic

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<sup>1</sup> Now the Centers for Disease Control and Prevention.

<sup>2</sup> Diphtheria Immunization Against Smallpox, Tetanus, and Poliomyelitis, Speech Given by James L. Goddard before the Clinical Meeting of the American Medical Association, December 3, 1963, Folder: Info 3 Tr. - 1963, Box 334065 No. 5, Record Group 442, Centers for Disease Control, Office of the Director Files, National Archives and Records Administration, Southeast Region.



administrations would mimic.<sup>3</sup> The setting and tone of Goddard's speech were significant for other reasons as well. He and colleagues at the CDC were frustrated that vaccination rates for smallpox, diphtheria, pertussis, and tetanus weren't as high as they could be. Americans' willingness to be vaccinated against polio, however, indicated to them a window of opportunity to encourage higher vaccination uptake overall. (It also revealed a lay ambivalence toward the practice, which CDC officials would soon find themselves working to overcome.) That Goddard took the agency's message to the AMA illustrated the federal government's newfound authority in disease prevention via vaccination. Federal health officials would effectively wield this new authority to promote a vaccination agenda that would continue expanding into the 1970s and beyond.

That this new vaccination agenda involved immunizing Americans against infections of "relatively minor importance" was also significant, as it represented another defining aspect of this turning point in the history of vaccination in the U.S. In the late 1960s, children would begin to become routinely vaccinated against a growing number of infections, and despite the fact that some of these infections could be described as "minor" in any way in 1963, none of them would be so described by the end of the 1970s. This reframing of these vaccine-preventable infections, a phenomenon that is examined in depth in Chapter 2, was one of several factors crucial to the success of this new federal agenda.

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<sup>3</sup> The "mass immunization" bill, as it was called by Kennedy staffers, was on the President's list of major legislative proposals for 1962, along with acts on trade expansion, tax reform, the Peace Corps, and a farm bill. One of the president's congressional liaisons called it a "major point of President Kennedy's legislative program." Memo, Mumps Epidemics in Campbell and Fleming Counties, Folder: Legislative Files 5/1-18/62, Box 50, President's Office Files, Legislative Files, John F. Kennedy Presidential Library.

All told, this period marked the nascence of a new era of mass vaccination, which began midway through the twentieth century and persists to this day, characterized by general acceptance of federal authority in the area of vaccination and the widespread administration of new vaccines, with an eye toward herd immunity or complete disease eradication. The goal of eradication originally built on the hubris that shaped the technical professions after World War II. The nation's unprecedented investment in scientific and medical research during and after the war yielded a substantial list of new vaccines and vaccine technologies, which seemed to herald progress toward a future untroubled by disease. New vaccines protected against yellow fever, flu, polio, measles, rubella, and mumps, and improved versions of old vaccines—including a new vaccine against typhoid and a single shot that protected against diphtheria, tetanus, and pertussis at once—made old vaccination practices safer and more cost-effective. New technologies, such as the jet injector and bifurcated needle, made vaccination faster and more efficient than ever before; the jet injector alone made it possible to vaccinate 1,000 people in a single hour.<sup>4</sup>

Postwar advances in medicine and lay faith in these new technologies combined to make the development of the polio vaccine and its use in the nation's triumphant defeat of the disease a defining aspect of 1950s America. Technological advances and the national crusade against polio, in turn, paved the way for widely publicized eradication

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<sup>4</sup> The jet injector, developed by scientists at the National Communicable Disease Center and the U.S. Army Research and Development Command, is best known for its use in the global Smallpox Eradication Program, though it was initially used to administer both smallpox and measles vaccine. Smallpox Eradication and Measles Control in Africa, Brochure Published by the National Communicable Disease Center and the Agency for International Development, 1967, Folder: Information 3 SE-1966, Box 334065 No. 5, Record Group 442, Centers for Disease Control, Office of the Director Files, National Archives and Records Administration, Southeast Region.

campaigns against smallpox and measles, with the U.S. government leading the charge both at home and around the world in the 1960s. Polio and smallpox (but not measles) did indeed disappear from the American landscape. As these dreaded infections faded from memory and as new vaccines against other infections piled up, federal health officials, now assuming a central role in what had once been a predominantly local affair, promised a new era of freedom from infectious disease.

That health officials like Goddard were confident in the fulfillment of this promise speaks both to their authority and the factors that held it in place. Changes in the nation's disease priorities and national defense concerns led to the rise of epidemiology's scientific methods and the growth of the CDC in particular, buttressing centralized authority in the realm of vaccination. At the same time, mid-century attitudes toward science and technology in postwar America, new ways of thinking about the economics of disease prevention, and changing views of children, families, and their roles as citizens all contributed to new ideas about who to vaccinate against what, and when. Routine compulsory vaccination of children at ever younger ages, even against infections that posed little direct risk to them, became the norm, as did federal dictation of and support for vaccination policies. This expansion of state power at times rubbed up against traditional American ideals regarding the reach and role of government, and at times created inter-professional tension, as it represented an expansion of public health into a domain that organized medicine had previously tried to claim for its own. On the whole, however, this expansion progressed unimpeded. As a result, American vaccination policy and practice looked quite different in the latter half of the twentieth century than it did in the first half. This chapter traces the evolution of federal activities affecting vaccination

and the spectrum of attitudes toward these activities and vaccination generally, from the start of the twentieth century to the early 1960s, to illustrate why and how the stage was set for this new era of vaccination to begin.

*Jacobson v. Massachusetts: Federal Validation for Compulsory Vaccination*

For the first half of the twentieth century and before, vaccination as an American public health enterprise was an almost entirely local affair. Throughout most of the nineteenth century, smallpox was the only infection that could be thwarted with a vaccine.<sup>5</sup> When the infection threatened ports and broke out in bustling cities, city councils and health departments took measures to isolate the sick and vaccinate the well, often writing, interpreting, and testing applicable local laws and regulations in the process.<sup>6</sup> Efforts to mandate vaccination of healthy citizens during epidemics of the disease met not infrequently with resistance, which at times culminated in lawsuits. One such lawsuit, however, ultimately put to rest the question of the when and how compulsory vaccination could be applied.

In 1902, a smallpox epidemic struck Cambridge, Massachusetts and the city adopted a resolution, in accordance with state law, that required all citizens to either be

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<sup>5</sup> A history of smallpox inoculation and vaccination (and the disease itself) is given in Hopkins, *The Greatest Killer: Smallpox in History*. An accessible account of the development and deployment of smallpox vaccine is also given in Part I of Arthur Allen, *Vaccine: The Controversial Story of Medicine's Greatest Lifesaver*, 1st ed. (New York: W.W. Norton, 2007).

<sup>6</sup> See for example Judith Leavitt, "Politics and Public Health: Smallpox in Milwaukee, 1894-1895," *Bulletin of the History of Medicine* 50, no. 4 (1976): 553-568. See also Chapter 3 of Judith Walzer Leavitt, *The Healthiest City: Milwaukee and the Politics of Health Reform* (Madison: University of Wisconsin Press, 1996); Colgrove, *State of Immunity: The Politics of Vaccination in Twentieth-Century America*, 17-44.

vaccinated or pay a five dollar fine. But when the city vaccinator arrived at the door of Reverend Henning Jacobson, the reverend refused to do either, citing an invasion of his liberty and the oppressive nature of the law. Jacobson's refusal landed him in court, where he lost his case. But following several appeals, his suit ultimately brought him and his lawyer before the U.S. Supreme Court.<sup>7</sup> Jacobson wasn't to be vindicated: the high court's 1905 decision in *Jacobson v. Massachusetts* upheld the constitutionality of enforced vaccination. The decision also simultaneously upheld the authority of individual states to exercise police powers to protect the health of their citizens and established a national precedent for doing so.<sup>8</sup>

Writing the opinion for the majority in *Jacobson v. Massachusetts*, Justice John Marshall Harlan argued that despite Reverend Jacobson's opinion of the Cambridge law, "the liberty secured by the Constitution...does not impart an absolute right in each person to be, at all times and in all circumstances, wholly freed from restraint. There are manifold restraints to which every person is necessarily subject for the common good. On any other basis organized society could not exist with safety to its members."<sup>9</sup> Harlan's opinion, excerpted in medical journals of the day, was welcomed by health officials and private doctors, who called it "a source of gratification to the medical profession."<sup>10</sup> It

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<sup>7</sup> Colgrove, *State of Immunity: The Politics of Vaccination in Twentieth-Century America*, 38; Lawrence Gostin, *Public Health Law: Power, Duty, Restraint* (Berkeley: University of California Press, 2000), 66.

<sup>8</sup> Gostin, *Public Health Law: Power, Duty, Restraint*.

<sup>9</sup> *Jacobson v. Massachusetts*, 197 U.S. 11 (1905), p. 197 U.S. 26.

<sup>10</sup> Massachusetts Medical Society and New England Surgical Society, "Compulsory Vaccination Upheld," *The Boston Medical and Surgical Journal* CLII, no. 8 (1905): 230. See also Editorial, "Compulsory Vaccination," *The Wisconsin Medical Journal* III, no. 10 (1905): 58-589.

must indeed have been gratifying to physicians, whose profession had not yet embarked on the set of political activities that would soon consolidate its authority; medicine at the time was still “beleaguered” by sectarians, plagiarizers, quacks, and a profusion of unregulated educational institutions and public health dispensaries that threatened to encroach on the profession’s perceived domain.<sup>11</sup> At the same time, however, a social movement promoting health and welfare, particularly of children, was afoot, and organized medicine no doubt perceived an opportunity to benefit.<sup>12</sup>

*Jacobson v. Massachusetts* secured police powers for state health departments, but it also placed these powers within a set of well-defined limits. Henning Jacobson’s claims had been based, in part, on the belief that smallpox vaccination would cause him harm. The Court’s determination that he was, in fact, a “fit subject of vaccination,” was based on the Justices’ extensive reading of the medical literature on vaccination’s safety and effectiveness, which also led the court to acknowledge that some subjects were in fact not duly “fit” to be injected, and that vaccination’s potential harms had not been well defined.<sup>13</sup> The Court’s resulting decision, as public health legal scholar Lawrence Gostin has noted, thus “established a floor of constitutional protection for individual rights,” as well as four “standards of judicial review”: *Jacobson v. Massachusetts* established that

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<sup>11</sup> Paul Starr, *The Social Transformation of American Medicine* (New York: Basic Books, 1982), 198-199.

<sup>12</sup> Sydney A. Halpern, *American Pediatrics: The Social Dynamics of Professionalism, 1880-1980* (Berkeley: University of California Press, 1988), 58-59; Nancy Tomes, *The Gospel of Germs: Men, Women, and the Microbe in American Life* (Cambridge: Harvard University Press, 1998), 46-47, 127-129.

<sup>13</sup> This point is made in the discussion of *Jacobson v. Massachusetts* in Wendy Parmet, *Populations, Public Health, and the Law* (Washington: Georgetown University Press, 2009), 40. It is also evident in *Jacobson v. Massachusetts*, 197 U.S. 11 (1905), p. 197 U.S., 36 – 37.

compulsory measures to protect health had to be necessary; reasonable; proportional to the extant health threat; and relatively harmless.<sup>14</sup>

The ruling in *Jacobson v. Massachusetts*, its limits aside, prompted doctors and health officials to predict a triumphant future for the cause of vaccination.<sup>15</sup> By this time, smallpox was no longer the only vaccine at hand; following Louis Pasteur and Robert Koch's bacteriological discoveries of the late nineteenth century, scientists had developed immunizations against cholera, rabies, anthrax, and plague, and vaccines against tuberculosis, typhoid, and other infections were on the horizon. But while lawsuits over compulsory vaccination measures did dry up in *Jacobson's* wake, lay Americans opposed to the practice began to vigorously tackle them in state legislatures instead.<sup>16</sup> (In an era when germs were still a novel idea, enforced vaccination was not only seen as oppressive by some but also, sometimes, as dangerous and suspect.) In what was perhaps an unexpected turn at the time, state laws, which were in fact rare before *Jacobson*, became even scarcer afterward.<sup>17</sup>

Just 11 states had compulsory vaccination laws prior to 1905. Two decades later, the number had dropped to nine, and the number of states that had adopted measures to

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<sup>14</sup> Gostin, *Public Health Law: Power, Duty, Restraint*, 71.

<sup>15</sup> Massachusetts Medical Society and New England Surgical Society, "Compulsory Vaccination Upheld."

<sup>16</sup> Colgrove, "'Science in a Democracy': The Contested Status of Vaccination in the Progressive Era and the 1920s," 170.

<sup>17</sup> Johnston, *The Radical Middle Class: Populist Democracy and the Question of Capitalism in Progressive Era Portland, Oregon*, 183.

ban compulsory vaccination outright—a post-*Jacobson* approach—totaled four.<sup>18</sup> Progressive Era anti-compulsory vaccination activity targeted local statutes as well, from upstate New York to central Ohio to Portland, Oregon.<sup>19</sup> The move against compulsory vaccination statutes in the first few decades of the twentieth century was less a reaction to the *Jacobson* ruling per se, however, than it was to the contemporary Progressive movement’s embrace of public involvement in private lives. Progressives, a group that comprised both lay activists and professionals, energetically sought to rectify society’s ills by uncovering political corruption, educating immigrants and the poor, and taking messages of health promotion and disease prevention into neighborhoods, homes, and schools.<sup>20</sup> This largely middle-class movement was resisted by citizens who perceived it as an affront to privacy and freedom, as some did when Progressive ardor manifested in energetic vaccination drives. Anti-Progressive attitudes were well-encapsulated by medical libertarian and vaccination critic Lora Little, who in her 1906 book *Crimes of the Cowpox Ring* decried the “corporation spirit” of the medical profession, the “business interests” of public health professionals, and society’s “meddle mania.”<sup>21</sup> The resistance movement to which Little belonged was dwarfed by the larger social movement of her

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<sup>18</sup> Samuel Woodward, "Arguments in Favor of Compulsory Vaccination for Private School Children," *New England Journal of Medicine* 206, no. 11 (1932): 570-572.

<sup>19</sup> See Chapter 12 in Johnston, *The Radical Middle Class: Populist Democracy and the Question of Capitalism in Progressive Era Portland, Oregon*. For other examples, see Chapter 2 in Colgrove, *State of Immunity: The Politics of Vaccination in Twentieth-Century America*; William J. Reese, *Power and the Promise of School Reform: Grassroots Movements During the Progressive Era* (Boston: Routledge & Kegan Paul, 1986), 232-235; Willrich, ""The Least Vaccinated of Any Civilized Country": Personal Liberty and Public Health in the Progressive Era."

<sup>20</sup> Glenda Elizabeth Gilmore, *Who Were the Progressives?* (Boston: Bedford/St. Martin's, 2002).

<sup>21</sup> Lora Little, *Crimes of the Cowpox Ring: Some Moving Pictures Thrown on the Dead Wall of Official Silence* (Minneapolis: The Liberator Publishing Co., 1906), 6-7.



day, but it nonetheless represented the most significant expression of vaccination resistance in the first half of the twentieth century.

### *Diphtheria Immunization and Medical Authority*

Even as Progressive Era critics like Lora Little made gains against compulsory smallpox vaccination, diphtheria immunization became widely accepted, establishing itself as a staple of childhood medical care. Though the diphtheria vaccine emerged from the same set of discoveries that had led to the development of shots against rabies, anthrax, typhoid, tuberculosis, and cholera, it was the first of these to be used on a widespread scale to control an infectious disease.<sup>22</sup> In the 1910s and 1920s, New York City—and then New York state—led the nation’s most aggressive and spirited campaigns to stamp out the bacterial infection through mass immunization, manufacturing and distributing the antitoxin injection and publicizing its benefits in newspaper and magazine ads, promotional films, posters on streetcars, and radio broadcasts.<sup>23</sup> Capitalizing on the rise of advertising and consumer responsiveness, the health department did not stop with leaflets and pages in the paper, but went on to stage street performances, erect massive rotating billboards in Times Square, and sponsor a dogsled race through lower Manhattan to attract the public’s attention.<sup>24</sup>

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<sup>22</sup> See Chapter 3 in Hammonds, *Childhood's Deadly Scourge: The Campaign to Control Diphtheria in New York City, 1880 - 1930*, 6-7.

<sup>23</sup> For an analysis of New York City’s anti-diphtheria campaign, see *Ibid.*

<sup>24</sup> New York’s anti-diphtheria campaign is also described in brief in Colgrove, *State of Immunity: The Politics of Vaccination in Twentieth-Century America*, 88-93.

Diphtheria causes a membrane to form over the throat and tonsils, leading to sore throat, painful swallowing, and breathing difficulty. A steady, constant presence in turn-of-the-century cities, it demanded a mass marketing campaign in a way that smallpox did not. Because diphtheria did not appear as suddenly in the population and was not as life-threatening as smallpox, populations needed encouragement that it was in fact worth preventing. On the other hand, because its immunization left no scar (like smallpox vaccination did), and didn't cause disease (like both smallpox and typhoid vaccination sometimes did), it was a relatively easy sell.<sup>25</sup> Marketing aside, however, there were several other key distinctions between New York's promotion of diphtheria immunization and the local smallpox vaccination pushes that preceded it, both in New York and across the country. Throughout the nineteenth century, smallpox vaccination was typically encouraged—usually through mandate—by cities and municipalities on an ad-hoc basis, often in reaction to imminent epidemics. In New York's anti-diphtheria campaign, by contrast, health officials inspired by the promise of the new bacteriological tools at their disposal took aim at a long-entrenched disease and determined not just to reduce the number of cases of the disease, but to stamp it out entirely. Indeed, as historian Evelyn Hammonds has argued, health officials undertook the immunization-based anti-diphtheria campaign to prove the supremacy of laboratory science over sanitary approaches in controlling infectious disease for good.<sup>26</sup>

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<sup>25</sup> See Ibid; Hammonds, *Childhood's Deadly Scourge: The Campaign to Control Diphtheria in New York City, 1880 - 1930*; Heller, *The Vaccine Narrative*.

<sup>26</sup> Hammonds, *Childhood's Deadly Scourge: The Campaign to Control Diphtheria in New York City, 1880 - 1930*, 73-74.

This emphasis on eradication marked a significant shift in public health approaches to disease. Sociologist Jacob Heller has argued that New York's anti-diphtheria campaign redefined the focus of vaccination campaigns from the prevention of deaths, the objective of smallpox vaccination, to the prevention of sickness, the primary objective of diphtheria vaccination (even though diphtheria itself could be fatal, too).<sup>27</sup> The fact that New York health officials were successful in this endeavor also speaks to the expanding cultural authority of medicine generally at the time, a trend that diphtheria vaccination actually helped shape.<sup>28</sup> As sociologist Paul Starr has noted, medicine may have had little to offer every sore throat sufferer, but that didn't stop parents from wanting doctors to inspect their children, on the off chance that they were in fact infected with diphtheria and could benefit from the new vaccine.<sup>29</sup> (In its earliest iteration, diphtheria immunization, a combination of the toxin produced by diphtheria bacteria and its antitoxin, both treated and temporarily prevented the disease.)

Public health's growing reliance on laboratory techniques over the sanitary methods it had espoused in the nineteenth century frequently put the profession at odds with medicine.<sup>30</sup> Their dispute, as Starr has argued, typically concerned where the line between treatment (the traditional domain of medicine) and prevention (the domain of

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<sup>27</sup> Heller, *The Vaccine Narrative*, 40.

<sup>28</sup> Starr, *The Social Transformation of American Medicine*, 138; Hammonds, *Childhood's Deadly Scourge: The Campaign to Control Diphtheria in New York City, 1880 - 1930*, 11.

<sup>29</sup> Starr, *The Social Transformation of American Medicine*, 139.

<sup>30</sup> The shift from sanitary to bacteriological methods in public health is described in John Duffy, *The Sanitarians: A History of American Public Health* (Urbana: University of Illinois Press, 1990).

public health) was drawn.<sup>31</sup> With diphtheria, this line wasn't easy to see. New York's diphtheria campaign drew deliberately on laboratory methods for diagnosis of existing cases and immunization against potential ones. Perhaps paradoxically, the publicity it deliberately generated also drove parents to doctors' offices and further solidified the cultural authority of physicians.<sup>32</sup> The diphtheria campaign also thus drew yet another line between public health and medicine: the former demonstrated the need for prevention, and the latter actually provided it—at least to the children of middle and upper class families, for whom medical care, in the early decades of the twentieth century, was an increasingly sought-after commodity.<sup>33</sup>

The successes attributable to diphtheria immunization in this period are debatable; Historian James Colgrove points out that as many as two-thirds of children were already immune to the infection when the immunization campaign got underway, and diphtheria rates fell through the 1930s even as immunization rates stayed level or fell themselves.<sup>34</sup> But the campaign succeeded in establishing vaccination as the preeminent approach to infectious disease management in the new century. According to Heller, New York's anti-diphtheria campaign constructed a new narrative of disease control, with vaccination, a product of laboratory science, in the starring role. In this narrative, which would be repeated several times over the course of the twentieth century, a germ was identified in

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<sup>31</sup> Starr, *The Social Transformation of American Medicine*, 196.

<sup>32</sup> Hammonds, *Childhood's Deadly Scourge: The Campaign to Control Diphtheria in New York City, 1880 - 1930*, 10-11.

<sup>33</sup> Halpern, *American Pediatrics: The Social Dynamics of Professionalism, 1880-1980*, 94-102.

<sup>34</sup> Colgrove, *State of Immunity: The Politics of Vaccination in Twentieth-Century America*, 107.

the lab; a vaccine against the germ was developed; the vaccine was tested in the population and, once proven safe and effective, administered on a massive scale; lastly, the aim of disease eradication was declared.<sup>35</sup> This narrative indeed held true for diphtheria; later, it would hold true for polio, measles, rubella, and eventually, as discussed in the next chapter, mumps.

Diphtheria eradication was never achieved, neither in New York nor elsewhere. As diphtheria rates declined throughout the 1930s, New York health officials struggled to defend the continuation of their costly and resource-intensive anti-diphtheria campaign, which, with 125,000 infants born each year, seemed to call for “perpetual” effort.<sup>36</sup> Some experts called instead for a move to make the vaccine compulsory for all children, which would circumvent the need for perpetual persuasion, but consensus on the issue could not be met. Indeed, throughout the 1930s, doctors and public health scientists across the country continued to work on clarifying the many uncertainties that remained regarding diphtheria immunization, even in the wake of New York’s campaign. The immunization’s effectiveness and its duration of protection were still being quantified, and health and medical professionals debated in the literature and at conferences whether immunization was indeed responsible for diphtheria’s decline in New York and elsewhere, or whether it was due to “unknown factors governing the natural cycles of disease.”<sup>37</sup>

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<sup>35</sup> See Chapter 1 in Heller, *The Vaccine Narrative*.

<sup>36</sup> Colgrove, *State of Immunity: The Politics of Vaccination in Twentieth-Century America*, 109.

<sup>37</sup> Frank Harder, Abraham Gelperin, and Walter Cook, "Active Immunization against Diphtheria: The Efficacy of Several Methods Used in a City of Medium Size," *American Journal of Public Health* 29, no. 10 (1939): 1119-1124.

Many health officials in New York and beyond seemed to agree nonetheless with the editors of the *American Journal of Public Health*, who called diphtheria immunization “our most important [and widely accepted] success in the prevention of disease by specific immunization.”<sup>38</sup> They saw diphtheria immunization’s safety, popularity, and effectiveness as adequate justification for making the shots compulsory, arguing that at present the responsibility for immunizing children rested with the family physician, who was generally “rather negligent in recommending this valuable life-saving procedure to his clientele.”<sup>39</sup> Family physicians, meanwhile, were split on the issue, with those resisting widespread diphtheria immunization often seeing it as a threat to their professional responsibilities.<sup>40</sup> “In public health work, where there is not the close relationship between parents, doctors, and children that there is in private practice, it is essential...that the methods used be as far as possible above criticism. Seventy per cent immunity, which is a generous estimate for [diphtheria immunization], is not sufficient security for children,” said San Francisco pediatrician H.E. Thelander.<sup>41</sup> As the story of diphtheria immunization demonstrates, the products of nineteenth-century bacteriological discoveries had caused medicine and public health to converge upon a single, contested

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<sup>38</sup> Editorial, "Immunization against Diphtheria," *American Journal of Public Health* 26, no. 7 (1936): 733-734.

<sup>39</sup> Ibid. The attitudes of public health and medical professionals are summarized based on letters and reports in their respective professional journals from this period.

<sup>40</sup> For further discussion of the tension between public health and medicine at this time, see Starr, *The Social Transformation of American Medicine*, 185-186.

<sup>41</sup> Lillian Kositz, "Diphtheria Immunization," *California and Western Medicine* 39, no. 5 (1933): 322-327.

territory in the early twentieth century.<sup>42</sup> Caught up in the dispute between the two professions, statutes and regulations making diphtheria immunization compulsory were therefore rare by the end of the 1930s. By 1942, only North Carolina required the shots for children; New Jersey and a few other states empowered districts to make the shots a condition of school enrollment as they saw fit; and Kansas and a few others authorized schools to exclude unimmunized children during outbreaks.<sup>43</sup> But on the whole, despite diphtheria immunization's apparent acceptance among the public, states were either unwilling to require it of their citizens or simply didn't see a need to do so.

### *Compulsion Revisited?*

Over the same period of time, state health officials increasingly debated—with more energy than they devoted to diphtheria immunization—the merits of expanding compulsory smallpox vaccination. In the 1910s and 1920s, improved state-level data collection on smallpox cases revealed that the infection was still rampant, making the U.S. “the most smallpox ridden country in the world bar possibly China, India and (doubtfully) Russia,” in the words of Massachusetts Medical Society president Samuel Woodward.<sup>44</sup> By the 1930s, state-level data also brought into stark relief the difference in smallpox rates between states with compulsory vaccination laws and those without. In

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<sup>42</sup> Starr, *The Social Transformation of American Medicine*, 181.

<sup>43</sup> William Fowler, "State Diphtheria Immunization Requirements," *Public Health Reports* 57, no. 10 (1942): 325-328.

<sup>44</sup> Samuel Woodward, "An Argument in Favor of Vaccination, with Statistics of the Incidence of Smallpox in the United States, Its Dependencies and Canada," *New England Journal of Medicine* 202, no. 3 (1930): 122-124.

New York, where schoolchildren, teachers, and janitors were required to be vaccinated against the disease, there were just over 3,000 cases of smallpox among the state's 10.3 million residents during the 1920s. In the same period, Utah, which prohibited compulsory vaccination, had over 13,000 cases among its population of less than half a million residents.<sup>45</sup>

In letters and editorials penned throughout the 1930s, doctors and health officials expressed concerns about the ease with which the infection crossed borders; the burden on schools when a single child fell ill; and the economic costs of smallpox. Caring for a smallpox patient cost \$150, one St. Louis health officer noted, whereas vaccinating that same patient would have cost 4 cents.<sup>46</sup> Medical and public health journals reported approvingly on the successes of compulsory vaccination measures in Europe and elsewhere.<sup>47</sup> Only a minority expressed worry that mandating smallpox vaccination more widely would place the medical and public health professions on the edge of a slippery slope. If Massachusetts succeeded in enacting a much debated 1930 bill to require smallpox vaccination of all infants, worried physician J. Walter Schirmer (presciently), "what is to prevent our having laws enacted requiring [diphtheria immunization], and, as vaccines are developed from time to time, for use in the prevention of scarlet fever,

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<sup>45</sup> Ibid.

<sup>46</sup> Ibid.

<sup>47</sup> See for example, Ibid; Woodward, "Arguments in Favor of Compulsory Vaccination for Private School Children."; Fred Moore, "Responsibilities of the Medical Profession in Health Program of Public Schools," *The Journal of the American Medical Association* 94, no. 15 (1930): 1109-1112.



measles, whooping cough, influenza, colds, etc., etc.”<sup>48</sup> Looking to the past, Schirmer worried that vaccines would be rendered useless by new discoveries; looking forward, he saw in their mandated use a looming dystopia: “Perhaps...in the not distant future, we shall be required to report each morning at some laboratory for the hypodermic dose necessary to protect us against the hazards of that particular day. I do not wish to condemn the use or value of these agents to health, but...history has shown that so many of the therapeutic agents of medicine become obsolete in time.”<sup>49</sup>

Worries such as Schirmer’s however, were only infrequently articulated in the 1930s. While health officials often encouraged vaccination against smallpox, diphtheria, and typhoid, vaccination was rarely enforced. The Depression resulted in declining use of medical services overall, as well as diminished capacity on the part of local governments to launch vaccination campaigns. Even if money had not been an issue, professional opposition would have been. In the negotiations to adopt a set of social policies to restore economic security to the country—President Franklin Roosevelt’s New Deal—the American Medical Association voiced fierce opposition to any form of government intervention in the provision of health care.<sup>50</sup> The AMA’s position set the tone for the relationship between medicine and state in the 1930s: none. With nothing oppressive to resist, outspoken vaccine resistance, in turn, became increasingly rare. By now, it was

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<sup>48</sup> J. Walter Schirmer, "A Defense of Anti-Vaccination Sentiments," *New England Journal of Medicine* 202, no. 10 (1930): 507.

<sup>49</sup> *Ibid.*

<sup>50</sup> David Blumenthal and James A. Morone, *The Heart of Power: Health and Politics in the Oval Office* (Berkeley: University of California Press, 2009), 31-40; Starr, *The Social Transformation of American Medicine*, 266-271.

also clear that *Jacobsen v. Massachusetts* had successfully curbed vaccination lawsuits, too; a 1942 survey of state diphtheria immunization laws noted that roughly four decades of diphtheria immunization efforts had not resulted in a single court case.<sup>51</sup>

But perhaps nothing did more to quiet outspoken vaccination skepticism and swell popular sentiment in favor of vaccines than the second World War. Wartime news reports frequently told of the role vaccines were playing in protecting troops and civilians. Thanks to vaccines, the papers reported, American troops were safe from tetanus, pneumonia, Rocky Mountain spotted fever, and yellow fever, and they would soon be protected against flu, one of the “foremost military scourges” of the first World War, too.<sup>52</sup> In Europe, headlines announced, vaccines had thwarted the spread of epidemics among allied troops in France and saved two million civilians from typhoid in war-torn Warsaw.<sup>53</sup> When measles vaccine was discovered in 1940, it was described as a tool that would protect soldiers from the pneumonia epidemics that frequently followed measles outbreaks in military encampments.<sup>54</sup> Vaccines, that is, were deftly woven into the narrative Americans told (and were told) about the role scientific and technological prowess played in making the U.S. the leader of the free world.

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<sup>51</sup> Fowler, "State Diphtheria Immunization Requirements."

<sup>52</sup> Gerald Gross, "U.S. Army Better Equipped Today to Fight Disease Than in 1917," *The Washington Post*, October 8, 1940, 10; "Influenza Immunization Test Started by Navy," *Los Angeles Times*, July 29, 1941, A5.

<sup>53</sup> United Press, "France Fights Epidemics," *New York Times*, August 5, 1940, 4; Alvin Steinkopf, "Reich at War with Typhoid in Polish State," *The Washington Post*, October 14, 1940, 6.

<sup>54</sup> Associated Press, "Tell Discovery of a Vaccine to Avoid Measles," *Chicago Daily Tribune*, September 18, 1940, 1.

As the war progressed, health officials urged residents of U.S. cities to get immunized against smallpox and diphtheria to protect themselves against infections spread by migrating war workers and, later, soldiers returning home from war.<sup>55</sup> Vaccination was necessary to protect against epidemics and also to maintain a robust, war-ready population back home. New York health official Leona Baumgartner was one of many to note that wartime personnel shortages made it apparent “that it is of utmost importance that all needless illness be cut to a minimum.”<sup>56</sup> At the height of the war, Americans seemed to agree. In 1943, Baumgartner reported results of a poll of American attitudes toward immunization: upwards of 90 percent trusted that vaccinations protected against death and serious illness, leading Baumgartner to conclude that most Americans were “ready” for immunization procedures.<sup>57</sup> Their readiness was indeed apparent in 1947, when a smallpox outbreak threatened New York City and more than 6 million New Yorkers patiently (and reportedly cheerfully) lined up to get voluntarily vaccinated.<sup>58</sup> Historian Judith Leavitt has attributed New Yorkers’ alacrity to the voluntary nature of the city’s vaccination campaign as well as the spirit of cooperation and sacrifice engendered by the war.<sup>59</sup> Whatever the full spectrum of reasons, the cooperation was in

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<sup>55</sup> "Adults Are Urged to Be Vaccinated," *New York Times*, May 24, 1942, 28; Adele Bernstein, "U.S. Postwar Epidemics Foreseen," *The Washington Post*, October 3, 1943, M12.

<sup>56</sup> Leona Baumgartner, "Attitude of the Nation toward Immunization Procedures," *American Journal of Public Health* 33 (1943): 256-260.

<sup>57</sup> *Ibid.*

<sup>58</sup> Immunization Against Smallpox, Speech Given by James L. Goddard before the Clinical Meeting of the American Medical Association. See also Judith Leavitt, "'Be Safe, Be Sure.'" New York City's Experience with Epidemic Smallpox," in *Sickness and Health in America*, ed. Judith Leavitt and Ronald Numbers (Madison: University of Wisconsin Press, 1997), 407-417.

<sup>59</sup> Leavitt, "Be Safe, Be Sure," 415.

marked contrast to the struggles, street chases, and even riots that not infrequently came in response to smallpox vaccination campaigns in New York, Milwaukee, and elsewhere less than half a century before.<sup>60</sup>

### *The Poliomyelitis Vaccination Assistance Act*

If the diphtheria immunization campaigns made vaccination seem safe, effective, and even necessary, and if war made vaccination generally both a symbol of American exceptionalism and a patriotic duty, both events helped set the stage for popular reception of the polio vaccine in the 1950s. Polio, a viral infection that killed or crippled tens of thousands of Americans each year, was widely feared both for its devastating effects and because it seemed to be on the rise as other infectious killers faded from view.<sup>61</sup> Unlike the diphtheria vaccine, which needed a publicity campaign to ensure its uptake, the polio vaccine needed none—at least not initially. The high-profile, far-reaching fundraising efforts led by the National Foundation for Infantile Paralysis in the 1940s and early fifties had helped put the disease itself firmly on the national agenda and stoked American desire for a vaccine long before the first polio vaccine, developed by Jonas Salk, became

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<sup>60</sup> For examples of such episodes of resistance, see Colgrove, "'Science in a Democracy': The Contested Status of Vaccination in the Progressive Era and the 1920s."; Leavitt, *The Healthiest City: Milwaukee and the Politics of Health Reform*, 76-121.

<sup>61</sup> Polio was both less common and less commonly deadly prior to 1900 when, paradoxically, improvements in sanitation left middle and upper class children more vulnerable to the disease; poor children, by contrast, often obtained immunity by being exposed early in childhood. Even in the late 1930s, levels of the disease were low compared with what they would reach by the 1950s. Naomi Rogers, *Dirt and Disease: Polio before FDR* (New Brunswick, N.J.: Rutgers University Press, 1992), 10-14, 48-49, 166.

a reality.<sup>62</sup> To say that the polio vaccine was popular, however, is an understatement—the vaccine’s licensure in April 1955 was met with fanfare and demand so intense it led to an outcry over how and to whom the vaccine would be distributed, as newspapers reported on the potential for a black market and cases of doctors charging exorbitant fees for it.<sup>63</sup> Nervous and overwhelmed state level health officials as well as members of the public called on President Dwight Eisenhower to settle the matter of the vaccine’s distribution, which he did by signing the Poliomyelitis Vaccination Assistance Act into law later that year.<sup>64</sup>

The Act represented a watershed moment in U.S. vaccination history, as it carved out, for the first time, an active role for the federal government in the funding and dissemination of vaccine to lay Americans. It also established a foothold for federal health officials, who would later use the country’s experience with polio vaccination to argue for growing federal involvement in vaccination promotion.<sup>65</sup> But the act was no easy political victory. A bitter dispute over national health insurance during the Truman administration had swung the nation to vote a Republican into the White House in 1952. An albeit moderate conservative, Eisenhower expressed little tolerance for federal

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<sup>62</sup>For accounts of the Salk and Sabin vaccine trials and the activities of the NFIP, see for example Jane S. Smith, *Patenting the Sun: Polio and the Salk Vaccine* (New York: W. Morrow, 1990); Oshinsky, *Polio: An American Story*.

<sup>63</sup> See Associated Press, "48 to Check Polio Vaccine Black Market," *The Washington Post*, August 18, 1955, 32; "Racket Is Feared in Polio Vaccine," *New York Times*, March 29, 1955, 26.

<sup>64</sup> Otis Anderson, "The Polio Vaccination Assistance Act of 1955," *American Journal of Public Health* 45, no. 10 (1955): 1349-1350.

<sup>65</sup> Vivier, Patrick, *National Policies for Childhood Immunization in the United States: An Historical Perspective* (PhD dissertation, Johns Hopkins University, 1996), 66-76.

involvement in health care matters.<sup>66</sup> Congress, meanwhile, split over the proposed bill along party lines. While the Republican-controlled House favored limiting distribution of the vaccine to needy children, the Democratic Senate wanted to make the shots available to all children. The partisan dispute among lawmakers made headlines, drew charges of socialism, and at one point forced House Speaker Sam Rayburn to demand legislators take a “cooling-off” recess.<sup>67</sup> The compromise bill, ultimately signed into law by Eisenhower in August 1955, allotted \$30 million for states to vaccinate children under 20 and pregnant women—as they saw fit.<sup>68</sup> As the final bill was being hammered out and upon its approval, the press made much of the fact that although a federally devised formula was being used to determine how much vaccine each state received, ultimately the authority remained with each state, and not the federal government, to decide who would get the shots and where, whether in public clinics or in private doctors’ offices.<sup>69</sup> The message was clear: the vaccine act should not be mistaken for socialized medicine.

Congress’s vaccine distribution scuffle was par for the course in a time when Cold War sentiment prompted most Americans to recoil at any whiff of communism. But despite such widespread sentiment, the polio scare would strengthen federal authority in health matters in another way, as well; namely, by amplifying the power and prestige of the nation’s Communicable Disease Center. Originally a field station of the Public Health

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<sup>66</sup> Blumenthal and Morone, *Heart of Power*, 109.

<sup>67</sup> C.F. Trussell, "House Approves Polio Vaccine Aid," *New York Times*, August 2, 1955, 26; Associated Press, "2 Rows Delay Congress Windup," *Chicago Daily Tribune*, August 1, 1955, 3.

<sup>68</sup> Anderson, "The Polio Vaccination Assistance Act of 1955."

<sup>69</sup> "U.S. Gives States Full Control over Polio Vaccine Distribution," *New York Times*, August 1, 1955, 1; Trussell, "House Approves Polio Vaccine Aid."

Service, established in Atlanta to study malaria control during World War II, the continued existence of the CDC (as it was dubbed in 1946), came into doubt after the war. Its focus, communicable diseases of the tropical and zoonotic variety, seemed of declining import in an era of rising cancer and heart disease rates. In the early 1950s, the agency thus played only a minor role in the testing of Salk's polio vaccine, which was led by the NFIP. But when a faulty lot of vaccine began causing cases of paralytic polio and even deaths in late April 1955, the CDC stepped in to play a crucial role in stemming the outbreak and maintaining confidence in the vaccine.<sup>70</sup> The agency's response to the scare (and to the Asian flu epidemic that followed) solidified its reputation as an authority on the prevention of communicable diseases generally.<sup>71</sup>

Less than two weeks after the Salk vaccine had been approved and licensed for use in early April 1955, government officials began to receive reports of cases of paralytic polio in children who had recently been inoculated against the disease.<sup>72</sup> On receiving word of the very first case, the CDC dispatched an officer in its still-new Epidemic Intelligence Service, which had been founded in 1950 as a bulwark against the Cold War threat of biological warfare. By the time health officials received word of the fifth case, it was apparent that all of the affected children had received vaccine manufactured by the Berkeley, California-based Cutter Laboratory. Vaccine clinics throughout California were canceled, and Surgeon General Leonard Scheele asked Cutter

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<sup>70</sup> Elizabeth W. Etheridge, *Sentinel for Health* (Berkeley: University of California Press, 1992), 74-76.

<sup>71</sup> *Ibid.*

<sup>72</sup> Paul Offit, *The Cutter Incident: How America's First Polio Vaccine Led to the Growing Vaccine Crisis* (New Haven: Yale University Press, 2005), 83-84.

to recall all vaccine. He then assured Americans that the cause of the outbreak would be identified, and the safety of the nation's remaining stocks of vaccines secured, by a new polio surveillance program led by the CDC. Over the next six weeks, CDC officials collected detailed data on cases of polio across the country; by the end of May, the outbreak had been definitively traced to live virus that had contaminated vaccine manufactured at the Cutter plant.<sup>73</sup>

With the new surveillance system in place, the CDC went on to evaluate the safety and effectiveness of vaccine by analyzing data from 8.5 million vaccinated and unvaccinated children—far more than had been included in the NFIP's previously unprecedentedly large trials of the vaccine. By the end of summer, CDC scientists confirmed that the Salk vaccine was both safe and remarkably effective. When Alexander Langmuir, head of the CDC's epidemiology division, announced in November that, according to surveillance data, the nation would be spared a polio epidemic in 1956, the agency shared in the glory of the successes wrought by Salk's vaccine. A year later, CDC's data proved that the vaccine was 75 percent effective against polio, even when children had received only one of the three recommended shots. The results, said Langmuir at Congressional hearings, "exceeded expectancy on the basis of our previous knowledge, and [give] us a great sense of assurance that with the large supply of vaccine

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<sup>73</sup> On the CDC's role in the so-called Cutter incident, see Etheridge, *Sentinel for Health*, 67-80. For an in-depth analysis of the episode, see Offit, *The Cutter Incident: How America's First Polio Vaccine Led to the Growing Vaccine Crisis*. The NIH's role in the incident is discussed in Edward Shorter, *The Health Century*, 1st ed. (New York: Doubleday, 1987), 60-70.



and broader use of the vaccine, we will have accelerated decline in the disease.”<sup>74</sup> Later still, the CDC’s surveillance unit would come to be recognized as the one “good” to have come out of the Cutter incident.<sup>75</sup>

Over the next few years, CDC officials would increasingly press for federal support for broad-based immunization campaigns, not just those targeting polio. At House hearings to extend the polio vaccination act through 1957, Langmuir and Surgeon General Scheele were asked to give the assembled representatives an idea as to when polio vaccine programming would conclude. Langmuir responded by pointing out that even after 150 years, smallpox vaccination—and research to improve upon it—were still necessary to prevent epidemics from returning.<sup>76</sup> The remark provided insight into a still-nascent political agenda being crafted in Washington and Atlanta: short of disease eradication, vaccination was an ongoing enterprise. Policies, therefore, had to support either one route or the other.

### *The Vaccination Assistance Act of 1962*

The CDC’s hope for expanded federal support for immunization was fulfilled in October 1962, when President John F. Kennedy unceremoniously signed the Vaccination Assistance Act into law. The 1962 act, like the Polio Vaccination Assistance Act before

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<sup>74</sup> Hearing before a subcommittee of the Committee on Interstate and Foreign Commerce, House of Representatives, Eighty-fourth Congress, *Extension of Poliomyelitis Vaccination Assistance Act*, January 24, 1956.

<sup>75</sup> Etheridge, *Sentinel for Health*, 67-79. For details on CDC’s efforts to monitor and control polio in 1955, see *Extension of Poliomyelitis Vaccination Assistance Act*.

<sup>76</sup> *Extension of Poliomyelitis Vaccination Assistance Act*, 60.

it, provided grants to states to conduct mass immunization campaigns; Kennedy first announced the plan, along with a list of proposed welfare measures, in his State of the Union address earlier that year.<sup>77</sup> In that speech, Kennedy's unanticipated description of a program "aimed at the virtual elimination of such ancient enemies of our children as polio, diphtheria, whooping cough, and tetanus" caught even some of his own administration officials off guard, a fact that prompted the *Wall Street Journal* to equate the "mystifying" announcement to the dropping of a "bomb."<sup>78</sup> A month later, when Kennedy unveiled his proposal for what would become Medicare, he simultaneously announced several measures to improve the "health and vitality" of the population: here, his immunization plan joined a list of proposed measures including a major budget increase for the National Institutes of Health and added funds for medical schools and medical education, mental health and "mental retardation," air pollution prevention, and children's physical fitness.<sup>79</sup>

Medicare was crucial for protecting the nation's elderly; the rest of the proposals Kennedy outlined that day were described as crucial for safeguarding the health of the nation's youth. By 1962, the tail end of the baby boom years, close to 40 percent of the nation's population was under 20.<sup>80</sup> This large stratum of the population, key to the

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<sup>77</sup> John F. Kennedy, Annual Message to the Congress on the State of the Union, January 11, 1962, The American Presidency Project, University of California, Santa Barbara.

<sup>78</sup> News Roundup, "Kennedy Calls for 'Mass Immunization' against Diseases; No Details Supplied," *Wall Street Journal*, January 12, 1962, 2.

<sup>79</sup> John F. Kennedy, Special Message to the Congress on National Health Needs, February 27, 1962, The American Presidency Project, University of California, Santa Barbara.

<sup>80</sup> John F. Kennedy, Special Message to the Congress on the Nation's Youth, February 14, 1963, The American Presidency Project, University of California, Santa Barbara.

country's future security and prosperity, was in less-than-ideal shape, noted Kennedy; they were physically unfit generally and handicapped by preventable communicable diseases and venereal infections, and because of these "correctable health defects," a full fifth of applicants for U.S. military service were being rejected.<sup>81</sup> To hear him expound on the state of the nation's children, the poor health of young Americans was no small threat to the U.S.'s position as world power.<sup>82</sup> The idea was not a new one; it had been expressed before, as the military took stock of its recruits in World Wars I and II.<sup>83</sup>

The argument that communicable diseases were a threat to children held as much weight in 1962 as it had in the 1950s. Polio was still a feared disease, even though, thanks to the widespread administration of the Salk polio vaccine, cases had fallen from over 30,000 in 1955 to less than 900 cases in 1961.<sup>84</sup> The NFIP had spent the late 1950s reminding Americans that polio wasn't "licked yet," and when a series of new, orally administered vaccines that protected against all three types of polio virus, developed by Albert Sabin, became available in 1961 and 1962, Americans turned out in droves once again to get immunized. On "Sabin Sundays" held across the U.S. in 1962 and 1963, 85 to 95 percent of the residents in rural counties, small towns, and even cities took the

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<sup>81</sup> John F. Kennedy, Special Message to the Congress on National Health Needs.

<sup>82</sup> John F. Kennedy, Special Message to the Congress on the Nation's Youth.

<sup>83</sup> See for example Chapter 1 in Brandt, *No Magic Bullet: A Social History of Venereal Disease in the United States since 1880*.

<sup>84</sup> The 1955 figure is taken from Oshinsky, 255. The 1961 figure is taken from the Fact Book Relating to the Vaccination Assistance Act of 1962, Folder: Information 3 - Immunization, 1963, Box 334062 No. 2, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region.

anxiously awaited vaccine, whose development had been dramatically chronicled in the press.<sup>85</sup>

Notably, polio wasn't the only "ancient enemy" on Americans mind's in 1962. That year, smallpox returned to the U.S. for the first time in well over a decade when an infected boy, traveling with his family from Brazil to Canada, landed in New York's Idlewild airport, rode in a taxi, and hopped on board a train in Grand Central Station. Media outlets reported on CDC officials' efforts to track down anyone who had come in contact with the boy and place them in quarantine; they also traced CDC scientists' repeated efforts when smallpox broke out aboard an ocean liner from Naples, Italy that dropped off passengers in Washington, D.C. later that year.<sup>86</sup> In 1962 and 1963, health departments across the country reminded citizens of the importance of vaccination in an era when "rapid international travel" could reintroduce smallpox to the country at any time from foreign ports.<sup>87</sup>

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<sup>85</sup> For figures on vaccination coverage rates in 1962 and 1963, see Memo from Albert Sabin to William Seidman, August 16, 1976, Folder: CDC Liability Proposal, Box 8, Swine Flu Immunization Program Files, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region. Sabin Sundays were chronicled in many media outlets; see for example Anonymous, "Medicine: Wiping out Polio," *Time*, July 6, 1962, accessed online at [www.time.com](http://www.time.com). Sabin's race to develop an alternative to the Salk vaccine is described in Oshinsky, *Polio: An American Story*; Smith, *Patenting the Sun: Polio and the Salk Vaccine*.

<sup>86</sup> Lawrence O'Kane, "Broad Search on in Smallpox Case," *New York Times*, August 21, 1962, 21; Associated Press, "3,000 Vaccinated as Result of Smallpox Scare in the East," *Los Angeles Times*, August 21, 1962, 3; Nate Haseltine, "Is America Safe from Smallpox?," *The Washington Post*, September 2, 1962, E7.

<sup>87</sup> News release from Louisiana State Board of Health, September 19, 1963, Folder: Information 3 - 1963, Box 334062, Office of the Director Files, No. 2, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region.

The other three infections included in Kennedy's immunization proposal, by contrast, were well off the public's radar in 1962. By then, about 8,000 children a year still suffered from pertussis, or whooping cough.<sup>88</sup> But cases of diphtheria and tetanus (preventable with a combined vaccine available since 1947) had dropped to a few hundred each; none of the three was the subject of high profile campaigns or even occasional media coverage; in fact, the three infections received only the rarest mentions in the press.<sup>89</sup> The Vaccination Assistance Act, too, was hardly considered newsworthy. The program's initial announcement was overshadowed by the president's plan for health insurance for the elderly. When the vaccine act was signed into law eight months later, the Cuban Missile Crisis monopolized headlines and broadcasts, crowding out any mention of the new immunization agenda.

Objections to the Vaccination Assistance Act were few and far between in 1962, a time when faith in science and government had not yet tumbled from its post-war apex. Protestations came from some religious groups, including Christian Scientists, who eschewed medical interventions on principle and saw in the act an unprecedented expansion of mandatory "mass medication."<sup>90</sup> (This charge ignored the fact that the law specifically did not authorize states to require vaccination of people who objected to the

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<sup>88</sup> News Roundup, "Kennedy Calls for 'Mass Immunization' against Diseases; No Details Supplied."

<sup>89</sup> Disease incidence figures are taken from Fact Book Relating to the Vaccination Assistance Act of 1962. A search of 17 different newspapers, including the *Atlanta Constitution*, *Chicago Tribune*, and *Pittsburgh Courier*, turned up just 10 articles that mentioned either tetanus, diphtheria, or whooping cough in 1962; in 1963, the same search turned up just 4 mentions of these three diseases.

<sup>90</sup> Editorial, "Two Kinds of Immunity," *Christian Science Monitor*, May 12, 1962, 16; Editorial, "Health Insurance, Plus Mass Inoculations," *Christian Science Monitor*, February 28, 1962, 14; Editorial, "A Subsidy for Medical Compulsions," *Christian Science Monitor*, March 10, 1962, 16.

practice.) Political objections were also voiced: a group calling itself the Commission on Constitutional Government bemoaned the law's "encroachment upon responsibilities that rightfully should be shouldered by the states, the localities, and by private volunteer efforts."<sup>91</sup> A few individuals sent letters to the president saying that in a "free country" such as the United States, health decisions such as vaccination should be a "personal matter."<sup>92</sup> These objections echoed the protests of Progressive Era and earlier vaccination opponents, but they were fainter still and had no effect on the course of federal policy.<sup>93</sup>

The Vaccination Assistance Act's critics were further troubled by a provision in the law that permitted other diseases to be added to the original four as vaccines against them became available. In this respect, they would prove prescient. For no sooner was the immunization program proposed than health officials predicted it would soon support the prevention of measles, whose vaccine was then just over a year from being approved for use.<sup>94</sup>

Political objections to the Act were also not off point. The Vaccination Assistance Act *did* expand federal involvement in immunization efforts beyond the level set by the polio vaccination act. It also established a leadership role for the Public Health Service, and the CDC in particular, in coordinating and overseeing nationwide immunization

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<sup>91</sup> Hugh White, "Vaccination Act," *Christian Science Monitor*, August 2, 1962, 16.

<sup>92</sup> Letter to the President, Leslie Gampp, Laura Oard, et al., June 16, 1962, Folder LE/HE – LE/HE 6, Box 481, White House Central Files, John F. Kennedy Presidential Library.

<sup>93</sup> The arguments of vaccination resisters from these earlier periods are further discussed in Chapter 5.

<sup>94</sup> Marjorie Hunter, "U.S. Hoping to Aid Fight on Measles," *New York Times*, March 2, 1962, 31.

efforts.<sup>95</sup> Indeed, this was the administration’s objective; the bill’s purpose, according to Kennedy’s Health, Education, and Welfare Secretary Abraham Ribicoff, was to “provide Federal leadership in assuring that these medical discoveries [vaccines] will be so utilized as to achieve the maximum benefits and protection to the public.”<sup>96</sup> The bill’s Senate sponsor, Lister Hill, was less circumspect in justifying the Act, which, in his telling, would serve national defense and the economy. For although the Act emphasized the immunization of preschoolers, it also provided for the immunization of all Americans. It would thus protect the population against outbreaks of diphtheria in times of war or tetanus in the event of a nuclear attack, he argued; it would also preserve “the productive capacity of individuals who are now handicapped as a result of these diseases.”<sup>97</sup>

Ribicoff’s assertion—that federal involvement was necessary to ensure that vaccines were used by the public—came directly from the nation’s recent experience with polio. For although polio vaccine drives had succeeded in dramatically driving down rates of the disease, outbreaks still occurred. And the CDC surveillance studies that began as a result of the federal government’s polio vaccination act revealed why. Vaccine drives had failed to reach two groups, they found: children under five, and people of all ages in the “lower socioeconomic segments of the population.” The pattern was well demonstrated by a CDC study of major polio epidemics that occurred in Des Moines,

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<sup>95</sup> Other scholars have made this same point. See Vivier, *National Policies for Childhood Immunization in the United States: An Historical Perspective*; Colgrove, *State of Immunity: The Politics of Vaccination in Twentieth-Century America*, 144-147.

<sup>96</sup> Vaccination Assistance Act of 1962, Senate Report Submitted by Mr. Hill, to Accompany H.R. 10541, August 22, 1962, 87th Congress, 2nd Session, Washington, DC: U.S. Government Printing Office.

<sup>97</sup> *Ibid.*, 2.

Iowa and Kansas City, Missouri in 1959. In both cities, the scientists reported, polio attack rates were twenty to thirty times higher in “Negroes and the poorer white residents” than among the cities’ “upper white” populations.<sup>98</sup> Attack rates were also highest among children under five, when in previous (pre-vaccine) epidemics in the same two cities, children aged 5 to 9 had experienced more polio than any other group.<sup>99</sup> The “pattern of incomplete protection” created by these groups constituted an “epidemic hazard” in communities across the country, Ribicoff noted. Without government leadership, he went on, there would be no guarantee that the newly born or the hard-to-reach would be vaccinated each year, and the hazards posed by the unimmunized would never be overcome.<sup>100</sup>

The Vaccination Assistance Act of 1962 was thus informed by the nation’s experience with polio, buttressed by findings from epidemiological investigations, and validated by concerns for national security and economic productivity. Unlike its legislative predecessor (the polio vaccine act of 1955), the 1962 law represented a proactive effort to establish ongoing federal leadership for local, state, and municipal vaccination decisions.<sup>101</sup> With its passage, the CDC began to provide not only money, but

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<sup>98</sup> In this way, the scientific activities of the CDC reflected and reaffirmed preconceived notions about the origins of infection and disease in a society. This tendency is further explored through the example of mumps and hepatitis B in later chapters. For a separate but related historical example, see Tomes, *The Gospel of Germs: Men, Women, and the Microbe in American Life*, 110-112.

<sup>99</sup> Tom Chin and William Marine, “The Changing Pattern of Poliomyelitis Observed in Two Urban Epidemics, Kansas City and Des Moines, 1959,” *Public Health Reports* 76, no. 7 (1961): 553-564.

<sup>100</sup> Vaccination Assistance Act of 1962, Senate Report Submitted by Mr. Hill, to Accompany H.R. 10541, 9.

<sup>101</sup> F. Robert Freckleton, “Federal Government Programs in Immunization,” *Archives of Environmental Health* 15 (1967): 512-514.



promotional and educational materials, courses, seminars, and even government-trained personnel to states and metropolitan areas, giving immunization programs across the country what one agency official called “a unity of purpose.”<sup>102</sup>

The federal government’s authority in this area was further consolidated in 1964, when Surgeon General Luther Terry appointed the Advisory Committee on Immunization Practices, a group of experts chaired by the head of the CDC and charged with producing recommendations on the “most effective” use of vaccines in “communicable disease control.” The committee was the first of its kind; prior to its establishment, immunization recommendations were issued by the armed forces as well as two professional groups, the American Academy of Pediatrics and the American Public Health Association. But the AAP’s recommendations were limited to the private pediatric care setting; the armed forces concerned itself with only the needs of its troops; and APHA’s recommendations were issued only every five years, thus failing to keep pace with the “rapidly changing field” of vaccine development.<sup>103</sup> With the formation of ACIP, the U.S. had, for the first time, a singular, governmental authority advising the nation’s health and medical professionals on who should be vaccinated against what and when.

### *Vaccination and Disease Eradication*

Both the ACIP and the federal immunization grant program established by the VAA remain in place to this day; decades after its formation, CDC officials would

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<sup>102</sup> Ibid., 514.

<sup>103</sup> Meeting Minutes, Meeting No. 1 of the Advisory Committee on Immunization Practices, May 25 - 26, 1964, Folder: Info 3 ACIP Immunization 1964-5, Box 334062 No. 2, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region.

continue to refer to the grant program established by the VAA (often referred to as “Section 317”) as “one of the most successful prevention programs in public health.”<sup>104</sup> States still retained the sovereignty to launch immunization campaigns and purchase and distribute vaccine as they saw fit, but from 1963 on, they would increasingly do so with federal advice and resources.

Private physicians, too, had to be reached with such advice, which is what brought CDC chief James Goddard before the American Medical Association in 1963. His comments, quoted in brief at the beginning of this chapter, reflected the state of vaccination politics (with a lowercase “p”) in the early 1960s. Immunizations, along with surveillance and quarantine, were part of a multipronged approach to infectious disease control, Goddard said; vaccines alone had never eradicated a disease, he noted, and in the case of smallpox, improvements in environmental conditions and standard of living were crucial to the disease’s disappearance. But changing times meant that vaccines were becoming increasingly important as a means of protecting all Americans—not just children—against these sometimes forgotten diseases. For nothing but immunization would have guaranteed New Yorkers protection from the smallpox imported by the boy from Brazil, he said. And nothing but vaccines would protect the wives and mothers who now—“with the shifting patterns of society”—accompanied their families on camping and fishing trips, for example, where the risk of tetanus was ubiquitous. Goddard also

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<sup>104</sup> The Vaccination Assistance Act comprised Section 317 of the 1944 Public Health Service Act, which consolidated laws relating to the Public Health Service and established a framework for coordination of federal and state public health activities. Testimony by Walter Orenstein on the Immunization Grant Program of the PHS Act, Before the Senate Committee on Labor and Human Resources, Subcommittee on Public Health and Safety, May 6, 1997, Assistant Secretary for Legislation, Department of Health and Human Services, archived online at <http://www.hhs.gov/asl/testify/t970506a.html>.

diplomatically outlined a sort of division of labor between public health and medicine. The CDC would advise, conduct surveillance, respond to outbreaks, and maintain the expertise to confirm diagnosis of infections, like smallpox, that were seen less and less often in doctors' offices. Organized medicine, meanwhile, needed to convince as many patients to take the tetanus, diphtheria, and pertussis vaccines as had shown up for polio vaccine on Sabin Sundays.<sup>105</sup>

But doctors sometimes questioned the wisdom of mass vaccination. In 1965, one physician inquired whether a revision of smallpox vaccination practices was in order, considering the rarity of the disease in the U.S. against the vaccine's risks. (The vaccine caused one death in every million shots and an undefined number of cases of encephalitis, or swelling of the brain). The CDC's Donald Henderson replied that even if smallpox vaccination were halted in the U.S., members of the military, medical practitioners and travelers—a "very large" number of people—would still need to be vaccinated because of the presence of smallpox abroad. And given that adults appeared likelier than children to suffer vaccine-related complications, he added, mass vaccination of children continued to make sense.<sup>106</sup>

The circumstances dictating Henderson's response, however, were about to change. Even as Goddard, speaking in 1963, expressed ambivalence about the power of vaccines alone to eradicate disease, the World Health Assembly had pledged its support

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<sup>105</sup> Immunization Against Smallpox, Speech Given by James L. Goddard before the Clinical Meeting of the American Medical Association.

<sup>106</sup> General Commentary Regarding Smallpox Vaccination, November 1965, Folder: Info 3 ACIP Imm 1964-5, Box 334062 No. 2, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region.

for a push to vaccinate 80 percent of the earth's population against smallpox.<sup>107</sup> In 1966, the assembly formally adopted a resolution to eliminate the disease, and the CDC donated experts, equipments, and vaccine to the World Health Organization, which led the eradication program.<sup>108</sup> In fact, it was the existence of the WHO (created as an agency of the newly formed United Nations after World War II), and a series of technological developments (including the jet injector and freeze-drying techniques) that were credited with finally making eradication worth an attempt.<sup>109</sup> A diplomatic plea from the Soviet minister of health also played a role; as in the U.S., he noted, smallpox had been eliminated within the U.S.S.R.'s borders, but the disease's presence in other countries posed a perpetual threat of imported outbreaks.<sup>110</sup> A few years into the program, containment of the disease in poor, populous countries with high rates of smallpox demonstrated that the disease could be eradicated even "under the most difficult conditions expected."<sup>111</sup>

The U.S.'s commitment to smallpox eradication abroad was mirrored by a campaign to eradicate measles at home, announced officially by President Lyndon B.

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<sup>107</sup> Hopkins, *The Greatest Killer: Smallpox in History*, 304.

<sup>108</sup> Horace G. Ogden, *CDC and the Smallpox Crusade* (Washington, D.C.: U.S. Government Printing Office, 1987), 7-21.

<sup>109</sup> Smallpox Eradication and Measles Control in Africa, Brochure Published by the National Communicable Disease Center and the Agency for International Development.

<sup>110</sup> Hopkins, *The Greatest Killer: Smallpox in History*, 302-303; Ian Glynn and Jenifer Glynn, *The Life and Death of Smallpox* (New York: Cambridge University Press, 2004), 195-196.

<sup>111</sup> Hopkins, *The Greatest Killer: Smallpox in History*, 305. See also Donald Hopkins, *Princes and Peasants: Smallpox in History* (Chicago: University of Chicago Press, 1985). On the eradication campaign, see Henderson, *Smallpox: The Death of a Disease*.

Johnson early the following year.<sup>112</sup> Measles was a markedly different disease from smallpox. It was a disease of “only mild severity,” which caused “infrequent complications” and only rarely caused deaths, noted Langmuir and CDC head David Sencer, in a presentation before the membership of the American Public Health Association.<sup>113</sup> Over the last half century, they went on, “man” had developed a “deep respect for the biological balance of the human race with measles virus”—but this accepted doctrine, they argued, was ready to be overturned. In the plans they laid out, there were now three bases for the disease’s eradication: an etiological one, a technological one, and an epidemiological one. The measles virus had been isolated and studied, and, like smallpox virus, was now known to infect only humans, creating neither chronic carriers (as diphtheria could) nor “inapparent” infections (as polio sometimes did). The isolation of the measles virus, furthermore, had led to several “potent” vaccines. Finally, epidemiological studies of the disease had demonstrated both how it spread and how many “susceptibles” were needed to sustain an outbreak. As with smallpox, it was clear that the disease could be eliminated with less than 100 percent vaccination coverage. Based on this statistical knowledge, the CDC officials confidently declared that

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<sup>112</sup> Measles Eradication 1967, Supplement to the Morbidity and Mortality Weekly Report, April 15, 1967, Folder: Information 3 Imm 1964-1967, Box 343357, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region. See also National Communicable Disease Center, Immunization against Disease 1966-67, 1968, Folder: Info 3 Imm - 1967, Box 334062 No. 2, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region.

<sup>113</sup> David J. Sencer, H. Bruce Dull, and Alexander Langmuir, "Epidemiologic Basis for Eradication of Measles in 1967," *Public Health Reports* 82, no. 3 (1967): 253-256.

measles could—and would—be eradicated from the United States before the end of 1967.<sup>114</sup>

The decision to eradicate a “mild” disease largely because science possessed the means to do so speaks to the confidence in science and technology that still reigned from the nation’s victories against enemies both political and pathogenic in World War II. That these sentiments persisted, albeit in an evolving form, was well expressed by Boisfeuillet Jones, Kennedy’s assistant secretary of Health, Education, and Welfare, who noted in 1963 that the U.S. “has the most vigorous, productive, and imaginative total research effort that has ever been witnessed by the world.” Jones went on to declare a new “golden age” of science, one focused on medical research and biology: “The potential consequences of advances in biology are as significant to mankind as advances in nuclear physics. There is in prospect the virtual certainty of control of what are now the major diseases of mankind.”<sup>115</sup>

Such control had already proven to be within reach, as American Society of Tropical Medicine and Hygiene president E. Harold Hinman noted. In 1965, Hinman took stock of the diseases that developed countries, including the U.S., had all but wiped out within their borders with the help of drugs, pesticides, and vaccines. The list was long: typhoid fever, tuberculosis, diphtheria, smallpox, whooping cough, typhus, cholera,

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<sup>114</sup> Historian Elizabeth Etheridge also notes that when the Vaccination Assistance Act was renewed in 1965, federal funds became available expressly for measles vaccination; “Thus, a disease previously given little thought worked its way to the top of the health agenda.” Etheridge, *Sentinel for Health*, 169.

<sup>115</sup> Speech given by Assistant Secretary of HEW Boisfeuillet Jones, University of Pennsylvania, April 29, 1963, Folder FA5 12-16-62 – 4-30-63 GENERAL, Box 99, White House Central Files, John F. Kennedy Presidential Library.

plague, malaria, and yellow fever, among others.<sup>116</sup> Hinman's conclusion echoed that of Langmuir and Sencer in their speech before the APHA. Nature no longer need be perceived as something to be tolerated or "respected," but was, rather, a force to be overcome with technical breakthroughs and scientific expertise. In this view, disease control was a minimum expectation; eradication represented the pinnacle of scientific achievement.

This prevailing sentiment toward nature goes far in contextualizing the decision to eliminate a "mild" disease such as measles, but there were more practical reasons behind such campaigns as well. One such reason was, simply, money. As Hinman put it, when it came to managing diseases, "Control is a continuing, costly procedure. Eradication is a one-time capital expenditure."<sup>117</sup> Measles, the CDC calculated, cost a city an annual \$350,000 for every million residents; vaccinating those residents would cost less than a third as much—and the differential was even bigger when the costs of lost income were factored in.<sup>118</sup> A separate justification concerned the uncertain future created by a partially vaccinated population: in essence, vaccination against diseases created an imperative to eradicate those diseases. Members of a CDC immunization committee (not the ACIP) noted that because the research community was uncertain about how long the "artificial immunity" created by vaccines would last, it was possible that vaccination of children was creating a situation in which, "in the not too distant future, many

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<sup>116</sup> E. Harold Hinman, "How Much Control of Communicable Diseases?," *American Journal of Tropical Medicine and Hygiene* 15, no. 2 (1966): 125-134.

<sup>117</sup> Ibid.

<sup>118</sup> Measles Eradication 1967, Supplement to the Morbidity and Mortality Weekly Report.

adults...may become once again susceptible to such diseases as diphtheria, pertussis, and measles.”<sup>119</sup> The notion prompted the committee members to remark on the “sensitive balance of nature”—and to conclude that the only answer to the potential dilemma was to immunize early and repeatedly, until nature had effectively been conquered.

### *Reframing Measles*

Such justifications held sway within the profession, but the public was given a very different set of reasons why measles needed to be eradicated in 1967: namely, that measles was a serious disease with horrific and sometimes fatal complications. The CDC’s campaign—designed to reach 8 to 10 million children in need of measles vaccination—produced radio and television spots, billboard ads, films, comic strips, coloring books, and more with the message that measles was an insidious threat. Radio and television stations across the country aired public service announcements notifying the public that “measles is a serious disease that sometimes causes pneumonia, deafness, encephalitis and even death.”<sup>120</sup> Personalities from the Surgeon General to Ann Landers spread the same message, emphasizing that measles could leave children blind, deaf, and mentally impaired.<sup>121</sup> “There is no excuse for needlessly prolonging the fight against this

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<sup>119</sup> Immunization: Theory and Practice, Report by V.F. Guinea, D.S. Martin, and Other Members of the CDC Immunization Seminar Services Committee, Folder: Info 3 Tr. - 1963, Box 334065 No. 5, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region.

<sup>120</sup> Radio-TV Bulletin, The Advertising Council, March-April 1967, Folder: Information 3 Imm 1964-1967, Box 343357, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region.

<sup>121</sup> Ann Landers: Get Kids Vaccinated Against Measles Now!, April 4, 1967, Folder: Information 3 Imm 1964-1967, Box 343357, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region.



disease, which for centuries has attacked virtually all children and left many of them mentally retarded,” said Surgeon General William Stewart.<sup>122</sup> The federal government didn’t go it alone in this effort; new vaccine-maker Merck, hoping to make good on the resources it had invested in developing an effective measles vaccine, launched a marketing campaign with the slogan “Measles Only Gave Her Spots — Will Your Child Be As Lucky?”<sup>123</sup>

The high profile campaign—endorsed by the American Medical Association, the American Academy of Pediatrics, the American Public Health Association, and more than 50 other organizations—took inspiration from the NFIP’s successful anti-polio campaigns of the decades before.<sup>124</sup> Television hosts, radio personalities, country singers, and cartoon characters spread the message that measles was a disease that could and *should* be conquered.<sup>125</sup> In one of its clearest nods to the anti-polio efforts, the measles campaign selected a poster child, ten-year-old Kim Fisher, a bright and intelligent girl who at age four suffered a case of measles so severe it left her mentally impaired,

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<sup>122</sup> Press release, November 1, 1966, Folder: Information 3 Imm 1964-1967, Box 334062 No. 2, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region.

<sup>123</sup> Quoted in Louis Galambos and Jane Eliot Sewell, *Networks of Innovation: Vaccine Development at Merck, Sharp & Dohme and Mulford, 1895-1995* (New York: Cambridge University Press, 1995), 115.

<sup>124</sup> Harold Schmeck, "Measles Have Just About Had It," *New York Times*, March 26, 1967, 151.

<sup>125</sup> See for example Happiness Is No More Measles, Series of Comic Strips by Charles Schulz, 1967, Folder: Information 3 Imm 1964-1967, Box 343357, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region; Memo to Vaccination Assistance Program Field Personnel from Immunization Activities Office, CDC, June 25, 1965, Folder: Information 3 Imm 1964-1967, Box 334062, No. 2, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region.

partially blind, and partly deaf.<sup>126</sup> CDC officials operated under the belief that if the public (and doctors) were aware of such dangers, they would seek the vaccine. “We must make measles a more important disease to the medical and public mind,” one CDC scientist wrote to a colleague.<sup>127</sup> And they were certain they could do so: one memo circulated among immunization officials remarked with awe on the power of advertising—a field whose glamour, creativity, and reach were ascendant—to influence popular knowledge, urging CDC staffers to think of creative ways to influence public thinking on the disease.<sup>128</sup>

The public wasn’t asked to eradicate a mild disease in 1967—they were asked to eradicate a serious one. But they weren’t quick to see it that way, and neither were all health professionals. The disconnect between measles’ public image and its private one was addressed in a memo that Goddard sent to rally immunization personnel around the country to the cause. “Measles has not suddenly become a more serious disease. It has always been a scourge of childhood,” Goddard wrote. “It commands special attention now because modern medical research has provided us with vaccines which can prevent

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<sup>126</sup> Trudy Stamm, “Kim Aids Measles Drive,” *Children Limited* 15, no. 5 (1966): 1. For a description of the inaugural poster child, see Oshinsky, 82-86 and Heather Green Wooten, *The Polio Years in Texas: Battling a Terrifying Unknown*, 1st ed. (College Station: Texas A&M University Press, 2009), 92-94.

<sup>127</sup> Letter to Dr. Frank Perkins, August 10, 1970, Folder: General Correspondence-Dr. Wallace, Box 338638, Record Group 442, Centers for Disease Control National Archives and Records Administration, Southeast Region.

<sup>128</sup> Memo to Vaccination Assistance Program Field Personnel from Immunization Activities Office, CDC. On the history of advertising, see Stephen R. Fox, *The Mirror Makers: A History of American Advertising and Its Creators*, Illini books ed. (Urbana: University of Illinois Press, 1997); Christina B. Mierau, *Accept No Substitutes! The History of American Advertising* (Minneapolis, MN: Lerner Publications, 2000).

the disease.”<sup>129</sup> With health experts unevenly enthusiastic, it only followed that the public responded similarly. In Delaware’s anti-measles campaign, the message “that measles can be a dangerous disease with widespread complications was met by general public apathy,” noted a state health officer. “Measles, unlike poliomyelitis, is not a “glamorous” disease....It was found that for the most part the public still considered it a minor, childhood disease.”<sup>130</sup> Officials in Washington and Atlanta may have been eager for a new era of vaccination to begin, but the support they needed from health professionals and the public was only halfhearted, at best.

Measles was not eradicated in 1967.<sup>131</sup> But an internal report published by the CDC late that year stated that cases and deaths had markedly declined and—as a bonus—reporting of measles cases and outbreaks had greatly improved. As a result, a new picture of measles began to form: measles complications, once considered rare, now seemed common. Deaths, thought to occur in one of every 100,000 cases, now seemed to occur in one of every 10,000 cases.<sup>132</sup> Indeed, the calculated representation of measles as a dangerous infection began to seem like a self-fulfilling prophecy. The measles vaccine became possible only with increased knowledge of the disease; with deployment of the vaccine (combined with disease surveillance) came even more knowledge about the disease and its dangers, which ultimately validated the impression that public health

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<sup>129</sup> Memo to Vaccination Assistance Program Field Personnel from Immunization Activities Office, CDC.

<sup>130</sup> Edward F. Gliwa and Harold Horoho, "The Vaccination Assistance Act," *Delaware Medical Journal* 38, no. 9 (1966): 275-276.

<sup>131</sup> Centers for Disease Control, "Current Trends - Measles," *Morbidity and Mortality Weekly Report* (1967): 2.

<sup>132</sup> National Communicable Disease Center, *Immunization against Disease 1966-67*.

officials had created in order to encourage even further vaccination. Within a decade, measles would no longer be referred to as a minor or mild disease, either by lay observers or health and medical professionals. And its vaccine would come to be widely accepted as a routine part of childhood health care.

### *Vaccinating Children*

The measles eradication campaign, which was supported by a 1965 renewal of the Vaccination Assistance Act, focused on the vaccination of children. The original intent of the Act, however, was to encourage the vaccination of both children and adults, namely preschool children and low-income adults. Measles, like diphtheria and pertussis, was clearly a childhood disease. Smallpox and tetanus were not exclusively childhood infections, and nor was polio, as the slogan of the NFIP's early 1960s vaccination promotion campaign—Babies and Breadwinners—belied. That stated intent of the VAA, and the fact that the NFIP shifted the focus of its publicity efforts in the early sixties, reveals that the diverse community of professionals involved in the promotion and application of vaccination was still grappling, halfway through the century, with a rather fundamental question: who were vaccines for?

The NFIP's polio campaigns did much to imprint the notion that vaccines were for children firmly onto the American psyche. Certainly, school-age children were most at risk of polio, but they were not exclusively at risk, as once starkly evidenced by former President Roosevelt's paralytic polio. Nonetheless, the images of poster children, Polio Pioneers, and, later, the rationing of limited polio vaccine to 5 to 9 year olds highlighted this group's risk to the extent that vaccination as a service for adults was increasingly

overlooked. But the nation's experience with polio wasn't the only factor driving home the impression that vaccination was for children; it had much to do with the rise of pediatric care, as well.

Although pediatrics first began to emerge as a category of care in the late nineteenth century, it did not become firmly established as a medical specialty until the 1930s. Pediatrics in this period became characterized by regular, repeated medical examinations of healthy children. Children were x-rayed, weighed, and measured, and their blood and urine were tested, all in an effort to ensure their "normal" development and keep them free of illness and disease.<sup>133</sup> Such preventive pediatrics was initially designed for the working class, as sociologist Sydney Halpern has noted.<sup>134</sup> And although well-child care did initially take place in health centers supported by the U.S. Children's Bureau (created in 1912), and clinics supported by the Sheppard-Towner Maternity and Infancy Act (passed in 1921), by the 1940s this had changed. The professionalization of pediatrics, which followed the professionalization of medicine generally, had largely moved well-child care from public settings into private offices, making it increasingly the domain of the middle class.

That preventive pediatrics was initially rooted in public institutions in the early decades of the twentieth century also speaks to the fact that the field emerged, according to Halpern, in response to a broad social movement focused on child health and welfare. The rise of pediatrics was also, she notes, part of a "more general trend toward new forms

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<sup>133</sup> Jeffrey Brosco, "Weight Charts and Well-Child Care: How the Pediatrician Became the Expert in Child Health," *Archives of Pediatric Adolescent Medicine* 155, no. 12 (2001): 1385-1389.

<sup>134</sup> Halpern, *American Pediatrics: The Social Dynamics of Professionalism, 1880-1980*, 32.

of societal regulation of children.”<sup>135</sup> The products of this movement, the roots of which (like pediatrics) reached back to the late nineteenth century, included the Children’s Bureau and Sheppard-Towner Act, as well as laws governing compulsory schooling for children, child labor, and delinquency reform, among others. Indeed, the first decades of the twentieth century, dubbed the “Century of the Child” by reformers, were characterized by increasing federal involvement in children’s lives.<sup>136</sup> Though such federal activities came in response to a broad social movement, they also reflected the belief—also held by Progressive activists—that the welfare of children ensured a strong future for the state.

Pediatricians’ struggle to establish the sovereignty of their profession overlapped with the tense convergence of public health and medicine generally. In the 1930s, pediatricians themselves increasingly saw vaccination as an integral component of the preventive pediatric care they offered, as revealed by San Francisco pediatrician Dr. Thelander’s comments (quoted on page 37). But if vaccination was a predominantly public good in the first decades of the century, and a predominantly private good in the decades that followed, it became, at mid-century, a shared responsibility of both public health and medicine—or more accurately, pediatrics. After the demise of Sheppard-Towner and the Children’s Bureau, pediatricians’ offices became the most logical setting for vaccination; a series of shots followed by boosters could be easily administered at the

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<sup>135</sup> Ibid., 14.

<sup>136</sup> Joseph M. Hawes and N. Ray Hiner, *American Childhood: A Research Guide and Historical Handbook* (Westport: Greenwood Press, 1985), 491; Joseph M. Hawes and N. Ray Hiner, eds., *Children in Historical and Comparative Perspective* (Westport: Greenwood Press, 1991); Hugh Cunningham, *Children and Childhood in Western Society since 1500* (New York: Longman Group Publishing, 1995), 163.

same time as a child's regular barrage of tests and measurements. And indeed, this compilation of services would become mutually reinforcing.

Pediatric care offered a convenient setting, a set of professionals eager to own the practice of vaccination, and a captive audience that was increasingly targeted as a source of epidemics in communities. Turn-of-the-century increases in immigration and urbanization had led social reformers to push for compulsory schooling; compulsory schooling, in turn, led to increasingly crowded schools. In the 1900s and 1910s, Progressive reformers made schools the site of compulsory medical examinations to test hearing, vision, and dental health. Schools provided an expedient means of reaching children, but they also, vexingly, provided an expedient means of spreading contagious disease. People "cannot imagine the variety of perplexing situations that arise in connection with attempts to eliminate contagious disease from school children," said the Des Moines, Iowa schools medical director in 1930.<sup>137</sup> Every case of an infectious disease put boards of education up in arms, he noted: "Now what shall we do? Should the children be vaccinated? Should the building be fumigated? Should school be closed temporarily?"<sup>138</sup>

Answers to such questions would come from the CDC, whose Epidemiologic Intelligence Service dispatched more and more epidemiologists to identify the sources of community outbreaks across the country. The EIS's objective was disease control; the means it employed was to identify the origins of epidemics. In the postwar baby-boom years, they responded to requests from schools and institutions for help managing the

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<sup>137</sup> Moore, "Responsibilities of the Medical Profession in Health Program of Public Schools."

<sup>138</sup> *Ibid.*, 1109.

spread of communicable diseases. Their findings provided scientific proof that children's school attendance helped disseminate infections throughout communities. A 1962 diphtheria outbreak in Sioux City, for example, was traced to a 6-year-old girl who alone passed the infection to five siblings, four neighbors, and 36 classmates, all of them either unimmunized or insufficiently immunized against the disease. But when looking for the source of the 6-year-old's infection, the investigators were stumped. The city lacked a "true skid-row section," they noted, and there were no "districts catering to transients nearby."<sup>139</sup> The notion that poverty spread disease was an old one; it was also one that was buttressed by the findings of the CDC's polio surveillance during the 1950s, and whose persistence is evident in this investigation and others from the 1960s. "Transients" and other low-income groups, as polio surveillance showed, made notoriously difficult vaccination targets. But children were easy ones, and epidemiology was proving their critical role in disseminating disease. After all, said the CDC's David Sencer during the measles eradication campaign, "if measles isn't in the schools, it can't be brought home."<sup>140</sup> Measles campaign-era activities thus provided an ever-more conclusive answer to the question of who vaccines were for. They were for children—though at what age remained up for debate in the decades to come.

### *Conclusion*

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<sup>139</sup> T.E. Corothers and Gabriel S. Zatlin, "An Outbreak of Diphtheria: A Story of Investigation and Control," *Clinical Pediatrics* 5, no. 1 (1966): 29-33.

<sup>140</sup> Anonymous, "End to Measles Possible, Says MD," *AMA News*, October 31, 1966.



The Vaccination Assistance Act made vaccines available to private physicians, but only after a community's need for free vaccination was met.<sup>141</sup> In this way, the Act aligned with the progressive agenda for which the Kennedy administration became known; it also aligned with the administration's focus on youth. The vaccination act joined other social policies that originated in the White House to support youth physical fitness, education, and employment. For the administration saw the condition of the nation's youth as the measure of the state's future strength: "If our young men and women are to attain the social, scientific and economic goals of which they are capable," noted Kennedy in 1963, "they must all possess the strength, the energy and the good health to pursue them vigorously."<sup>142</sup> As in an earlier era marked by progressive politics, the interests of state and children were equated as one and the same.

On announcing the Vaccination Assistance Act, Kennedy also remarked that there "was no longer any reason" why American children should have to suffer from polio, diphtheria, whooping cough or tetanus. The act was meant to equalize access to health services across social strata, but vaccination served other purposes as well. As Kennedy's comment reveals, in the "golden age" of medicine, these infections should be regarded as unnecessary inconveniences; vaccines had made it so. In this respect, vaccines supported productive, prosperous, convenient American lifestyles. They safeguarded the family that camped together, protected the working mother's time, shielded the overseas traveler, and protected the children in burgeoning schools. Furthermore, they were a product of

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<sup>141</sup> Fact Book Relating to the Vaccination Assistance Act of 1962.

<sup>142</sup> John F. Kennedy, Special Message to the Congress on the Nation's Youth.

American research efforts, and were therefore the province of every American. And they saved money to boot.

The federal government under Kennedy thus outlined a clear set of reasons why it was in the state's interest to maintain authority over the question of who should be vaccinated against what, and when. The authority they consolidated through their actions represented the culmination of decades of expansion of federal activity in the realm of vaccination. It also built on changes in the provision of medical care to children, developments in epidemiology, and popular attitudes toward science and technology. Though the Vaccination Assistance Act would expire before the 1970s, federal authority over vaccination would not. For the agenda of mass vaccination on a national scale to be accomplished, however, lay Americans would have to be convinced that vaccination against all preventable diseases—not just the dreaded ones—was worth pursuing. In the 1970s, as the next two chapters demonstrate, this would be accomplished through new policies, as well as the re-framing of vaccine-preventable diseases.

## Chapter 2

### **“How Serious Is Mumps?” Vaccination and the Framing of a Childhood Disease**

When the live virus mumps vaccine was first licensed for use early in 1968, it met with only mild interest from the public, followed at times by confusion.<sup>1</sup> Popular press coverage presented uneven portrayals of the infection’s gravity and offered conflicting reports on who should get the mumps vaccine and when they should get it. When Science Service reporter Faye Marley wrote up her investigation of why the mumps vaccine was so little used well over a year after its introduction, she opened her piece by asking a question on many parents’ minds: “How serious is mumps?” The answer she dug up: “It depends on how your doctor views it.”<sup>2</sup>

In sharp contrast to, say, polio, popular consensus on the threat posed by mumps was lacking. And the reason why so many went without mumps vaccine, concluded Marley, was because doctors themselves didn’t agree on whether or when to give it. Some wanted to give it to all children, some just to boys, others only to males at puberty and after. Still others saw little need for the vaccine at all, noting that nearly one-third of mumps cases produced no symptoms but nonetheless conferred lasting immunity.

Within a decade, however, the notion that all children should be protected against mumps early in life came to prevail among both doctors and public health professionals. During the same period, mumps gradually but firmly acquired a new public image, one

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<sup>1</sup> The live virus mumps vaccine, first licensed in 1968, will be referred to simply as the mumps vaccine or Mumpsvox from here forward.

<sup>2</sup> Faye Marley, "Vaccine for Mumps Not Widely Used," *Los Angeles Times*, May 30, 1969, B4.

that downplayed the frequency of its mild and invisible cases in favor of emphasis on the disease's rare but serious complications. Mumps, that is, was transformed from a nuisance widely considered so harmless it was a frequent butt of jokes to an infection defined by its as-yet unquantified potential to harm the organs, cause deafness, and jeopardize the sterility of men.

In his series of essays on the framing of disease, historian Charles Rosenberg has argued that a society's explanations of disease are necessarily dependent on "time-bound intellectual tools," and that even the most "technical aspects" of a disease, its causation, and possible modes of prevention "exist in both social and intellectual space." How a disease is perceived at a given moment in time thus reflects contemporary scientific knowledge as well as popular values, cultural preoccupations, political priorities, and the like.<sup>3</sup> Beginning in the late 1960s, the mumps vaccine refashioned the intellectual tools with which health experts and society at large made sense of the disease. This is significant because the manner in which mumps was framed after 1968 was crucial to the vaccine's acceptance in the growing arsenal of childhood immunizations that would become universally mandated by the end of the 1970s. Precisely how and why mumps was effectively reframed in this period sheds light on the pivotal but overlooked role that vaccines have played in shaping popular and professional perceptions of disease.<sup>4</sup>

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<sup>3</sup> See Rosenberg, "Framing Disease: Illness, Society, and History," xvii.

<sup>4</sup> This analysis is influenced by Rosenberg's theoretical work on the framing of disease. See for example Rosenberg, "Disease in History: Frames and Framers."; Rosenberg, "Framing Disease: Illness, Society, and History."; Rosenberg, "What Is Disease?."; Charles E. Rosenberg, *Explaining Epidemics and Other Studies in the History of Medicine* (New York: Cambridge University Press, 1992).

Certainly, the mumps vaccine was not solely responsible for altering popular and professional attitudes toward the disease; nor was the vaccine's manufacturer, Merck. Rather, the vaccine and the actions of its manufacturer were critical in focusing attention on mumps at a time when humankind's relationship to infectious disease generally had been transformed by the recent triumphs against smallpox globally and polio at home. The near-elimination of these dreaded diseases in the U.S. prompted some soul-searching on the part of doctors and health professionals regarding the appropriate use of vaccines in this new era. Because of the timing of the mumps vaccine's approval, mumps became an important part of this dialogue; additionally, outbreaks of the disease became an important testing ground for the application of vaccination against the so-called "milder" diseases, of which mumps was one. By nudging mumps into the spotlight in the late 1960s and 1970s, Merck's mumps vaccine thus played a key role in making mumps infection both a repository for and reflection of the medical, social, political, and cultural preoccupations of its day. These preoccupations, in turn, informed gradually shifting policies governing mumps' prevention.

The reframing of mumps during the middle decades of the twentieth century is evident in representations of the illness from the period; such representations, historian Sander Gilman has argued, are a "paramount" if inadequately examined means of probing cultural understandings of a disease and the responses to it at a particular historical moment.<sup>5</sup> The marked evolution in mumps representations from the pre- to the post-vaccine era illuminates the many roles that vaccination has played in supporting the

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<sup>5</sup> Sander Gilman, "Representing Health and Illness," *Journal of Medical Humanities* 32, no. 2 (2011): 69-75.

perceived underpinnings of social order in America. Over time, mumps has represented a threat to U.S. military supremacy, commerce and trade, reproductive capacity, and middle-class security; at different points, mumps vaccine has been applied (or sought after) as a thwart against each of these threats and more. Mumps' history from the 1940s through the 1970s—the subject of this chapter—is thus illustrative of the political, economic, and cultural significance of vaccines and vaccination programs generally in the twentieth century history of the U.S. Above all, however, the story of mumps is an example of how a vaccine can reframe the way Americans think about a disease and the importance of its prevention.

### *Preventing Mumps*

Between 1963 and 1969, several vaccines against measles, a vaccine against rubella, and a vaccine against mumps were developed and licensed in rapid succession. The deployment of the measles vaccine (as the star of the seminal, federally sponsored eradication campaign described in the previous chapter) and the development of the rubella vaccine (which prevented birth defects and was linked to abortion politics) both overshadowed the debut of the vaccine against mumps.<sup>6</sup> In fact, mumps was a disease of relatively little concern to most Americans when its live-virus vaccine made it to market in 1968. Its vaccine was never anxiously anticipated, nor did it become the subject of high profile campaigns, nor did it ever get caught up in scares over contamination or inherent risks. But its story is nonetheless important from an historical perspective

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<sup>6</sup> On the rubella vaccine, which is not addressed at length in this work, see Chapter 2 in Heller, *The Vaccine Narrative*; Leslie J. Reagan, *Dangerous Pregnancies: Mothers, Disabilities, and Abortion in America* (Berkeley: University of California Press, 2010).

precisely because it was a vaccine against a little-worried-about disease that, within a few years, was nonetheless administered to millions of American children.

Popular accounts of the mumps vaccine's development often begin in 1963, when six-year-old Jeryl Lynn Hilleman came down with a sore throat and swollen glands. The girl's symptoms would have been unremarkable if not for who her father was: Maurice Hilleman, head of Virus and Cell Biology at the burgeoning pharmaceutical company Merck, where his lab had just successfully developed the first live virus measles vaccine.<sup>7</sup> Hilleman, a widower who found himself tending to his daughter's care, was suddenly inspired to begin work on a vaccine against mumps, which he began by swabbing Jeryl Lynn's throat. Jeryl Lynn's viral strain was isolated, cultured, and then attenuated (weakened) in Merck's labs, and after field trials throughout Pennsylvania proved the resulting shot effective, the "Jeryl-Lynn strain" vaccine against mumps, also known as Mumpsavax, was approved for use.<sup>8</sup>

This popular lore ignores the fact that Hilleman was not the first to try or even succeed at developing a vaccine against mumps. Efforts to develop a mumps

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<sup>7</sup> Hilleman, credited with developing several dozen vaccines (against human and animal infections) is a legendary figure in the fields of vaccine development and public health. His measles vaccine, notably, was licensed the same month his daughter came down with mumps. Hilleman's work at Merck is recounted in Galambos and Sewell, *Networks of Innovation: Vaccine Development at Merck, Sharp & Dohme and Mulford, 1895-1995*, 79-121. A popular account of his life and scientific work is given in Paul A. Offit, *Vaccinated: One Man's Quest to Defeat the World's Deadliest Diseases*, 1st Smithsonian Books ed. (Washington, D.C.: Smithsonian Books, 2007). See also Lawrence Altman, "Maurice Hilleman, Master at Creating Vaccines, Dies at 85," *New York Times*, April 12, 2005, A1; Associated Press, "Vaccine Researcher Saved 'Millions of Lives'," *Chicago Tribune*, April 12, 2005, 7.

<sup>8</sup> The development of the mumps vaccine is described in several popular accounts, including Allen, *Vaccine: The Controversial Story of Medicine's Greatest Lifesaver*, 226-228; Offit, *Vaccinated: One Man's Quest to Defeat the World's Deadliest Diseases*, 20-30. See also Galambos and Sewell, *Networks of Innovation: Vaccine Development at Merck, Sharp & Dohme and Mulford, 1895-1995*, 99-103.

immunization began long before Hilleman joined Merck, and his own work was indebted to the findings of scientists before him. Research on a mumps vaccine began in earnest during the 1940s, prompted by the U.S.'s entry into World War II. At that time, Public Health Service (PHS) researchers revisited data and literature on communicable infections among troops during the first world war. They noted that mumps, though not a significant cause of death, was one of the top reasons troops were sent to the infirmary and absent from duty in that war—often for well over two weeks at a time.<sup>9</sup> Mumps had long been recognized as a common but not “severe” disease of childhood that typically caused fever and swelling of the salivary glands. But when it struck teens and adults, its usually rare complications—including inflammation of the reproductive organs and pancreas—became more frequent and more troublesome. Because of its rapid spread through crowded barracks and training camps, and because of its tendency to inflame the testes, mumps was thus second only to venereal disease in disabling recruits. PHS researchers estimated that during World War I, mumps cost the U.S. close to 4 million ‘man days’ from duty, contributing to more total days lost from duty than foreign forces saw.<sup>10</sup>

The problem of mumps among soldiers quickly became apparent during the second world war, too.<sup>11</sup> But in the interim between the two wars, the mumps virus had

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<sup>9</sup> Clara Council, "War and Infectious Disease," *Public Health Reports* 56, no. 12 (1941): 547-573.

<sup>10</sup> Milton Levine, "A Sponsored Epidemic of Mumps in a Private School," *American Journal of Public Health* 34, no. 12 (1944): 1274-1276. See also Council, "War and Infectious Disease." Flu and measles were of equal importance to mumps as causes of illness among troops during the first world war; measles and flu, but not mumps, were among leading causes of death in that war.

<sup>11</sup> A.C. McGuinness and E.A. Gall, "Mumps at Army Camps in 1943," *War Medicine* 5 (1943): 95.



been identified as the cause of the disease.<sup>12</sup> PHS surgeon Karl Habel noted that while civilians didn't have to worry about mumps, the infection was a serious problem for the armed forces, and that alone justified the search for an immunization.<sup>13</sup> "To the military surgeon, mumps is no passing indisposition of benign course but ranks with many of the more formidable diseases," confirmed two Harvard epidemiologists.<sup>14</sup> In the early 1940s, Harvard researchers began experimenting with promoting mumps virus immunity in Macaque monkeys. They had been tipped off to the problem of mumps by one Brigadier General F.F. Russell and funded by the Office of Scientific Research and Development (OSRD), the wartime agency created by President Roosevelt to encourage scientific research in support of national defense.<sup>15</sup> For as long as mumps sent soldiers to the infirmary in the course of active duty, the disease was a threat in urgent need of an easily applied solution.

Within a few years, the Harvard researchers, led by biologist John Enders, had developed a diagnostic test using antigens from the monkey's salivary glands, as well as a rudimentary vaccine.<sup>16</sup> In a subsequent set of experiments, conducted both by the

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<sup>12</sup> C.D. Johnson and E.W. Goodpasture, "Investigation of Etiology of Mumps," *Journal of Experimental Medicine* 59 (1934): 1-19.

<sup>13</sup> Karl Habel, "Cultivation of Mumps Virus in the Developing Chick Embryo and Its Application to Studies of Immunity to Mumps in Man," *Public Health Reports* 60, no. 8 (1945): 201-212.

<sup>14</sup> J. E. Gordon and L. Kilham, "Ten Years in the Epidemiology of Mumps," *American Journal of the Medical Sciences* 218, no. 3 (1949): 338-359.

<sup>15</sup> A. Hunter Dupree, *Science in the Federal Government: A History of Policies and Activities* (Baltimore: Johns Hopkins University Press, 1986), 371.

<sup>16</sup> J. F. Enders et al., "Immunity in Mumps I: Experiments with Monkeys (*Macacus Mulatta*). The Development of Complement-Fixing Antibody Following Infection and Experiments on Immunization by Means of Inactivated Virus and Convalescent Human Serum," *Journal of Experimental Medicine* 81, no. 1 (1945): 93-117. J. F. Enders, S. Cohen, and L. W. Kane, "Immunity in Mumps II: The Development of

Harvard group and by Habel at the National Institute of Health, vaccines containing weakened mumps virus were produced and tested in institutionalized children and plantation laborers in Florida.<sup>17</sup> The laborers had been brought from the West Indies to work on sugar plantations during the war; with men packed ten to a bunkhouse in the camps, mumps was rampant, pulling workers off the fields and sending them to the infirmary for weeks at a time. When PHS scientists injected the men with experimental vaccine, one man in 1,344 went into anaphylactic shock, but he recovered with a shot of adrenaline and “not a single day of work was lost,” reported Habel. To the researchers, the vaccine seemed safe and fairly effective, even though some of the vaccinated came down with mumps.<sup>18</sup> What remained, noted Enders, was for someone to continue experimenting until scientists had a strain infective enough to provoke a complete immune response and weak enough not to cause any signs or symptoms of the disease.<sup>19</sup>

Those experiments, however, would wait for well over a decade. Research on the mumps vaccine, urgent in wartime, became a casualty of shifting national priorities and the vagaries of government funding. As the war faded from memory, polio, a civilian

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Complement-Fixing Antibody and Dermal Hypersensitivity in Human Beings Following Mumps," *Journal of Experimental Medicine* 81, no. 1 (1945): 119-135; L. W. Kane and J. F. Enders, "Immunity in Mumps III: The Complement Fixation Test as an Aid in the Diagnosis of Mumps Meningoencephalitis," *Journal of Experimental Medicine* 81, no. 1 (1945): 137-150.

<sup>17</sup> Habel, "Cultivation of Mumps Virus in the Developing Chick Embryo and Its Application to Studies of Immunity to Mumps in Man."; John Enders et al., "Attenuation of Virulence with Retention of Antigenicity of Mumps Virus after Passage in the Embryonated Egg," *Journal of Immunology* 54 (1946): 283-291.

<sup>18</sup> K. Habel, "Vaccination of Human Beings against Mumps: Vaccine Administered at the Start of an Epidemic. I. Incidence and Severity of Mumps in Vaccinated and Control Groups," *American Journal of Hygiene* 54, no. 3 (1951): 295-311. Although the experiments were performed in 1945 and 1946, Habel did not publish the results until 1951.

<sup>19</sup> Enders et al., "Attenuation of Virulence with Retention of Antigenicity of Mumps Virus after Passage in the Embryonated Egg."

concern, became the nation's number one medical priority. By the end of the 1940s, the Harvard group's research was being supported by the National Foundation for Infantile Paralysis (NFIP), which was devoted to polio research, and no longer by OSRD.<sup>20</sup> Enders stopped publishing on the mumps virus in 1949 and instead turned his full-time attention to the cultivation of polio virus.<sup>21</sup> Habel, at the NIH, also began studying polio. Throughout the fifties, U.S. scientists on the whole devoted little time to mumps.<sup>22</sup> With polio occupying multiple daily headlines, mumps was moved well off the nation's political and scientific agendas.

Although mumps received scant resources in the 1950s, Lederle Laboratories commercialized the partially protective mumps vaccine, which was about 50 percent effective and offered about a year of protection.<sup>23</sup> When the American Medical Association's Council on Drugs reviewed the vaccine, they didn't see much use for it. The AMA advised against administering the shot to children, noting that in children mumps and its "sequelae" were "not severe." The AMA acknowledged the vaccine's potential utility in certain populations of and adults and children—namely, military

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<sup>20</sup> See for example H. R. Morgan, J. F. Enders, and P. F. Wagley, "A Hemolysin Associated with the Mumps Virus," *Journal of Experimental Medicine* 88, no. 5 (1948): 503-514.

<sup>21</sup> Polio virus cultivation ultimately led to Salk's polio vaccine and won Enders a Nobel prize. Oshinsky, *Polio: An American Story*, 275.

<sup>22</sup> See for example A. A. Smorodintsev and N. S. Kliachko, "[Specific Prevention of Mumps; Preliminary Communication]," *Zh Mikrobiol Epidemiol Immunobiol* 11 (1954): 6-11; N. S. Kliachko and L. K. Maslennikova, "[Specific Prevention of Mumps. II. Study of Safety and Immunogenicity of Living Attenuated Mumps Vaccine by Intradermal Immunization of Children]," *Vopr Virusol* 2, no. 1 (1957): 13-17.

<sup>23</sup> Council on Drugs, "New and Nonofficial Drugs: Mumps Vaccine," *Journal of the American Medical Association* 164, no. 8 (1957): 874-875.

personnel, medical students, orphans, and patients in institutions—but the fact that such populations would need to be revaccinated every year made the vaccine’s deployment impractical.<sup>24</sup> The little professional discussion generated by the vaccine revealed a similar ambivalence, with several observers coming, in essence, to the disease’s defense. Edward Shaw, a physician at the University of California School of Medicine, argued that given the vaccine’s temporary protection, “deliberate exposure to the disease in childhood...may be desirable”: it was the only way to ensure lifelong immunity, he noted, and it came with few risks.<sup>25</sup> The most significant risk, in his view, was that infected children would pass the disease to susceptible adults. But even this concern failed to move experts to urge vaccination. War had made mumps a public health priority for the U.S. government in the 1940s, but the resulting technology (imperfect as it was) generated little interest or enthusiasm in a time of peace, when other health concerns loomed larger.

After the war but before the new live virus vaccine was introduced, mumps went back to being what it long had been: an innocuous and sometimes amusing childhood disease. The amusing nature of mumps in the 1950s is evident even in seemingly serious forums. A 1955 New York State health department brochure on mumps adopted a light tone and a comical caricature of chipmunk-cheeked “Billy” to describe a brush with the disease. In Chicago, health columnist and Chicago Medical Society president Theodore Van Dellen noted that when struck with mumps, “the victim is likely to be dubbed

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<sup>24</sup> Ibid.

<sup>25</sup> Edward B. Shaw, “Mumps Immunization,” *Journal of the American Medical Association* 167, no. 14 (1958): 1744.

‘moon-face.’”<sup>26</sup> Emblematic midcentury examples, these representations of mumps are also notable for the fact that they downplayed the severity of the infection. Van Dellen noted that while mumps did have some unpleasant complications—including the one that had garnered much attention during the war—“the sex gland complication is not always as serious as we have been led to believe.”<sup>27</sup> The health department brochure pointed out that “children seldom develop complications,” and should therefore not be vaccinated: “Almost always a child is better off having mumps: the case is milder in childhood and gives him life-long immunity.”<sup>28</sup>

Such conceptualizations helped shape popular representations of the illness, and indeed in the press an almost exaggeratedly lighthearted attitude toward mumps prevailed. Across the country in the 1950s, local papers reported on the oldest adult (age 99) to come down with mumps; the boy whose French poodle went missing when mumps prevented him from whistling to call his dog home; and the young couple who exchanged their marital vows by phone when the groom came down with mumps just before the wedding.<sup>29</sup> Mumps was comedy and a curiosity for readers of all stripes: the *Los Angeles Times* speculated on whether the word mumps was singular or plural; Chicagoans got a laugh over the *Daily Defender*’s photo of a fat-cheeked Mrs. Charlotte Meyer and her fat-

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<sup>26</sup> T.R. Van Dellen, "How to Keep Well: Salivary Gland Enlargement," *Chicago Daily Tribune*, February 26, 1950, 20.

<sup>27</sup> Ibid.

<sup>28</sup> "Mumps," ed. N.Y. State Department of Health (Albany: State of New York, 1955).

<sup>29</sup> ANP, "He Can't Whistle - He's Got the Mumps!," *Atlanta Daily World*, November 21, 1961, 6; UPI, "Not Immune," *Chicago Defender*, May 18, 1963, 11; Anonymous, "Bridegroom Missing, They Wed by Phone," *Los Angeles Times*, June 30, 1953, A1.

cheeked cocker spaniel, heads wrapped in matching dressings to soothe their swollen glands.<sup>30</sup> Did dogs and cats actually get the mumps? Articles speculated on that as well.<sup>31</sup> But the top reason mumps made headlines throughout the decade and into the 1960s was its propensity to bench professional male athletes: track stars, baseball players, boxers, football stars, and coaches all made the news when struck by mumps.<sup>32</sup> So did Washington Redskins player Clyde Goodnight, whose story revealed the paradox of mumps at midcentury. Goodnight's coaches giddily planned to announce his mumps infection to the press and then send him into the field to play anyway, where the Pittsburgh Steelers, they gambled, would be sure to leave him open for passes. But the plan was nixed before game-time by the Redskins' P.R. department, who feared the jubilant Goodnight might run up in the stands after a good play and give fans the mumps. Noted one of the team's publicists: "That's not good business."<sup>33</sup> Mumps was widely regarded with casual dismissal and a smirk, that is, even as large enterprises worried about the infection's potential to cut into profits.

When Baltimore Orioles outfielder Frank Robinson came down with the mumps in 1968 during an away game against the Los Angeles Angels, however, the tone of the team's response was markedly different. Merck's new Mumpsvox vaccine was recently

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<sup>30</sup> Frank Colby, "Take My Word for It," *Los Angeles Times*, June 2, 1950, A5; UPI, "It Only Hurts When We Swallow," *Daily Defender*, December 31, 1963, 4.

<sup>31</sup> Associated Press, "Tony, the Boxer," *Chicago Daily Tribune*, March 25, 1957, C10.

<sup>32</sup> See for example "World of Sports," *The Washington Post and Times Herald*, February 14, 1958, D3; Associated Press, "VPI Tackle Richards Sidelined with Mumps," *The Washington Post and Times Herald*, August 30, 1955, 15; Associated Press, "Mumps Bench Ram Star," *Chicago Daily Tribune*, December 21, 1955, B1; UPI, "Albert Has Mumps," *Los Angeles Times*, July 13, 1958, C2.

<sup>33</sup> Anonymous, "Redskin Takes His Mumps," *The Washington Post*, September 28, 1950, 12.

licensed for sale, and the team's management moved quickly to vaccinate not just the players, but also their entire press corps and club officials.<sup>34</sup> The Orioles' use of the new vaccine adhered to the guidelines Surgeon General William Stewart had announced upon the vaccine's approval: it was for pre-teens, teenagers, and adults who hadn't yet had a case of the mumps.<sup>35</sup> For the time being, at least, it wasn't recommended for children. Despite their apparent odds of having come into contact with mumps in the field, however, the Angels decided not to vaccinate their own players. Indeed, baseball's lack of consensus on how or whether to use the vaccine was symptomatic of the nation's response as a whole.

The cultural ambivalence toward mumps on display in the 1950s and 60s had translated into an ambivalence toward the disease's new prophylactic. The nation's reception of the shot was well-captured in the 1968 hit movie *Bullitt*. In the opening scene, as San Francisco cop Frank Bullitt readied himself for the work day ahead, his partner Don Delgetti reached for the day's paper and began reading the top stories aloud: "Mumps vaccine on the market...the government authorized yesterday what officials term the first clearly effective vaccine to prevent mumps—" "Shut up, Delgetti" Bullitt cut him off, "and have your orange juice."<sup>36</sup> Clearly, Bullitt had more important things to worry about than the mumps. So did the rest of the country: the *Los Angeles Times*

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<sup>34</sup> UPI, "Mumps Hits F. Robinson," *Daily Defender*, April 23, 1968, 24.

<sup>35</sup> UPI, "Mumps Vaccine Gains Government Approval," *Los Angeles Times*, January 5, 1968, 12.

<sup>36</sup> Peter Yates, "Bullitt," (US: Warner Brothers, 1968).

announced the vaccine's approval on page 12 and the *New York Times* buried the story on page 72, as the war in Vietnam and the race to the moon took center stage.<sup>37</sup>

Also ambivalent about the vaccine—or, more accurately, the vaccine's use—were the health professionals grappling with what it meant to have such a tool at their disposal. Just prior to Mumpsvox's approval, the federal Advisory Committee on Immunization Practices at the Centers for Disease Control (CDC) recommended that the vaccine be administered to any child approaching or in puberty; men who had not yet had the mumps; and children living in institutions, where “epidemic mumps can be particularly disruptive.”<sup>38</sup> Almost immediately, groups of medical and scientific professionals began to take issue with various aspects of these national guidelines. For some, the vaccine's unknown duration was troubling (ongoing trials had by then demonstrated two years of protection); to others, the very nature of the disease against which the shot protected raised philosophical questions about vaccination that had yet to be addressed. The Consumers Union flinched at the recommendation that institutionalized children be vaccinated, arguing that “mere convenience is insufficient justification for preventing the children from getting mumps and thus perhaps escorting them into adulthood without immunity.”<sup>39</sup> The editors of the *New England Journal of Medicine* advised against mass

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<sup>37</sup> UPI, “Mumps Vaccine Gains Government Approval.”; Harold Schmeck, “A Mumps Vaccine Is Licensed by U.S.,” *New York Times*, January 5, 1968, 72. Among the nation's papers, only the *Washington Post* placed the story on the front page: Associated Press, “Vaccine for Mumps Licensed,” *The Washington Post*, January 5, 1968, A1.

<sup>38</sup> Advisory Committee on Immunization Practices, “Recommendation of the Public Health Service Advisory Committee on Immunization Practices,” *Morbidity and Mortality Weekly Report* (1967): 430-431.

<sup>39</sup> Anonymous, “New Mumps Vaccine Not for Everyone,” *Consumer Reports*, July, 1968, 377.



application of mumps vaccine, arguing that the “general benignity of mumps” did not justify “the expenditure of large amounts of time, efforts, and funds.” The journal’s editors also decried the exaggeration of mumps’ complications, noting that the risk of damage to the male sex glands and nervous system had been overstated. These facts, coupled with the ever-present risk of hazards attendant with any vaccination program, justified, in their estimation, “conservative” use of the vaccine.<sup>40</sup>

This debate over how to use the mumps vaccine was often coupled with the more generalized reflection Mumpsvox helped spark over the appropriate use of vaccines in what health experts began referring to as a new era of vaccination. In contrast to polio or smallpox, the eradication of mumps was far from urgent, noted *The Lancet*’s editorial board. In this “next stage” of vaccination, marked by “prevention of milder virus diseases,” they noted, “a cautious attitude now prevails.” If vaccines were to be wielded against diseases that represented only a “minor inconvenience,” such as mumps, then such vaccines needed to be effective, completely free of side effects, long-lasting, and must not in any way increase more severe adult forms of childhood infections.<sup>41</sup>

Immunization officials at the CDC acknowledged that with the approval of the mumps vaccine they had been “forced to chart a course through unknown waters.”<sup>42</sup> They agreed that the control of severe illnesses had “shifted the priorities for vaccine development to

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<sup>40</sup> Editorial, “Mumps Vaccine: More Information Needed,” *The New England Journal of Medicine* 278, no. 5 (1968): 275-276.

<sup>41</sup> Editorial, “Vaccination against Mumps,” *The Lancet* 292, no. 7576 (1968): 1022-1023.

<sup>42</sup> Adolf Karchmer, Mumps: A Review of Surveillance, Vaccine Development, and Recommendations for Use, Folder: Paper for Immunization Conference, Box 343357, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region.

the remaining milder diseases,” but how to prevent these milder infections remained an open question. They delineated but a single criterion justifying a vaccine’s use against such a disease: that it pose less of a hazard than its target infection.<sup>43</sup> To other observers, this was not enough; a vaccine should not only be harmless, it should also produce immunity as well as or better than natural infection, maintained Oklahoma physician Harris Riley.<sup>44</sup> The fact that the mumps vaccine in particular became available before the longevity of its protection was known complicated matters for many weighing in on the professional debate. Perhaps, said Massachusetts health officer Morton Madoff, physicians should be left to decide for themselves how to use such vaccines as “a matter of conscience.”<sup>45</sup> His comment revealed a hesitancy to delineate policy that many displayed when faced with the uncharted territory the mumps vaccine had laid bare. It also hinted at an attempt to shift future blame in case mumps vaccination went awry down the line—a possibility that occurred to many observers given the still-unknown duration of the vaccine’s protection.

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<sup>43</sup> Thomas Shope, Adolf Karchmer, and F. Robert Freckleton, "Immunizations in the Future," *Journal of the Oklahoma State Medical Association* 62 (1969): 111-115.

<sup>44</sup> Current Concepts in Immunization Harris D. Riley, not dated, Folder Info 3 Tr. - 1963, Box 334605 No. 5, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region.

<sup>45</sup> Marley, "Vaccine for Mumps Not Widely Used." Some commentators cited a set of five principles outlined by British doctor G.S. Wilson at an international immunization conference held in 1961. Wilson argued that (1) vaccines should be harmless to the healthy; (2) they should cause no more disturbance (fever, discomfort) than the disease itself; (3) they must be easy to administer; (4) they must provide both herd and individual benefit; and (5) the immunity conferred should not require frequent revaccination. Cited in Samuel Katz, *Immunization with Live Attenuated Measles Virus Vaccines: Five Years' Experience*. Paper Selected for Distribution at CDC Seminars on Immunization, not dated, Folder: Info 3 Tr. - 1963, Box 334605 No. 5, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region.

Mumps was not a top public health priority in 1967—indeed it was not even a reportable disease—but the 1968 licensure of Mumpsvox would change the disease’s standing over the course of the next decade.<sup>46</sup> When the vaccine was licensed, editors at *The Lancet* noted that there had been little interest in a mumps vaccine until such a vaccine became available.<sup>47</sup> Similarly, a CDC scientist remarked that the vaccine had “stimulated renewed interest in mumps,” and had forced scientists to confront how little they knew about the disease’s etiology and epidemiology.<sup>48</sup> If the proper application of a vaccine against a mild infection remained unclear, what was clear—to scientists at the CDC at least—was that such ambiguities could be rectified through further study of both the vaccine and the disease. Given a new tool, that is, scientists were determined to figure out how best to use it. In the process of doing so, they would also begin to create new representations of mumps, effectively reframing the disease.

### *A Changing Disease*

Shortly after the mumps vaccine’s approval, CDC epidemiologist Adolf Karchmer gave a speech on the infection and its vaccine at an annual immunization conference. In light of the difficulties that health officials and medical associations were facing in trying to determine how best to use the mumps vaccine, Karchmer devoted his talk to a review of existing knowledge on mumps. Aside from the fact the disease

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<sup>46</sup> See the Introduction for an overview regarding the licensing and approval of vaccines in this period.

<sup>47</sup> Editorial, "Vaccination against Mumps."

<sup>48</sup> Notes, March 12-15, 1968, Folder: Paper for Immunization Conference, Box 343357, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region.

preferentially struck children, particularly males, caused few annual deaths, and peaked in spring, there was much scientists were still unsure of, including the true prevalence of mumps (asymptomatic cases made commonly cited numbers a likely underestimate); whether the disease occurred in 6 to 7 year cycles; whether infection was truly a cause of impotence and sterility; and the precise nature of effects on the nervous system.

Karchmer also expressed a concern shared by many: if the vaccine was administered to children and teens, and if it proved to wear off with time, would vaccination thereby create a population of non-immune adults even more susceptible to the disease and its serious complications than the current population? Karchmer and others thus worried—at this early stage, at least—that trying to control mumps not only wouldn't be worth the resources it would require, but might also create a bigger public health problem down the road.<sup>49</sup>

To address this concern, CDC scientists took a two-pronged approach to better understanding mumps and the potential for its vaccine. They reinstated mumps surveillance, which had been implemented following World War I but suspended after World War II.<sup>50</sup> They also issued a request to state health departments across the country asking for help identifying local outbreaks of mumps that they could use as opportunities to study both the disease and the vaccine.<sup>51</sup> Within months they had received several responses, and dispatched teams of epidemiologists to study mumps outbreaks in

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<sup>49</sup> Karchmer, Mumps: A Review of Surveillance, Vaccine Development, and Recommendations for Use.

<sup>50</sup> Center for Disease Control, "Current State of Mumps in the United States," *The Journal of Infectious Diseases* 132, no. 1 (1975): 106-109.

<sup>51</sup> Memo, January 14, 1968, Folder: Epi Aid 58-51-1, Box 343357 No. 1, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region.

Campbell and Fleming Counties in Kentucky; Collin Anderson school for the “mentally retarded” in West Virginia; and the Fort Custer Home for the mentally retarded in Michigan.<sup>52</sup> The copious notes the scientists took and the findings they later reported hint at deeply embedded preconceptions regarding the transmission of disease. These preconceptions, mapped onto mumps, forged new representations of the disease with important implications for evolving mumps prevention policy.

The Fort Custer Home in Augusta, Michigan hadn’t had a single mumps outbreak in its ten years of existence when the CDC was invited to investigate a rash of 105 cases that occurred in late 1967. In pages upon pages of detailed notes, the scientists documented the symptoms (largely low grade fever and runny noses) as well as the habits and behaviors of the home’s children. They noted not only who slept where, who ate with whom, and which playgrounds the children used, but also who was a “toilet sitter,” who was a “drippy, drooley, messy eater,” who was “spastic”, who “puts fingers in mouth” and who had “impressive oral-centered behavior.” A child by the name of DeMiller was summed up as a boy who “sits on toilet, not accepted by peers, seeks attention from attendants, sits and cries, picked on, not toilet trained.” The index case—the boy who presumably brought the disease into the home—was described as a “gregarious and restless child who spends most of his waking hours darting from one play group to another, is notably untidy and often places his fingers or his thumbs in his mouth.” The importance of these behaviors was unproven, remarked the researchers, but it seemed to

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<sup>52</sup> Documents pertaining to these outbreaks are located in folders titled Epi Aid 68-51-1; Epi Aid Memo 68-57-1; West Virginia Study; Epi 68-20-1; and Epi Aid 68-20-2, all in Box 343357 No. 1, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region.

them worth noting.<sup>53</sup> Combined with other observations—such as which child left the home, for example, to go on a picnic with his sister—it’s clear that the Fort Custer children were seen as a petri dish of infection threatening the community at large, much in the way their mental handicaps were perceived by midcentury society at large.<sup>54</sup>

Although the researchers’ notes explicitly stated that the Fort Custer findings were not necessarily applicable to the general population, they were presented to the 1968 meeting of the American Public Health Association as if they were. The investigation, the researchers reported, revealed that mumps took about 15 to 18 days to incubate, and then lasted between three and six days, causing fever for one or two days. Complications were rare (3 children ages 11 and up suffered swollen testes) and attack rates were highest among the youngest children.<sup>55</sup> The team of investigators also concluded that crowding alone was insufficient for mumps to spread; interaction had to be “intimate,” involving activities that stimulated the flow and spread of saliva, such as the thumb-sucking and messy eating so common among not only institutionalized children but children of all kinds.<sup>56</sup>

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<sup>53</sup> Notes, Fort Custer EIS Study, not dated, Folder: Fort Custer - Work Sheets and Potpourri, Box 343357 No. 1, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region.

<sup>54</sup> On the subject of popular attitudes toward mentally retarded children in the 1950s and 1960s, see Steven Noll and James W. Trent, *Mental Retardation in America, The History of Disability* (New York: New York University Press, 2004), Part IV.

<sup>55</sup> Manuscript, November 4, 1967, Folder: MMWR - Mumps at Fort Custer, Box 343357 No. 1, Record Group 442, Centers for Disease Control, National Archives and Records Administration.

<sup>56</sup> Abstract, not dated, Folder: Fort Custer - Presentation and Abstracts, Box 343357 No. 1, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region.

Mumps preferentially strikes children, so it followed that children offered the most convenient population for studying the disease's epidemiology. But in asking a question about children, scientists *ipso facto* obtained an answer about children. Although mumps had previously been considered a significant health problem only among adults, the evidence in favor of immunizing children now began to accumulate. Such evidence came not only from studies like the one at Fort Custer, but also from local reports from across the country. When Bellingham and Whatcom counties in Washington state made the mumps vaccine available in county and school clinics, for example, few adults and older children sought the shot; instead, five- to nine-year-olds were the most frequently vaccinated.<sup>57</sup> This wasn't necessarily a bad thing, said Washington health officer Phillip Jones, who pointed out that there were two ways to attack a health problem: you could either immunize a susceptible population or protect them from exposure. Immunizing children did both, as it protected children directly and in turn stopped exposure of adults, who usually caught the disease from kids.<sup>58</sup> Immunizing children sidestepped the problem he had noticed in his county: "It is impractical to think that immunization of adults and teen-agers against mumps will have any significant impact on the total incidence of adult and teen-age mumps. It is very difficult to motivate these people," said Jones. "On the other hand, parents of younger children eagerly seek immunization of

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<sup>57</sup> A reviewer at the CDC noted that while many often claimed that it was a challenge to immunize teens and adults, few had adequately produced quantitative support for this claim. Reviewer comments, Re: Public Acceptance of Mumps Immunization, not dated, Folder: Public Acceptance of Mumps, Box 343357, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region.

<sup>58</sup> Philip Jones, "Public Acceptance of Mumps Vaccination," *Journal of the American Medical Association* 209, no. 6 (1969): 901-905.

these younger children and there are numerous well-established programs for the immunization of children, to which mumps immunization can be added.”<sup>59</sup>

Setting aside concerns regarding the dangers of giving children immunity of unknown duration, Jones effectively articulated the general consensus on immunization of his time. Polio immunization drives, as discussed in the previous chapter, had helped forge the impression that vaccines were “for children” as opposed to adults. The establishment of routine pediatric care, also discussed in the previous chapter, offered a convenient setting for broad administration of vaccines as well as an audience primed to accept the practice. As a Washington, D.C. health officer remarked, his district found that they could effectively use the smallpox vaccine, which most “mothers” eagerly sought for their children, as “bait” to lure them in for vaccines against other infections.<sup>60</sup> The vaccination of children got an added boost from the news that Russia, which by now was the U.S.’s key Cold War opponent and foil in the space race, had by the end of 1967 already vaccinated more than a million of its youngsters against mumps.<sup>61</sup>

The initial hesitation to vaccinate children against mumps was further dismantled by concurrent discourse concerning a separate vaccine, against rubella (then commonly known as German measles). In the mid 1960s, rubella had joined polio and smallpox among the diseases actively instilling fear in parents—particularly mothers. Rubella, a viral infection that typically caused rash and a fever, was harmless in children. But when pregnant women caught the infection, it posed a risk to the fetus. A nationwide epidemic

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<sup>59</sup> Ibid.

<sup>60</sup> Stuart Auerbach, "D.C. Has Rash of 261 Measles Cases," *The Washington Post*, February 10, 1970, C1.

<sup>61</sup> T.R. Van Dellen, "How to Keep Well: Mumps Vaccine," *Chicago Tribune*, September 30, 1967, B14.



of the disease in 1963 and 1964 resulted in a reported 30,000 fetal deaths and the birth of more than 20,000 children with severe handicaps.<sup>62</sup> No sooner had the nation's Advisory Committee on Immunization Practices been formed in fact, in 1964, than its members began to discuss the potential for a pending rubella vaccine to prevent similar outbreaks in the future.<sup>63</sup> But as research on the vaccine progressed, it became apparent that while the shot produced no side effects in children, in women it caused a "rubella-like syndrome" in addition to swollen and painful joints.<sup>64</sup> Combined with the fact that the vaccine's teratogenicity was unknown, and that the vaccination of women planning to become pregnant was perceived as logistically difficult, federal health officials concluded that "the widespread immunization of children would seem to be a safer and more efficient way to control rubella syndrome."<sup>65</sup> Immunization of children against rubella was further justified based on the observation that children were "the major source of virus dissemination in the community."<sup>66</sup> Pregnant women, that is, would be protected from the disease as long as they didn't come into contact with it.<sup>67</sup>

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<sup>62</sup> Brochure, not dated, Folder: 1964 Rubella Epidemic Cost Analysis, Box 343357, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region.

<sup>63</sup> Meeting Minutes, Meeting No. 1 of the Advisory Committee on Immunization Practices.

<sup>64</sup> Memo from Adolf Karchmer to Martin D. Skinner, Draft of Rubella Control Program, December 2, 1968, Folder: Rubella Control Program - Montana, Box 343357, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region.

<sup>65</sup> Ibid.

<sup>66</sup> Anonymous, "Rubella Vaccination Seen for School Children," *New York Amsterdam News*, September 13, 1969, 6.

<sup>67</sup> See for example Harry Meyer, Paul Parkman, and Hope Hopps, "The Control of Rubella," *Pediatrics* 44, no. 1 (1969): 5-23.

Sociologist Joseph Heller and historian Leslie Reagan have both noted that the decision to recommend the mass immunization of children against rubella marked the first time that vaccination was deployed in a manner that offered no direct benefit to the individuals vaccinated.<sup>68</sup> Both scholars have also demonstrated that a unique cultural impetus was at play in the adoption of such a policy: as an accepted but difficult-to-verify means of obtaining a therapeutic abortion at a time when all other forms of the procedure were illegal, rubella infection was caught up in the abortion politics of the day. Eliminating rubella from communities was one means of obviating therapeutic abortions in women infected or exposed to the disease. The vaccine and abortion were thus linked, argues Reagan, in the “medical and scientific imaginary” of the time.<sup>69</sup>

As a cause of birth defects and disabilities, rubella was more explicitly linked to the problem of “mental retardation.”<sup>70</sup> Once perceived as a problem exclusive to the lower class, in the post-war decades mental retardation was increasingly perceived as a threat to the promise of middle-class domesticity, notes historian Katherine Castles.<sup>71</sup> Rubella immunization promotion thus built directly upon the broad public’s fears of both “crippling” diseases (such as polio) as well as mental retardation.<sup>72</sup> In its early years, so

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<sup>68</sup> Heller, *The Vaccine Narrative*, 62-63; Reagan, *Dangerous Pregnancies: Mothers, Disabilities, and Abortion in America*, 181.

<sup>69</sup> Reagan, *Dangerous Pregnancies: Mothers, Disabilities, and Abortion in America*, 180.

<sup>70</sup> Though this term has since been abandoned as cruel and insensitive, it was a medically and socially accepted diagnosis at the time; I use it here as it was used in this time period.

<sup>71</sup> Katherine Castles, "Nice Average Americans: Postwar Parents' Groups and the Defense of the Normal Family," in *Mental Retardation in America*, ed. Steven Noll and James W. Trent (New York: New York University Press, 2004), 351-370. See also Edward Shorter, *The Kennedy Family and the Story of Mental Retardation* (Philadelphia: Temple University Press, 2000).

<sup>72</sup> Reagan, *Dangerous Pregnancies: Mothers, Disabilities, and Abortion in America*, 191.

too did mumps immunization. Federal immunization brochures from the 1940s and 1950s occasionally mentioned that mumps could swell the brain or the meninges, the fluid surrounding the brain, but never mentioned a risk of brain damage. In the late 1960s, however, such insinuations began to appear in reports on the new vaccine. Hilleman's early papers on the mumps vaccine trials opened with the repeated statement that "Mumps is a common childhood disease that may be severely and even permanently crippling when it involves the brain...."<sup>73</sup> When Chicago announced Mumps Prevention Day, the city's medical director described mumps as a disease that can "contribute to mental retardation."<sup>74</sup> Though newspaper reporters focused more consistently on the risk mumps posed to male sterility, many echoed the "news" that mumps could cause permanent damage to the brain. Such reports obscured substantial differentials of risk noted in the scientific literature. For unlike the link between mumps and testicular swelling, the relationship between mumps and brain damage or mental retardation was never quantified, even though "benign" swelling of meninges was documented to appear in 15% of childhood cases.<sup>75</sup> In a nation just beginning to address the treatment of mentally retarded children as a social (instead of private) problem, however, any opportunity to prevent further cases of brain damage, no matter how small, was welcomed by both parents and cost-benefit calculating municipalities.

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<sup>73</sup> See for example R. E. Weibel et al., "Live Attenuated Mumps-Virus Vaccine. 3. Clinical and Serologic Aspects in a Field Evaluation," *New England Journal of Medicine* 276, no. 5 (1967): 245-251; J. Stokes, Jr. et al., "Live Attenuated Mumps Virus Vaccine. II. Early Clinical Studies," *Pediatrics* 39, no. 3 (1967): 363-371.

<sup>74</sup> Anonymous, "Mumps War Is Declared at Halsted UPC," *Daily Defender*, June 22, 1967, 5.

<sup>75</sup> Center for Disease Control, "Mumps Vaccine," *Morbidity and Mortality Weekly Report* 26, no. 48 (1977): 393-394.

Reagan has also argued that the rubella vaccine, with its express purpose of protecting the nation's *future* citizens, "represented a historic transformation in the expectations surrounding a vaccine."<sup>76</sup> In reality, the rubella vaccine, along with the mumps vaccine, represented a more subtle shift in expectations than this. The notion that vaccines protected the health (and, therefore, the productivity and utility) of future adult citizens had long been in place by the time the rubella vaccine was licensed in 1969 (see Chapter 1). In addition to fulfilling this role, the rubella vaccine and the mumps vaccine—which was most commonly depicted as a guard against sterility and "damage to the sex glands" in men—were also deployed to ensure the *existence* of future citizens, by protecting the reproductive capacities of the American population. The vaccination of children against both rubella and mumps were thus linked in the *social* imaginary to cultural anxiety over falling fertility in the post-Baby Boom U.S. This anxiety was captured in cultural productions as diverse as Paul Ehrlich's 1968 bestseller *The Population Bomb* and the popular television sitcom *The Brady Bunch*.<sup>77</sup> In a 1973 episode of the show, mumps caused panic in the Brady household—with its three teenage boys—when a presumably still unvaccinated Bobby feared he had caught the disease from his girlfriend and spread it to his family.<sup>78</sup> This cultural anxiety in turn influenced immunization policy: CDC scientists stressed the import of immunizing against mumps given men's *fears* of mumps-induced impotence and sterility—even as they

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<sup>76</sup> Reagan, *Dangerous Pregnancies: Mothers, Disabilities, and Abortion in America*, 181.

<sup>77</sup> Paul R. Ehrlich, *The Population Bomb*, A Sierra Club-Ballantine Book (New York: Ballantine Books, 1968).

<sup>78</sup> Sherwood Schwartz, "Never Too Young," in *The Brady Bunch* (USA: American Broadcasting Company, 1973).

acknowledged that such complications were “rather poorly documented and thought to occur rarely, if at all.”<sup>79</sup>

At the same time, the revolution in reproductive technologies, rights, and discourse that extended from the 1960s into the 1970s reshaped American—particularly middle class American—attitudes toward children in a manner that had direct bearing on the culture’s willingness to accept a growing number of vaccines for children. The year 1967 saw more vaccines under development than ever before.<sup>80</sup> Merck’s own investment in vaccine research and promotion exemplified the trend; even as doctors and health officials were debating how to use Mumpsvox, Hilleman’s lab was testing a combined vaccine against measles, rubella, and mumps that would ultimately help make the company a giant in the vaccine market.<sup>81</sup> This boom in vaccine commodification coincided with the gradual shrinking of American families that new contraceptive technologies and the changing social role of women had helped engender.

The link between these two trends found expression in shifting attitudes toward the value of children, which were well-captured by *Chicago Tribune* columnist Joan Beck in 1967. Beck predicted that 1967 would be a “vintage year” for babies, for the 1967 baby stood “the best chance in history of being truly wanted,” and the “best chance in history to grow up healthier and brighter and to get a better education than his

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<sup>79</sup> Karchmer, Mumps: A Review of Surveillance, Vaccine Development, and Recommendations for Use. See also Editorial, “Mumps Vaccine: More Information Needed.”

<sup>80</sup> Ronald Kotulak, “New Lease on Life Given Man: A Tale of Nine Future Vaccines,” *Chicago Tribune*, December 24, 1967, 6.

<sup>81</sup> Galambos and Sewell, *Networks of Innovation: Vaccine Development at Merck, Sharp & Dohme and Mulford, 1895-1995*, 121.

forebears.” He’d be healthier—and smarter—thanks in large part to vaccines, which would enable him to “skip” mumps, rubella, and measles, with their attendant potential to “take the edge off a child’s intelligence.”<sup>82</sup> American children (like fine wines, as Beck’s word choice suggested) might be fewer in number as well as costly, but they’d be both deeply desired and ultimately well worth the tremendous investment. This attitude is indicative of the soaring emotional value that children began to accrue in the last half of the twentieth century, as historian Mary Ann Mason has described.<sup>83</sup> Beginning in the 1960s, vaccination advocates at times played to this valuation of children to emphasize the importance of vaccinating against diseases that seemed rare or mild, or whose complications seemed even rarer. Noted one CDC author, who extolled the importance of vaccination against increasingly rare diseases, “the disease incidence may be one in a thousand, but if that one is your child, the incidence is a hundred percent.”<sup>84</sup>

Historian Paula Fass has pointed out that discourse concerning the “wantedness” of individual children in the post-Baby Boom era reflected a predominantly white, middle-class conceptualization of children.<sup>85</sup> As birth rates continued to fall, reaching a nadir in 1978, vaccines kept company with other commodities—a suburban home, quality schooling, a good college—that shaped the truly wanted child’s middle class

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<sup>82</sup> Joan Beck, “It’ll Be Vintage Year for Babies Born in the U.S.,” *Chicago Tribune*, January 3, 1967, B1.

<sup>83</sup> Mary Ann Mason, “The State as Superparent,” in *Childhood in America*, ed. Paula Fass and Mary Ann Mason (New York: New York University Press, 2000), 549-554.

<sup>84</sup> Immunization: Theory and Practice, Report by V.F. Guinea, D.S. Martin, and Other Members of the CDC Immunization Seminar Services Committee. This adage would later be rephrased by vaccine critics in order to emphasize the significance of the small risks posed by vaccines. See Chapters 4, 5, and 6.

<sup>85</sup> Paula S. Fass, *Children of a New World: Society, Culture, and Globalization* (New York: New York University Press, 2007), 181-183.

upbringing.<sup>86</sup> From the late 1960s through the 1970s, vaccination in general was increasingly represented as both a modern comfort and a convenience of contemporary living. This portrayal dovetailed with the frequent depiction of the mild infections, and mumps in particular, as “nuisances” American no longer needed to “tolerate.”<sup>87</sup> No longer did Americans of any age have to suffer the “variety of spots and lumps and whoops” that once plagued American childhood, noted one journalist.<sup>88</sup> Even CDC publications commented on “the luxury and ease of health provided by artificial antigens” of the modern age.<sup>89</sup> And even though mumps, for one, was not a serious disease, remarked a writer for *Changing Times*, the vaccination was there “for those who want to be spared even the slight discomfort of a case.”<sup>90</sup> Mumps vaccination in fact epitomized the realization of ease of modern living through vaccination. Because it kept kids home from school and parents home from work, “it is inconvenient, to say the least, to have mumps,” said a health official from Massachusetts, adding, “Why should we tolerate it any longer?”<sup>91</sup> Vaccines against infections such as mumps might not be perceived as

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<sup>86</sup> Ibid., 182.

<sup>87</sup> See for example Anonymous, “Mumps May Be on Its Way Out,” *Daily Defender*, June 27, 1966, 2; Van Dellen, “How to Keep Well: Mumps Vaccine.”

<sup>88</sup> Anonymous, “A Shot in Time,” *Mademoiselle*, July, 1977, 126.

<sup>89</sup> National Communicable Disease Center, *Immunization against Disease* (Washington, D.C.: U.S. Department of Health, Education, and Welfare, 1967), 1.

<sup>90</sup> Anonymous, “Vaccinations Everyone Ought to Have,” *Changing Times*, September, 1974, 11-13. For a similar representation of mumps, see also Anonymous, “Immunization = Self Defense,” *Current Health*, October, 1979, 23-25.

<sup>91</sup> Nicholas Fiumara, “Use of Mumps Vaccine,” *New England Journal of Medicine* 278, no. 12 (1968): 681-682.

absolutely necessary, but the physical and material comfort they provided could not be undervalued.

That vaccination in general was an accoutrement of middle-class living was reified by reports in the early to mid-1970s of urban outbreaks. Throughout the 1970s, rates of vaccine-preventable diseases declined substantially. Nonetheless, epidemics did persist, in both cities and in smaller communities.<sup>92</sup> Immunization rates were low enough among the urban poor to be singled out by federal health officials—60% of children in this population weren't protected against polio in 1976—as a likely cause of such outbreaks. Federal health officials attributed these low rates to federal funding cuts, concerns about adverse reactions, and just plain ignorance.<sup>93</sup> And as outbreaks of vaccine-preventable diseases occurred in cities across the country, urban “ghetto” and “slum” areas with their “highly mobile, poorly educated, and impoverished population[s]” were typically held to blame.<sup>94</sup> Historian Charles Rosenberg has argued that disease etiologies (particularly hypothetical ones) “project and rationalize widely

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<sup>92</sup> See for example R. D. Greenwood, "Mumps Outbreak in a Small Community," *Journal of the Kansas Medical Society* 78, no. 11 (1972): 493; B. P. Carlin and S. S. Sansbury, Jr., "Report of a Measles Outbreak in St. Louis County," *Missouri Medicine* 72, no. 10 (1975): 580-585; J. R. Mullen et al., "Control of a Measles Outbreak in an Elementary School, Baltimore County, Maryland," *Public Health Reports* 92, no. 3 (1977): 217-219.

<sup>93</sup> See for example Memo from Donald Carmody (HEW) to Director of the OPDP, Reyes vs Wyeth, January 22, 1976, Folder: CDC Liability Proposal, Box 8, Swine Flu Immunization Program Files, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region.

<sup>94</sup> Note from John Witte to Robert Wallace, not dated, Folder: EPI-70-40-2. Measles, Chicago, Illinois, Box 338638, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region. See also Letter from John Witte to Adolf Karchmer, February 9, 1970, Folder: General Correspondence-Dr. Abrutyn, Box 338638, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region.



held values and attitudes.”<sup>95</sup> In this case, disease epidemiology upheld culturally embedded biases against the urban poor in an era when the middle class was departing for the suburbs, leaving behind cities burdened with falling revenue and rising crime, homelessness, and infrastructure decay. The perceived link between disease and urban danger was colorfully (if insidiously) illustrated in the cartoon character Emmy Immunity, who was developed by health officials in the southeast to promote the cause of immunization on TV and in radio spots. Emmy cleverly fought against the Dirty Disease Gang, an enemy whose very conception reflected prejudice against the perceived filthy, dangerous, and often non-white denizens of declining urban America.<sup>96</sup> As the 1970s progressed, references to epidemics localized in the “ghetto” gave way to references to the “inner city” and “urban poverty area,” but the implications remained the same. Even though one-third to one-half of *all* U.S. children were lacking all or part of the series of shots that could protect them from polio, diphtheria, pertussis, tetanus, measles, mumps, and rubella, the urban poor bore the lion’s share of culpability for the persistence of vaccine-preventable diseases, including mumps, in the U.S.<sup>97</sup>

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<sup>95</sup> Rosenberg, "Framing Disease: Illness, Society, and History," xxii.

<sup>96</sup> Program materials, Folder: Information 3 Imm 1964-1967, Box 334062, Office of the Director Files, Box 2, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region. On the postwar decline of U.S. cities, see Robert A. Beauregard, *Voices of Decline: The Postwar Fate of U.S. Cities*, 2nd ed. (New York: Routledge, 2003); Robert A. Beauregard, *When America Became Suburban* (Minneapolis: University of Minnesota Press, 2006).

<sup>97</sup> By this time, smallpox vaccination was no longer routinely recommended for children. ACIP’s 1971 recommendation to discontinue routine vaccination of children against smallpox was hotly debated in the medical and public health community for several years, during which many counties and individual doctors chose to continue vaccinating against the disease. In addition to the disease’s rarity in the U.S., ACIP cited in its decision low infectivity of the smallpox virus, the effectiveness of vaccinating only close contacts of smallpox patients, and the adverse effects of smallpox vaccination, which carried a “low risk of severe complications and death.” See Center for Disease Control, "Recommendations of the U.S. Public Health

Combined vaccines offered a seemingly elegant solution to the problem of immunizing poor, mobile, ignorant members of the population. As the number of vaccines grew, health officials often discussed the need for “new and simpler approaches to immunization,” and the success of the combined vaccines against diphtheria, tetanus, and pertussis (DPT), available since 1949, suggested a good model.<sup>98</sup> Health officials had their reasons for wanting additional combined vaccines; Merck had its own. The drug company’s experience promoting its vaccine against measles had illustrated the challenges of getting parents to accept an additional vaccine for their children, and Merck had anticipated a similar challenge with mumps, according to historian Louis Galambos and Jane Sewell. A vaccine that combined mumps protection with other, accepted immunizations would ensure a place for Mumpsavax in the market, reasoned Merck scientists and executives. It would also address competitive threats: other companies planned to add measles to DPT, and Merck, which had no DPT vaccine, feared it would be “squeezed out of the market.”<sup>99</sup> In 1971, Merck released two combined vaccines: one against measles and rubella and another against measles, rubella, and mumps. Company

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Service on Smallpox Vaccination," *Morbidity and Mortality Weekly Report* 20, no. 38 (1971): 339-345; Editorial, "Routine Smallpox Vaccination," *Journal of the American Medical Association* 218, no. 6 (1971): 876-877; S. L. Katz, "The Case for Continuing "Routine" Childhood Smallpox Vaccination in the United States," *American Journal of Epidemiology* 93, no. 4 (1971): 241-244.; J. M. Neff, "The Case for Abolishing Routine Childhood Smallpox Vaccination in the United States," *American Journal of Epidemiology* 93, no. 4 (1971): 245-247.

<sup>98</sup> Notes, JP Friedman – EIS Conference, 1969, not dated, Folder: “The Simultaneous Administration of Multiple Live Virus Vaccines”, Box 343357, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region.

<sup>99</sup> Galambos and Sewell, *Networks of Innovation: Vaccine Development at Merck, Sharp & Dohme and Mulford, 1895-1995*, 117.

representatives were quick to point out that the MMR vaccine reduced vaccination total costs as well as the number of doctor visits needed to completely immunize children.<sup>100</sup>

Merck's combined vaccine was the endpoint of corporate market share and profitability concerns; the company had a product to sell and figured out the best way to sell it. But the combined vaccine also directly impacted evolving immunization policy, which in turn helped sell Mumpsvox. In its 1972 update on mumps vaccination, the Advisory Committee on Immunization Practices broadened its recommendation to state that anyone over the age of one *could* be vaccinated—but that mumps vaccination should never take priority over “more essential ongoing community health activities.” (The committee declined to specify what these might be.) Combined vaccines, they noted, were still being tested. In 1977, however, the committee reaffirmed the stance that mumps was a low-priority disease but added that “large-scale production” of combined vaccines “have made mumps vaccination a practical component of routine immunization activities.” As a result, they wrote, “Live mumps virus vaccine is recommended for all children at any age after 12 months.”<sup>101</sup> In the same way that DPT enabled pertussis vaccine to “piggyback” on diphtheria vaccine's greater efficacy and acceptance, as historian James Colgrove has argued, MMR enabled mumps to piggyback on acceptance of vaccination against measles and rubella.<sup>102</sup> The combined vaccine overrode for good

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<sup>100</sup> E. B. Buynak et al., “Combined Live Measles, Mumps, and Rubella Virus Vaccines,” *Journal of the American Medical Association* 207, no. 12 (1969): 2259-2262.

<sup>101</sup> Center for Disease Control, “Mumps Vaccine.”

<sup>102</sup> Colgrove, *State of Immunity: The Politics of Vaccination in Twentieth-Century America*, 112.

any questions about the necessity of universal protection against mumps; it also secured a profitable position for Merck, which came to consider MMR its “work horse” vaccine.<sup>103</sup>

During the same period, health officials became increasingly emphatic about the economic value of immunizing against mumps. Although mumps was relatively benign, argued the CDC’s Karchmer, “considerable morbidity, economic loss, and loss of productive time result because of the large numbers affected.”<sup>104</sup> From the late 1960s through the 1970s, health officials increasingly favored such cost-based arguments. The measles eradication campaign that the nation launched in 1966 added economic justifications to the list of bullet points used to encourage vaccine uptake among the public.<sup>105</sup> Measles didn’t just cost a family the price of a doctor’s visit, it also cost a family lost income if parents had to stay home to tend to sick children, and it cost schools funding in districts where budget allotments were based on attendance. Adding in the direct and indirect complications, any preventable disease—not just measles—was an economic anvil when compared to the cost of vaccination. By keeping millions of Americans alive and in good health, vaccines and other drugs helped contribute ten billion dollars a year to the U.S. economy, noted AMA president Charles Lowell Hudson.<sup>106</sup> Thus, while the “humanistic benefits” of vaccination were obvious, economic

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<sup>103</sup> Galambos and Sewell, *Networks of Innovation: Vaccine Development at Merck, Sharp & Dohme and Mulford, 1895-1995*, 118.

<sup>104</sup> Karchmer, Mumps: A Review of Surveillance, Vaccine Development, and Recommendations for Use.

<sup>105</sup> Measles eradication was modeled on polio eradication, but health officials miscalculated popular demand for the measles vaccine; additional arguments were therefore deployed in order to encourage vaccine uptake. See Chapter 1 for further discussion on this point.

<sup>106</sup> Charles Lowell Hudson, "Looking Ahead," *Vital Speeches of the Day* 33, no. 15 (1967): 465.

benefits were a crucial way of justifying vaccination programs, wrote CDC scientists James Witte and Norman Axnick in 1975. “The expression in economic terms of the savings accrued by preventing disease requires a new parlance for physicians and other health professionals. The benefits derived from immunization must be described in terms that can be added or subtracted,” they urged.<sup>107</sup> The imperative to describe vaccines in such terms was also created by the very practice of vaccinating against mild diseases, which necessitated new justifications for their use.

Economic arguments not only acquired traction as a means of justifying mass immunization against the milder diseases. They also gained ground as the cost of vaccines and health care generally began to rise “out of sight,” as Pfizer president John J. Powers put it in 1970.<sup>108</sup> Vaccines in particular were becoming more expensive because of the high cost of development, noted one FDA regulator.<sup>109</sup> As they became pricier, the return on investment in vaccines for a cash-strapped city or municipality became an increasingly requisite calculation. But the increasing prevalence of economic arguments in favor of vaccines was also a symptom of another trend—growing awareness of vaccine hazards, which prompted some vaccine makers to leave the market and would soon begin to chip away at broad public acceptance of vaccination programs. The burdensome investment required for vaccine research and development had driven many small

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<sup>107</sup> J. J. Witte and Norman Axnick, “The Benefits from 10 Years of Measles Immunization in the United States,” *Public Health Reports* 90, no. 3 (1975): 205-207.

<sup>108</sup> John Powers, “Health Care Costs,” *Vital Speeches of the Day* 36, no. 15 (1970): 478.

<sup>109</sup> Letter from Harry Meyer, FDA, to Bruce Dull, CDC, December 1, 1975, Folder: CDC Liability Proposal, Box 8, Swine Flu Immunization Program Files, Record Group 442, Centers for Disease Control, National Archives and Records Administration, Southeast Region.

companies to drop out of the vaccine market in the 1960s. By the mid 1970s, even some large vaccine manufacturers were beginning to pull out of the market, prompted by profitability concerns that were being compounded by fear of lawsuits. During the 1960s, a series of lawsuits had been filed against manufacturers of both the Salk and Sabin polio vaccines, including the deadly lot manufactured by Cutter Laboratories, described in Chapter 1. The rulings in favor of victims of the Cutter incident as well as two individuals—a thirty-nine year old man and eight-month-old girl—who had contracted polio following vaccination publicized the inherent risks of vaccination and spooked manufacturers.<sup>110</sup> By 1975, the 11 drug firms who had produced the vast majority of the nation's vaccine stock in 1960 had been whittled down to six firms, making some vaccines available through only a sole manufacturer.<sup>111</sup> The case of the eight-month-old girl, Anita Reyes, was particularly significant in that judges held that the vaccine manufacturer, Wyeth Laboratories, was responsible for ensuring that individuals were duly informed of the risks of vaccination before submitting to the procedure.<sup>112</sup>

The lawsuits were contemporaneous with a series of disputes and exposés regarding the mismanagement of vaccine regulation at the federal level. In 1971, Senator Abraham Ribicoff (formerly John F. Kennedy's Secretary of Health, Education, and Welfare) publicly accused the federal Division of Biologic Standards, responsible for

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<sup>110</sup> The cases, including *Davis v. Wyeth* and *Reyes v. Wyeth*, are discussed in Colgrove, *State of Immunity: The Politics of Vaccination in Twentieth-Century America*, 188-191; Allen, *Vaccine: The Controversial Story of Medicine's Greatest Lifesaver*, 264-265. See also Offit, *The Cutter Incident: How America's First Polio Vaccine Led to the Growing Vaccine Crisis*.

<sup>111</sup> Letter from Harry Meyer, FDA, to Bruce Dull, CDC.

<sup>112</sup> Although Sabin's live oral polio vaccine could induce paralysis, Anita Reyes's polio was actually found to be caused by a wild strain of the virus, and not the vaccine.

regulatory oversight of vaccines, of ignoring evidence that the Cutter polio vaccine was unsafe back in 1955. Alerted to the fact by former DBS scientists, he ordered an investigation of the charges.<sup>113</sup> The resulting report revealed that DBS officials responsible for ensuring the effectiveness of approved vaccines had ignored evidence of inadequately killed virus in polio vaccines and the presence of tumorigenic monkey virus in polio and adenovirus vaccines. They had also inadequately tested measles vaccines for safety; approved several flu vaccines using inadequate tests for potency; and reassigned or demoted DBS scientists who voiced concern over the practices.<sup>114</sup> The news that DBS had approved 32 vaccines that were later proved to be either worthless or dangerous made some headlines—"Valueless Vaccines?" ran the headline in *Time*—but for the most part the dispute remained confined to government regulators and scientists.<sup>115</sup> As a solution, in 1973, DBS's responsibilities were transferred to the Bureau of Biologics at the FDA.<sup>116</sup> But regulatory snafus did not disappear. In 1975, a few government scientists again came forth, this time charging that FDA had not sufficiently tested the long-term safety of unavoidable contaminants in live-virus vaccines.<sup>117</sup> In 1976, government haste and oversight was prominently on display when a massive federal swine flu inoculation

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<sup>113</sup> UPI, "Ribicoff Says Agency Ignored Vaccine Risk," *Los Angeles Times*, October 15, 1971, A12.

<sup>114</sup> Nicholas Wade, "Division of Biologics Standards: Scientific Management Questioned," *Science* 175 (1972): 966-970.

<sup>115</sup> Anonymous, "Valueless Vaccines?," *Time*, April 17, 1972.

<sup>116</sup> Nicholas Wade, "Division of Biologics Standards: Reaping the Whirlwind," *Science* 180 (1973): 162-164.

<sup>117</sup> Gina Bari Kolata, "Phage in Live Virus Vaccines: Are They Harmful to People?," *Science* 187 (1975): 522-523.

program was implicated in several deaths of elderly adults and hundreds of cases of the immune disorder Guillain-Barré Syndrome.<sup>118</sup> The news prompted one mother to exclaim, “That’s it. There’s no way they’re going to get me anywhere near a needle,” as journalists began to ask, “Just how serious is the threat of a swine-flu epidemic this year? Are inoculations really worth the risk?”<sup>119</sup> These questions echoed questions from a decade before regarding the seriousness of mumps, only now they were prompted not by doubts of necessity, but by fears of potential hazards.

### *Mumps Post Vaccine*

The cumulative effect that these events would have on the state of popular faith in vaccines would not become starkly apparent until the early 1980s. In the meantime, the vaccination of children continued apace, including vaccination against mumps. Despite confusion about mumps immunization in its early years, by 1972 Merck had sold more than 11 million doses of Mumpsvox.<sup>120</sup> By 1974, 40% of U.S. children had been vaccinated against the disease.<sup>121</sup> But even as mumps immunization rates gradually climbed, overall rates of immunization stagnated or fell. The perceived ignorance of the

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<sup>118</sup> Richard E. Neustadt and Harvey V. Fineberg, *The Swine Flu Affair: Decision-Making on a Slippery Disease* (Washington, DC: U.S. Department of Health, Education, and Welfare, 1978).

<sup>119</sup> Anonymous, "Swine-Flu Shots: Another Setback for a Bedeviled Program," *U.S. News & World Report*, October 25, 1976, 46.

<sup>120</sup> The Merck sales figure comes from Galambos and Sewell, *Networks of Innovation: Vaccine Development at Merck, Sharp & Dohme and Mulford, 1895-1995*, 115. Population immunization figures are cited in Centers for Disease Control, *United States Immunization Survey* (Washington, D.C.: U.S. Department of Health, Education and Welfare and Bureau of the Census, 1971).

<sup>121</sup> Center for Disease Control, "Current State of Mumps in the United States."



urban poor, the unvaccinated segment of the population at large, and the economic imperative to vaccinate help explain why, as the 1970s progressed, the vaccine-preventable diseases were increasingly portrayed by health officials as a monolithic category whose members were uniformly threatening to the health of American families. The Orange County, California health department adopted a particularly intimidating motto to convey this idea, dubbing failure to immunize against diphtheria, whooping cough, tetanus, polio, measles, mumps, and rubella the “seven deadly health sins.”<sup>122</sup> The practice of portraying the vaccine-preventable diseases in this way culminated with an unprecedented childhood immunization effort spearheaded by President Jimmy Carter’s administration (described in the next chapter). In that late 1970s initiative, the campaign materials issued by local health departments and the flurry of accompanying media reports all contained the same message: any disease that could be prevented with a vaccine was dangerous, if not deadly, to children. In such accounts, any difference in risk or severity among infections was depicted as negligible. Measles was a disease that caused brain damage and deafness, mumps a disease that caused deafness, polio a disease that caused paralysis or death.<sup>123</sup> A 1978 article in *Good Housekeeping* told the stories of seven-year-old Joey, who became deaf after a bout of mumps, five month old Marcy, who died of whooping cough, and twelve year old June, who suffered measles-induced brain damage. Wrote the author, “If this sounds scary, it’s meant to.”<sup>124</sup>

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<sup>122</sup> Anonymous, “7 Health Sins Listed; Immunizations Urged for County Childre,” *Los Angeles Times*, December 6, 1973, OC-A16.

<sup>123</sup> Dan Kaercher, “Immunization: A Call to Action,” *Better Homes and Gardens*, September, 1979, 70.

<sup>124</sup> Midge Lasky Schildkraut, “The New Threat to Your Children’s Health,” *Good Housekeeping*, August, 1978, 219-220.

The transformation of mumps into a serious disease of children was neither deliberately calculated nor entirely smooth. Hints that such a shift was imminent were evident in the late 1960s, when the prospect of a new mumps vaccine prompted a few observers to argue that the infection's occasional severity made it a disease worth not just preventing, but eradicating.<sup>125</sup> Between 1968 and 1978, scientific journal articles, press reports, and advice books for parents and doctors contained uneven portrayals of the disease's severity. On the whole, however, mumps' image in this time period morphed from that of childhood nuisance to that of deadly crippler. In 1968, the *Washington Post* called mumps a "relatively harmless childhood disease," the *Los Angeles Sentinel* called it a "mild childhood disease," and the *New York Times* reported that "serious complications in young children are unusual."<sup>126</sup> Ten years later, all references to mumps as a mild disease vanished from popular portrayals, with the exception of reports that sought to illustrate the danger of perceiving mumps in this way: "Measles, mumps and the like...are not just part of growing up....those 'minor' ills can cripple and kill, too," reported the *New York Times* in 1978.<sup>127</sup>

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<sup>125</sup> Calls to eradicate mumps were in fact infrequent, but see for example Anonymous, "Georgians Play Major Role in Developing New Vaccine," *Atlanta Daily World*, January 7, 1968, 1; Reviewer comments, Re: Public Acceptance of Mumps Immunization. In 1968, Massachusetts health officials announced that they had unanimously decided to eradicate mumps; the announcement sparked a debate between health officials and physicians, who argued that the vaccine's use should be left to their discretion. See for example, Fiumara, "Use of Mumps Vaccine.,"; T. C. Peebles et al., "Use of Mumps Vaccine," *New England Journal of Medicine* 281, no. 12 (1969): 679.

<sup>126</sup> Anonymous, "Mumps Vaccine Now Ready for Public," *Los Angeles Sentinel*, March 28, 1968, E7; Associated Press, "Vaccine for Mumps Licensed.,"; Schmeck, "A Mumps Vaccine Is Licensed by U.S.."

<sup>127</sup> Dodi Schultz, "Why Childhood Diseases Are Coming Back," *New York Times Sunday Magazine*, May 7, 1978, 35.

Mentions of the disease's severity in children versus adults also disappeared over the course of the 1970s. Mumps "is an acute viral disease...which can lead to orchitis and meningoencephalitis," reported the *Atlanta Daily World* in 1978, making no reference to the actual risk of complications nor any distinction between the risk of sequelae in adults versus children, or males versus females.<sup>128</sup> Portrayals of the disease were still sometimes confused, but by now they were also consistently daunting: "Mumps frequently leads to inflammation of the covering of the brain (meningitis) or, more rarely, of the brain itself (encephalitis). As many as one in every seven to nine children with mumps may show signs of these complications (but actual cases are not as common). Occasionally, permanent damage such as deafness results," *Good Housekeeping* reported in 1978.<sup>129</sup> Such portrayals—even if perplexing—began to firmly level the playing field between mumps and the rest of the vaccine-preventable diseases, enabling the once mild infection to keep close company with long-dreaded diphtheria, smallpox, and polio.

Notably, such portrayals directly and unquestioningly parroted the information coming from government sources. While CDC immunization recommendations from early in the 1970s had referred to mumps-induced meningeal swelling and deafness as "rare" and mumps-induced sterility as "very rare," a 1978 HEW brochure informed the public simply, "Mumps can cause deafness, diabetes, and brain damage. It can make boys sterile."<sup>130</sup> The mention of diabetes is a clear signal that frustrated government health

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<sup>128</sup> Anonymous, "Measles, Mumps and Rubella Threaten the Unprotected," *Atlanta Daily World*, January 3, 1978, 3.

<sup>129</sup> Schildkraut, "The New Threat to Your Children's Health."

<sup>130</sup> Education U.S. Department of Health, and Welfare, *Protect Your Child (DHEW Publication No. OHDS 78-02027)* (Washington, DC: Office of Human Development Services, 1978).

officials had decided, consciously or not, that any risk of disease complication was worth wielding in the crusade to encourage vaccination. For at that time, evidence of a link between mumps and diabetes was hypothetical, based on isolated case reports and the infection's potential to cause pancreatic swelling. The link was too tenuous to be mentioned in any of the Advisory Committee on Immunization Practices' published recommendations on mumps immunization in the 1970s, and it in fact remains disputed to this day. But a disease that reportedly caused diabetes, deafness, and brain damage was certainly as worthy of prevention as a disease that caused paralysis—as indeed many Americans seemed to agree. Whether because of the accessibility of vaccines or the portrayal of vaccine-preventable diseases during the Carter immunization campaign—or both—immunization rates rose, including rates of immunization against mumps. By the early 1980s, 97% of American children were vaccinated against mumps.<sup>131</sup> In 1985, the incidence of the disease fell to just under 3,000 cases—an all time low and a 98.1% drop from 1968 levels.<sup>132</sup>

### *Conclusion*

Mumps had of course long been categorized as a common childhood disease. But resources to control the disease were corralled only when the infection posed a threat to the nation's security, by infecting grown men engaged in military or economically productive pursuits. From the beginning of the twentieth century to the end, efforts to

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<sup>131</sup> Centers for Disease Control, "Current Trends Mumps -- United States, 1984-1985," *Morbidity and Mortality Weekly Report* 35, no. 13 (1986): 216-219.

<sup>132</sup> *Ibid.*

thwart mumps' spread through crowded settings, whether barracks or work camps or mental institutions or school districts, belied a concern for the impact of epidemic mumps on the social order of the state. Vaccines against mumps—from Lederle's half-effective vaccine to Merck's MMR—were tools of governance that served the national interests of security and economic efficiency. Mumps vaccination in the U.S. thus exemplified what historian Dorothy Porter has described as the modern democratic, free-enterprise state's configuration of the individual citizen as a "political and economic unit of a collective whole."<sup>133</sup>

That Merck's new live virus mumps vaccine was ultimately sold and bought as an integral part of childhood care is testament to the many socio-cultural meanings that mumps specifically and vaccination generally acquired from 1968 on. Before the 1960s, mumps was a threat to U.S. supremacy because it harmed soldiers and laborers; after its vaccine became available, it represented a threat to U.S. supremacy because it harmed the nation's ability to produce future soldiers and laborers. Before the 1960s, mumps was an uncomfortable if generally innocuous part of childhood, as captured in the Jimmy Dean lyrics about a daughter growing older: "It's a rapid journey and you'll travel light, leaving behind you measles, mumps, freckles, bumps, bubble gum and me."<sup>134</sup> By the 1980s, mumps vaccine, usually given as MMR, had replaced mumps itself as the uncomfortable if generally innocuous part of childhood. Playful cultural references to the disease became a relic of another era. And the value of vaccinating children was firmly

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<sup>133</sup> Porter, *Health, Civilization, and the State*, 57.

<sup>134</sup> Jimmy Dean, *To a Sleeping Beauty* (Columbia Records, 1962).

calculated in terms of the dollars it saved families, businesses, counties, and the country.<sup>135</sup>

Federal health officials and pharmaceutical giant Merck certainly played undeniably active roles in securing a place for mumps in the roster of childhood vaccines, but mumps vaccination was accepted by Americans in this period because of what the disease itself came to signify. Once brought into the spotlight, mumps infection was framed by the cultural preoccupations of the day, including access to technological conveniences, the growing emotional valuation of middle-class children, and predominantly middle-class anxieties about reproduction, mental retardation, urbanization, and economic security. Mumps may not have been a public health priority when Merck's vaccine was introduced, but the vaccine warranted the disease special attention, linking it to the issues of its day. In the end, Americans came to accept the widespread prevention of mumps among children as a remedy for a complex combination of social worries and a convenience no modern family should have to go without.

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<sup>135</sup> Melinda Wharton et al., "A Large Outbreak of Mumps in the Postvaccine Era," *The Journal of Infectious Diseases* 158, no. 6 (1988): 1253-1260.

## Chapter 3

### **A Shot at Reform Jimmy Carter, Bill Clinton, and the Immunization of Children**

Mothers and fathers browsing through the November issue of *Parents magazine* in 1977 came across an article from an unusual contributor: U.S. Secretary of Health, Education, and Welfare Joseph Califano. Califano's article informed readers that President Jimmy Carter had made a commitment to protect American children from preventable disease, but that this commitment could only be fulfilled if parents cooperated and got their children vaccinated. Califano urged parents not to allow diseases that were once "deadly, daily facts of life" resurge through "apathy or ignorance." But "human suffering" wasn't the administration's only, or even most prominent, concern. "The cost to each family, and the nation as a whole, of fully immunizing our nation's young is negligible compared to the cost, in dollars and human suffering, when children are attacked by diseases such as polio, tetanus, whooping cough and diphtheria," Califano wrote. "All it takes to prevent these diseases is a few simple and inexpensive shots for every child." The shots, listed in an accompanying chart, included vaccines against diphtheria, pertussis, tetanus, polio, measles, rubella, and, of course, mumps.<sup>1</sup>

Califano's assertion—that shots were cheap and the diseases they prevented pricey—was no mere selling point; it was, instead, the very reason the Carter administration had thrown its support behind a nationwide initiative to vaccinate all American children. As Medicare and other public health care costs ballooned, no

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<sup>1</sup> Joseph A. Califano, "Immunizing Our Children," *Parents*, November, 1977, 122.

president in the 1970s or afterward was able to ignore the economic burden they presented. Republican and Democratic administrations embraced a variety of public and private solutions to the problem in the last decades of the twentieth century. During that time frame, two Democrats, Jimmy Carter and Bill Clinton, were elected on platforms that emphasized a need for health care reform that controlled costs and secured access to services for the majority of Americans. Once in office, both Carter and Clinton proposed—with very different degrees of urgency—substantial reforms. Neither President’s proposals were adopted, but each one succeeded in implementing incremental measures toward reform that were based on the cost-effectiveness of childhood vaccination.

The childhood vaccination initiatives passed under Carter and Clinton did much to shape the current state of vaccination in the U.S. School entry laws became the norm in states across the country in the 1970s, but were given teeth by changes championed by the Carter administration. Thanks to changes instated under Clinton, federally recommended vaccines are now available to all children, no matter their family’s income or insurance status; child vaccination rates have also remained consistently high since Clinton’s time in office. For Carter and Clinton, childhood vaccine initiatives fulfilled domestic policy agenda goals to improve the plight of children. But the two southern Democrats also deployed vaccination initiatives as politically expedient approaches to cutting health care costs; for both, the initiatives characterized small steps toward a larger vision of overall health system reform. Considering these two initiatives side by side illuminates the ways in which vaccination policies were deployed as instruments of health reform in the late twentieth century. Further, it demonstrates the realization of the



long-held belief (see Chapter 1) that vaccinating children is the most economically expedient route to a healthier populace overall.

Despite their origins in Democratic administrations, the Clinton and Carter vaccination initiatives reflected different sets of political preoccupations and values concerning the health rights and responsibilities of American citizens. In addition to being shaped by different political philosophies, the two federal vaccination initiatives were also shaped by the different economic, political, social, and cultural contexts of their times. As federal projects advancing the provision of health care to every child citizen, the two initiatives became important referents in contemporary debates over the state of the nation's health care system and the government's role in regulating or reforming that system. As effectively deployed tools of health reform, the immunization initiatives of the Carter and Clinton administrations had a pronounced influence on attitudes and beliefs regarding vaccination in the late 1970s and the 1990s, two periods in which the scope and scale of vaccination programs were greatly expanded. The full impact of this influence on lay beliefs about vaccines is described in subsequent chapters; here, the initiatives are described and analyzed as political tools founded on and advancing the cost-effectiveness of vaccinating children.

#### *Carter's Childhood Immunization Initiative*

On April 7, 1977, newly elected President Jimmy Carter announced an unprecedented, "high-visibility," two-year initiative to promote immunization. "Our goal is to reduce as much as humanly possible the numbers of youngsters without medical protection against many major childhood afflictions," Carter wrote in a memo to cabinet

members during his third month in office.<sup>2</sup> The administration set a goal of immunizing 90 percent of all children against seven preventable infections by October 1979, and of establishing a permanent system to ensure the full and timely immunization of the 3 million children born each year. It was an ambitious undertaking: when Carter took office, 20 million of the nation's 52 million children under 14 weren't fully protected against polio, measles, mumps, rubella, diphtheria, pertussis, and tetanus.<sup>3</sup> The number of children getting vaccinated against polio, diphtheria, tetanus, and pertussis had been steadily declining since the late 1960s; as a result, measles cases in particular began to rise in the early 1970s, with several outbreaks erupting in cities across the U.S. in 1976 and 1977.

But while a national vaccination campaign seemed an intuitive response to declining immunization rates and outbreaks, in another respect, the timing of such an initiative may have struck some observers as odd. A year earlier, President Gerald Ford, flanked by polio vaccine developers Jonas Salk and Albert Sabin, had announced an unprecedented campaign to immunize the entire U.S. population against a prophesied epidemic of swine flu. The epidemic never materialized, however, and the \$135 million project was abruptly terminated in December 1976, following reports of paralysis and deaths due to a neurological condition linked to the vaccine. The immunization program was widely mocked in the press, and led to doubt and confusion among the public. Given “this whole swine flu business...I am wondering now whether all vaccinations are really

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<sup>2</sup> Memo, Jimmy Carter to Heads of Executive Offices and Agencies, 4/7/77, Folder: Immunization, Box 32, Collection JC-DPS, Jimmy Carter Library.

<sup>3</sup> Fact Sheet, Childhood Immunization Initiative, Folder: Immunization, Box 32, Collection JC-DPS, Jimmy Carter Library.

safe and effective,” a *Chicago Tribune* reader wrote to the paper.<sup>4</sup> In a triple strike out for health officials, the swine flu debacle coincided with two unforeseen outbreaks, one an unexplainable “mystery disease,” and another a flu outbreak that health officials had inadequately prepared for. “The inability of federal health officials to explain the deaths of the people who attended the American Legion convention in Philadelphia last summer, the hullabaloo over a swine flu epidemic that has not yet materialized, and the irony of not being able to get the A/Victoria flu vaccine without receiving the swine flu shot obviously have left the public shaken,” Harris survey pollsters concluded in early 1977, just after Carter had taken office.<sup>5</sup>

During the 1976 election, which took place as the flaws of the highly publicized swine flu vaccination program were becoming clear, Carter ran—and won—as a Washington outsider who pledged to return transparency, fairness and efficiency to the federal government in the post-Watergate era.<sup>6</sup> The 1976 campaign took place in the midst of a deep recession, high unemployment, and a staggering rise in fuel prices—all of which colored Carter’s approaches to his domestic policy agenda.<sup>7</sup> In his inaugural address, Carter had called on the nation to take on “moral duties” and work together with

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<sup>4</sup> G. Timothy Johnson, "Immunizations Important Despite Swine Results," *Chicago Tribune*, March 18, 1977, A9.

<sup>5</sup> Harris Survey, Activity under Secretary of HEW Joseph Califano, 3/7/77, Folder: Immunization, Box 32, Collection JC-DPS: Records of the Domestic Policy Staff, Jimmy Carter Library.

<sup>6</sup> On the Carter presidency, see John Dumbrell, *The Carter Presidency*, 2nd ed. (New York: St. Martin's Press, 1995); Frye Gaillard, *Prophet from Plains: Jimmy Carter and His Legacy* (Athens: University of Georgia Press, 2007); Burton Ira Kaufman and Scott Kaufman, *The Presidency of James Earl Carter, Jr.*, 2nd ed. (Lawrence: University Press of Kansas, 2006); Herbert D. Rosenbaum and Alexej Ugrinsky, *The Presidency and Domestic Policies of Jimmy Carter* (Westport, Conn.: Greenwood Press, 1994).

<sup>7</sup> Edward D. Berkowitz, *Something Happened: A Political and Cultural Overview of the Seventies* (New York: Columbia University Press, 2006), 104-110.

government “in the spirit of individual sacrifice for the common good.”<sup>8</sup> Once in office, the president routinely urged the American public to do their part to address the nation’s woes, by, for example, turning down thermostats and wearing extra layers indoors to help cut back on total national energy consumption.

Turning down thermostats in winter was certainly one form of individual sacrifice for the common good, but the invocation also aptly applied to the vaccination initiative that Carter and his wife, Rosalynn, urged newly appointed Health, Education, and Welfare (HEW) Secretary Joseph Califano to spearhead in early 1977. Califano, who had helped author Great Society legislations as chief domestic advisor to President Lyndon Johnson, had sought the post in Carter’s cabinet, eager to be part of a renewed push for social programs in the first Democratic administration in eight years.<sup>9</sup> Indeed, the media, and many Democrats, saw Califano’s appointment as presaging “a new dawn of social concern” and a return to the “fond yesterdays” of the Lyndon Johnson years, when civil rights legislation was passed, the War on Poverty declared, and Medicare and Medicaid established to provide health care to the elderly and indigent.<sup>10</sup> Califano assumed the HEW helm with high energy and visibility, prompting one reporter to remark that “he took on his job as though he intended to carry out every Carter campaign promise before Congress even went home for summer vacation.”<sup>11</sup>

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<sup>8</sup> Jimmy Carter, Inaugural Address, January 20, 1977, The American Presidency Project, University of California, Santa Barbara.

<sup>9</sup> Joseph A. Califano, *Inside: A Public and Private Life*, 1st ed. (New York: Public Affairs, 2004), 127.

<sup>10</sup> Robert G. Kaiser, "HEW's Califano: Flashy First Four Months," *The Washington Post*, May 15, 1977, 1.

<sup>11</sup> Rudy Abramson, "Joe Califano: 1-Man Band in LBJ Style," *Los Angeles Times*, May 16, 1977, B1.

Immunizations for all children were not on that initial list of promises, but they did meld with Carter's campaign pledges to improve the state of health care by reining in costs that were climbing faster than the cost of living. By 1977, health care spending constituted more than 8% of gross national product, and individual health care expenses ate up more than 10% of the average household's income. Runaway hospital costs and the high rate of health care inflation (the cost of medical services was climbing more than 10% a year, 3% faster than the rise in costs of other goods and services) were routine front page news. The administration would take two years to draft a proposal for complete reform, but childhood immunization presented itself as one cost cutting measure within easy reach. One reason why: the Carters had a proven model to follow. With a budget of just \$100,000 and the cooperation of county clinics, community groups, the National Guard, and a network of over 10,000 volunteers, the Arkansas immunization campaign led by Betty Bumpers, wife of Senator Dale Bumpers and a friend of the Carters, had fully immunized more than 225,000 Arkansas children in 1973—a fact Bumpers and her husband reminded the new President and First Lady of just after Carter's inauguration.<sup>12</sup>

Following Bumpers' model, the Children's Immunization Initiative, as the Carter proposal came to be known, was billed as a low-cost program with the promise of extraordinarily high returns—critical positioning in the midst of the deep economic recession Carter had inherited from Ford. In press conferences, releases, brochures and speeches, administration officials tallied the historical costs of not immunizing children:

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<sup>12</sup> Letter and Fact Sheet to Parents and Volunteers from Betty Bumpers, "Every Child by 74", 1974, Folder: Children's Immunization Program, Box 7, Collection JC-FL: Records of the First Lady's Office Jimmy Carter Library.

the rubella epidemic of 1964 had cost the U.S. \$1.5 billion, and every child disabled by preventable disease cost states and the federal government a total of \$900,000 in direct and indirect costs.<sup>13</sup> By contrast, mass immunization against measles was estimated to have saved the country \$1.3 billion in health care spending between 1963 and 1974.<sup>14</sup> For \$6 per child—the cost of completely immunizing every unprotected child in the country in 1977—the nation could expect considerable savings on future health care costs, Califano told attendees at one conference. “By immunizing children...we save millions of dollars that would otherwise have to be used on hospital costs and long-term care for those who are seriously afflicted,” said the Secretary.<sup>15</sup> Others, including Senator Bumpers, estimated that widespread immunization would reduce the nation’s health care spending by \$5 to \$10 billion per year.<sup>16</sup>

In keeping with Bumpers’ Arkansas model, Carter’s immunization initiative was not a traditional big government endeavor. Like the Arkansas program, it was frugal: \$57 million was appropriated for the program over three years, totaling less than half the budget for swine flu immunizations alone in 1976. Such a slim budget prevented Congress from looking like “a bunch of fools,” the way funding the failed swine flu program had made them look, in Senator Bumpers’ words.<sup>17</sup> Bumpers advocated before

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<sup>13</sup> Senator Dale Bumpers (AR), Congressional Record, January 31, 1977, Washington, DC, S1661-1663.

<sup>14</sup> Immunization promotional materials, Folder: Immunization, Box 32, Collection JC-DPS: Records of the Domestic Policy Staff, Jimmy Carter Library.

<sup>15</sup> HEW Press Release, Secretary Califano’s Address to the Second National Immunization Conference, 4/6/77, Folder: Immunization, Box 32, Collection JC-DPS: Records of the Domestic Policy Staff, Jimmy Carter Library.

<sup>16</sup> Senator Dale Bumpers (AR), Congressional Record, Washington, DC.

<sup>17</sup> *Ibid.*, S1661.

the Senate for added funding for proven childhood vaccines, above the Ford administration's \$13 million per year, but he stressed the need for an initiative that would be guided by federal government but carried out by both health workers and legions of volunteers. The Carter administration hewed to Bumpers' vision; as Califano described the initiative on the day he announced it to a gathering of public health officials, it "is a campaign that must be waged with the will of our citizens, not the dollars of our treasury."<sup>18</sup>

That will was mustered in large part by massive outreach on the part of HEW officials, including Califano. The final Immunization Initiative, as approved by Congress, directed HEW to "stimulate immunization action"; required the federal Centers for Disease Control (CDC) to administer grants to states to purchase vaccines and run clinics; and contracted the National League of Nursing, with Betty Bumpers as chair, to mobilize and coordinate volunteers. As the campaign got underway, Califano called and wrote directly to governors, labor leaders, publishers, heads of Fortune 500 companies, and television executives, urging them to educate constituents, employees, readers, and viewers of the importance of vaccination. The agency followed up by providing sample publications to print and distribute: "(Name), (title) is coordinating the company's participation in the Immunization Initiative. He urges that all employees check their records to make sure their children are fully protected," stated one sample press release sent to major employers by HEW. In response to Califano's direct pleas to leaders in several industries, network executives ran television spots featuring Star Wars characters R2D2 and C3P0 and children's show host Captain Kangaroo encouraging immunization;

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<sup>18</sup> HEW Press Release, Secretary Califano's Address to the Second National Immunization Conference.

The National Football League made the campaign the focus of its public service announcements; and advice columnist Dear Abby implored her followers to protect their children with vaccines.<sup>19</sup> Governors of the states without any immunization laws agreed, at Califano's direct urging, to put such laws on the books, and states with existing laws took steps to close loopholes and step up enforcement.

But to truly keep costs low, and the imprint of federal government faint, the administration sought a campaign waged, like Arkansas's, at the community level. "If we can tap the deep well-spring of American idealism and draw upon America's notable tradition of voluntarism, then this immunization campaign can stand as a bright example, not of government helping people, but of people helping themselves," Califano told doctors and health officials gathered at the Second National Immunization Conference, shortly after the campaign was announced.

The administration's appeal to Americans' "tradition of voluntarism" reflected a set of commonly held beliefs and was calculated to take advantage of nationwide social trends. Immunization education "must take place at the grassroots level, because that's where the people's attitudes and values are embedded," expounded a Johns Hopkins University professor at a national meeting of vaccine experts in 1976.<sup>20</sup> Indeed, many specific groups served by HEW's policies and programs were already directly engaged in the social movements of the seventies, organizing, for example, to demand rights and

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<sup>19</sup> Abigail Van Buren, "Immunizations Are Vital to Public Health," *Chicago Tribune*, January 26, 1978, A4.

<sup>20</sup> Materials from National Immunization Conference held at NIH, November 12-14, 1976, Folder: Immunization, Box 32, Collection JC-DPS: Records of the Domestic Policy Staff, Jimmy Carter Library.



protections for the disabled, women, gays, and children.<sup>21</sup> In its outreach efforts, the agency worked to turn this trend to its advantage. In letters and brochures sent out to local PTAs, women's clubs, chapters of the Red Cross, the National League for Nursing, and other community groups, HEW called on communities to form Immunization Action Committees. The brochures, with titles such as "A Call to Action" and "Immunization Action Plan," laid out precisely how to wage a community-based campaign: "set goals, recommend policies and procedures, initiate local action...and make sure that things get done." The brochures suggested that committees meet with newspaper editors, hold fundraisers, give presentations to school groups and medical societies, and approach schools and doctors' offices to review records, identify children in need of vaccines, and directly contact their parents. But the agency warned would-be organizers to consult their local health department first: "It is vital that the health professionals be aware of your plans," the brochures stressed.<sup>22</sup> The campaign would be a grassroots one, the administration seemed to be saying, even if its objective was to conform to a mandate from on high.

In repeated interviews, including a television interview with Barbara Walters in 1978, the Carters stressed a mantra of personal responsibility with respect to addressing domestic policy concerns, including low immunization rates. "We have tried to cure the social ills with massive government programs, [but] we've never been able to do that," the First Lady told viewers. "I don't think government can solve all the problems. So I'm

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<sup>21</sup> A broad overview of the social movements of the 1970s and their context is given in Peter N. Carroll, *It Seemed Like Nothing Happened: The Tragedy and Promise of America in the 1970s*, 1st ed. (New York: Holt, Rinehart and Winston, 1982).

<sup>22</sup> Immunization promotional materials.

going to be working encouraging people in their own communities to assume responsibility for the problems around them.”<sup>23</sup> Rosalynn mentioned the immunization initiative later in the interview, and in the days that followed, letters of support rolled in. Ms. Shirley Gomes of Boston wrote the First Lady that the Junior Women’s Clubs of Massachusetts had voted Childhood Immunization as their state project. Mrs. Edward Dewey of Orlando wrote of her State Auxiliary Board’s plans to highlight childhood immunization in their education programs. And countless others described local voluntary groups, education activities, and articles authored, expressing thanks to Rosalynn, who was often put forth as the public face of the initiative, for highlighting an important cause in need of attention.<sup>24</sup>

Given the public skepticism that emerged following the swine flu debacle in late 1976, immunization should have been a tough sell in early 1977. But crafting a nationwide initiative that lacked the imprint of big government helped the Carter administration distance itself from the previous administration’s disgraced campaign. “No nationwide campaign comparable to last year’s swine flu vaccination program is planned,” administration officials told the Associated Press, in what appears to have been a deliberate exaggeration of the truth; a nationwide campaign *was* planned, albeit planned to take the form of a multitude of local campaigns.<sup>25</sup> The Carter program’s relationship with the failed swine flu program was not one of simple rejection, however: Califano and

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<sup>23</sup> Film, ABC News Special: A Conversation with the Carters, December 14, 1978, Jimmy Carter Library.

<sup>24</sup> Letters to First Lady Rosalynn Carter, Folder: Children - Immunization Correspondence, 1/79, Box 7, Collection JC-FL: Records of the First Lady’s Office, Jimmy Carter Library.

<sup>25</sup> Associated Press, "HEW Plans Drive to Inoculate Children," *Chicago Tribune*, April 5, 1977, 10.

others pointed out that the childhood immunization initiative offered an opportunity to “turn the swine flu machine”—that is, the distribution networks and state health offices mobilized to distribute and administer swine flu vaccine—into “a positive effort on behalf of children.”<sup>26</sup> The massive amount earmarked for the swine flu campaign positioned the Carter administration to demonstrate that they could do much more—namely, vaccinate millions of children against known threats—with far less money. The swine flu campaign, administered through the CDC, had also begun to mobilize a network of volunteers to drum up support for swine flu vaccination in the summer of 1976. Earlier that same year, Betty Bumpers had led the National League for Nursing in a move to launch a national immunization promotion campaign, but the effort was abandoned when state health officials turned their attention to swine flu instead. For the Carter administration, the two pools of mobilized volunteers amounted to a tremendous, ready resource.

To the further advantage of the Carter initiative, the need for a nationwide push for immunization was made starkly apparent in early 1977, as school-based measles outbreaks made headlines across the U.S.<sup>27</sup> Indeed, state leaders who had readily agreed to Califano’s request that they tighten laws and step up enforcement likely complied less out of solidarity with the administration than out of fear of spreading measles outbreaks. As the Carter vaccine initiative was taking shape, local governments were already beginning to exercise the enforcement of often vague laws, most dating to the late sixties

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<sup>26</sup> Note from Kathy Cade to Rosalynn Carter, Folder: Children’s Immunization Program, 2/77-12/78 [1], Box 7, Collection JC-FL: Records of the First Lady’s Office, Jimmy Carter Library.

<sup>27</sup> Vernon Thompson, “Red Measles Outbreak Alarms Health Officials,” *The Washington Post*, February 5, 1977, B7.

and early seventies, requiring children to be vaccinated before attending school. In March of 1977, Los Angeles County schools, responding to an outbreak of 1,416 measles cases and working in cooperation with the county health department, announced that as many as 50,000 unimmunized children in the district would be barred from school if not vaccinated by May 2.<sup>28</sup> On the morning of May 3, in an unprecedented move, the district turned away more than 23,000 still-unvaccinated students when they showed up for class.<sup>29</sup> Other districts followed the California county's lead in a nationwide crackdown that was bolstered by the national campaign. Parents in Chicago were told to keep their kids home from school if they weren't vaccinated by fall; Washington, D.C. area schools suspended thousands of students for showing up without their shots; and even rural Watertown, New York, suspended 56 students, including 5 kindergartners, for failing to rack up all of their required vaccines.<sup>30</sup> Throughout that spring, media outlets across the U.S. cooperated with the federal initiative's mandate: when not reporting on measles outbreaks or suspensions, papers publicized the dates and times of public immunization clinics, at which children were vaccinated not just against measles, but against all six targeted diseases.

Eighteen months into the campaign, Califano and Rosalynn Carter addressed a conference held to thank many of the state health and education officials and volunteers

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<sup>28</sup> Harry Nelson, "Measles Ultimatum: L.A. Students to Be Ousted If They Don't Have Shots," *Los Angeles Times*, March 31, 1977, A1.

<sup>29</sup> Jack McCurdy and Harry Nelson, "Schools Bar Thousands Lacking Measles Shots," *Los Angeles Times*, May 3, 1977, C1.

<sup>30</sup> "Warn Parents on Shots," *Chicago Tribune*, February 11, 1978, F9; AP, "5 N.Y. Students Suspended in Immunization Crackdown," *The Washington Post*, Sept 24, 1977, A4; Carla Hall, "Pupils Suspended in Crackdown on Measles Shots," *The Washington Post*, December 2, 1977, B8.

who had spearheaded local immunization efforts. Califano announced that thanks to the initiative (he gave no credit to the pressure exerted by the measles outbreaks), 23 states had updated and strengthened their immunization laws, adding new vaccines, such as those against rubella and mumps, to existing laws, for example, or expanding laws to apply to children in all grades in public and private schools. Thirty-one states had pledged to begin enforcing laws requiring children to be immunized before entering school, and 37 had undertaken review of all school records to identify children who had “slipped through the net.” To state immunization rates rapidly approaching 90%, Califano attributed a 53% decline in measles cases, a 21% drop in mumps, a 13% decline in diphtheria, and an 11% drop in rubella.<sup>31</sup>

But the program’s success was also measured, critically, in dollars, and attributed to widespread cooperation across all sectors of society. As Califano put it: “We doubt, in the 70s, that the Postal Service can deliver a letter in five days, and our doubt is too often justified. So it gives me great pleasure ... to talk about a government program that...is achieving what it set out to do, a program that has drawn the best of the voluntary sector of the states, of the cities, of our health systems, of our school systems, and of our federal system.... For an investment of only 3 million Federal dollars in polio vaccine over the past year, we saved the American public \$262 million....For \$2.1 million spent by the government for rubella immunizations this past year, we believe we’ve saved \$16 million in health care and other costs that would have been required had we not acted.”<sup>32</sup> The

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<sup>31</sup> Remarks by Secretary Califano, Conference on Immunization Held December 12, 1978, Folder: Children – Health, Education and Welfare (HEW) Conference-Childhood Immunization, 12/12/78, Box 7, Collection JC-FL: Records of the First Lady’s Office Jimmy Carter Library.

<sup>32</sup> Ibid.

message was clear: vaccines were cheap, they prevented disease, and by taking responsibility and working in partnership with government and the private sector, the American public could tackle communicable diseases and the toll they took on the nation's economy.

### *Eradication to Epidemic*

The Carter administration's immunization initiative had such a pronounced effect on immunization rates and disease incidence that in the fall of 1978—on the heels of the World Health Organization's announcement that its coordinated vaccination campaign had effectively eradicated smallpox worldwide—Califano announced yet another goal, this one revived from a decade before: the eradication of measles from the U.S. The Carter administration's measles eradication effort combined disease surveillance and response measures with immunization promotion activities, which included enforcing school entry laws and making the measles vaccine available to all citizens, free of charge, at local health departments. By 1980, 96% of all children entering school for the first time were immunized against measles. In 1981, the year Carter left office, there were just over 2,600 measles cases, an all-time low that led public health officials to wax optimistic about the prospect of eradication within a year.

Measles continued to decline, to just under 1,500 cases in 1983—but the trend was short-lived.<sup>33</sup> By the end of the eighties, measles had joined a list of resurgent infectious diseases that included tuberculosis, rubella, syphilis, and gonorrhea, among

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<sup>33</sup> Philip Hiltz, "Panel Ties Measles Epidemic to Breakdown in Health System," *New York Times*, January 9, 1991, A17.

others.<sup>34</sup> Beginning in 1989, a series of measles outbreaks struck cities across the U.S., causing a total of 18,000 cases that year and over 27,000 the following year, in addition to hundreds of deaths.<sup>35</sup> The epidemic disproportionately struck minorities in inner cities, and in particular struck the very young: in 1990, roughly half the measles cases recorded across the nation occurred in children under the age of five.<sup>36</sup> The outbreaks disheartened health officials, who in early 1989—just prior to the start of the epidemic—had revised federal vaccination recommendations to recommend two (instead of one) measles shots before the age of 15 months. The revisions had stemmed from observations that throughout the eighties, persistent measles cases had occurred among unvaccinated infants and schoolchildren who had received just one dose of vaccine.

But the measles epidemic of 1989-1991 indicated that revised recommendations alone were insufficient to stop the spread of the disease. When a federal vaccine advisory panel studied the outbreaks at the behest of the Public Health Service, the resulting Measles White Paper contained much farther-reaching conclusions and recommendations. The panel wrote that although measles immunization levels were close to 100% by the time children entered school, the epidemic was driven by a widespread failure to immunize children at the appropriate age—namely, before the age of two. A number of factors contributed to this failure: the lack of a nationally coordinated system to promote, monitor, and ensure immunization, and a host of health care system barriers,

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<sup>34</sup> Lisa Belkin, "A Resurgence of Plagues and Pestilences of Yesteryear," *New York Times*, January 19, 1992, E4.

<sup>35</sup> "Current Trends Measles - United States 1990," *Morbidity and Mortality Weekly Report* 40, no. 22 (1991): 369-372.

<sup>36</sup> *Ibid.*

including doctors who failed to encourage immunization at routine appointments, a dearth of public clinics and personnel, inconvenient clinic hours, and rules requiring physical exams, doctor referrals, or enrollment in well-baby programs prior to getting a vaccine. The measles epidemic was thus an indication of larger problems with the delivery of health care across the nation, in the panel's opinion.<sup>37</sup> "We also think there is some acute deterioration of the health care system, and we fear that this"—that is, the recent measles epidemic—"may be a warning flag for other problems to come," National Vaccine Program Office head Kenneth Bart told the *New York Times* on the release of the panel's findings.<sup>38</sup>

The measles epidemic thus granted health officials an opportunity to highlight fissures in the nation's health care system, and indeed many took advantage of the outbreaks to blame the Republican administrations of George Bush and Ronald Reagan for shortchanging public health programs throughout the eighties.<sup>39</sup> But in the early nineties, health officials were not alone in pointing out the cracks in the nation's health care systems, both public and private. As in the years leading up to Carter's election, the perilous state of health care—the high cost of services, the large number of uninsured, the shortcomings of private insurance plans—was frequent headline news. In 1991, *U.S. News and World Report* called American health care "scandalous" for its failure to safeguard health and protect families from economic ruin, despite billions spent on

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<sup>37</sup> National Vaccine Advisory Committee, "The Measles Epidemic: The Problems, Barriers, and Recommendations," *Journal of the American Medical Association* 266, no. 11 (1991): 1547-1552.

<sup>38</sup> Hilts, "Panel Ties Measles Epidemic to Breakdown in Health System."

<sup>39</sup> "The Shame of Measles," *New York Times*, May 22, 1990, A26.



insurance and services.<sup>40</sup> *Time* magazine declared the nation's health care in "critical condition," citing prices in defiance of supply and demand and millions of employed uninsured.<sup>41</sup> *Time* announced health care the new "litmus test of American politics," and indeed it topped the list of issues of major concern to American voters in the 1992 election, helping to sweep Democrat Bill Clinton into the presidency late that year.<sup>42</sup>

### *Clinton's Childhood Immunization Initiative*

Like Carter, Clinton took office in the midst of a severe economic downturn and a federal budget crisis—factors that prompted Carter to comment in early 1993 that Clinton was "inheriting more problems than any other president in my memory."<sup>43</sup> Clinton, like Carter before him, identified the nation's broken health care system as a critical factor driving the country's economic woes. Since the 1970s, millions had been added to the ranks of those lacking health insurance, and health care spending had continued to climb as a fraction of family income and gross national product. By early 1993, more than 37 million Americans had no health insurance, health care spending totaled 12.3% of the GNP, and the inflation of health care prices was far outpacing inflation of other goods and services. On the campaign trail, Clinton promised a comprehensive overhaul that

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<sup>40</sup> Susan Dentzer and Dorian Friedman, "America's Scandalous Health Care," *U.S. News and World Report*, March 12, 1990, 24-28,30.

<sup>41</sup> Janice Castro, "American Health Care Condition: Critical," *Time*, November 25, 1991.

<sup>42</sup> Theda Skocpol, *Boomerang: Clinton's Health Security Effort and the Turn against Government in U.S. Politics* (New York: W.W. Norton & Co., 1996), 1-2.

<sup>43</sup> Lloyd Grove, "That Other Southern President," *The Washington Post*, January 14, 1993, C1.

would ensure health coverage for every American and rein in runaway health care spending once and for all.

When Clinton took office in January 1993, he acknowledged that health reform was going to be a formidable task, but it was one that, according to the polls, the majority of Americans strongly supported: one survey revealed that 75% of Americans were willing to pay higher taxes in order to improve access to health care.<sup>44</sup> Although Clinton had initially promised a health care reform plan within his first hundred days in office, a week after his inauguration he announced that his health care task force, headed by his wife, Hillary Clinton, would unveil a plan in May.<sup>45</sup> In the meantime, he announced before a joint session of Congress in February, his administration would face its top priority: the recession. He announced plans for immediate measures to tackle the budget deficit and jumpstart the economy by creating jobs, cutting back on government “waste” and spending, and switching “the balance in the budget from consumption to investment.”<sup>46</sup>

Despite the slightly delayed timetable for health reform, Clinton’ speech emphasized the centrality of health reform to any plan for an economic turnaround. He listed the toll that health care costs would take by the new millennium, when they were projected to swallow up 20% of the average American’s income and account for half of the growth in the nation’s deficit. “All of our efforts to strengthen the economy will fail

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<sup>44</sup> Hart and Teeter Research, "NBC News/Wall Street Journal Poll," January, 1993.

<sup>45</sup> Dana Priest, "Clinton Names Wife to Head Health Panel," *The Washington Post*, January 26, 1993, A1.

<sup>46</sup> William J. Clinton, Address before a Joint Session of Congress on Administration Goals, February 17, 1993, The American Presidency Project, University of California, Santa Barbara.

unless we also take this year, not next year...bold steps to reform our health care system,” he told the nation. “Reducing health care costs can liberate literally hundreds of billions of dollars for new investment in growth and jobs.” The nation faced an imperative for reform and recovery, and both would begin, he continued, with an immediate investment in the health of children. “Each day we delay really making a commitment to our children carries a dear cost,” the President stated. “Half of the 2-year-olds in this country today don't receive the immunizations they need against deadly diseases. Our plan will provide them for every eligible child. And we know now that we will save \$10 later for every \$1 we spend by eliminating preventable childhood diseases. That's a good investment no matter how you measure it,” said Clinton, citing a dollar figure that had been widely quoted by health officials during the measles epidemic of two years before.<sup>47</sup>

The seeds for what would come to be called the Childhood Immunization Initiative had germinated during the 1992 campaign, but were initially sown by the persistent measles outbreaks of the eighties. In the aftermath of the 1989-1991 measles epidemic, states had informed the CDC that in order to stay abreast of immunization targets in the future, they needed not just a steady vaccine supply (during the measles epidemic, some clinics had run dry following unanticipated demand for shots), but also a total of 5,000 additional outreach workers and nurses to educate the public—particularly those in low income and minority communities—and administer vaccines. Clinton campaign strategists took note of this figure and placed immunization on a list of short-term public health stimulus measures to potentially move on in a new administration. An

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<sup>47</sup> Ibid.

immunization initiative offered an opportunity for jobs creation, in their view, in addition to future cost savings. Strategists and subsequent advisors also saw an immunization initiative as a potentially cheap and politically popular move. “Some funds will be required for vaccine itself,” noted presidential advisors Ruth Katz and Tim Westmoreland. “This will, however, be a relatively small portion of the spending because for these hard to reach children, most of the cost is in actually getting them in for immunization shots and making return visits for boosters.” Katz and Westmoreland also pointed out that under the previous administration, childhood immunization legislation was authorized “without dissent.”<sup>48</sup>

In the days leading up to Clinton’s speech before Congress, Secretary of Health and Human Services Donna Shalala requested permission to begin drafting childhood immunization legislation, urging the president to move quickly to introduce a bill. She outlined the political benefits of passing such legislation, tying an immunization initiative to the broader goal of overall reform: “This initiative is...both a first phase of your overall plan to reform the American health care system and a free-standing effort aimed at addressing a fundamental matter of public health safety for all Americans,” she wrote to the President. “It reflects two promises made during the 1992 Presidential campaign: to assure all children access to preventive health services; and to control drug prices which now are escalating at three times the rate of inflation.”<sup>49</sup> Three days later, the Secretary

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<sup>48</sup> Memo from Ruth Katz and Tim Westmoreland, To Josh Steiner 12/9/92, Folder 15, Box 204, White House Health Care Interdepartmental Working Group - Participants Working Papers, William J. Clinton Presidential Library.

<sup>49</sup> Memorandum to the President, 2/7/93, Folder 7, Box 14, Domestic Policy Council, Rasco Subject File, William J. Clinton Presidential Library.

sent the President a second memo identifying the five key components of the proposed bill. The initiative would lower the cost of vaccines, educate the public about vaccination, increase opportunities for people to get vaccinated, fund research in new and improved vaccines, and establish a computerized tracking system to monitor children's vaccination status nationwide. Unlike the Carter initiative, the Clinton plan was aimed at immunizing preschoolers. In an echo of the Carter plan, it aimed to immunize 90% of them, this time within three years, and to establish a permanent system that would ensure the routine vaccination of all infants in the future.

On April 1, 1993, Clinton submitted the Comprehensive Child Immunization Act of 1993 to Congress. The bill addressed the objectives outlined earlier by Shalala, and it proposed to meet two of them—lowering the cost of vaccine and increasing opportunities for people to get vaccinated—by instituting a universal purchase program and by reinstating the National Vaccine Injury Compensation Program. Created by an expired 1986 law passed in response to controversy over side effects linked to pertussis vaccination, the compensation program provided remuneration to families with children injured by vaccines, thereby removing the financial burden of liability from manufacturers. Under the universal purchase program, the Secretary of Health and Human Services would be authorized to negotiate with and purchase from pharmaceutical companies enough vaccines to meet the needs of all children in the country and distribute them to public and private providers, so that all children could be fully vaccinated at little to no charge; the most a doctor or other provider could charge would be a federally determined administrative fee. Administration officials anticipated that universal purchase would be the toughest sell in the Immunization Act, but it served

as an opportunity to set a critical precedent (the administration planned to make immunization a mandated benefit under health reform), and as a key litmus test of support for a bigger government role in health care purchasing.<sup>50</sup> Indeed, one cabinet member called the Act the “lynchpin” of the administration’s campaign for health reform.<sup>51</sup>

But if the initiative was a litmus test, the results did not bode well. No sooner was the proposal announced than manufacturers began voicing strong opposition to the universal purchase component, arguing that it would cut into revenues that were crucial for research and development on new and improved vaccines. Universal purchase “would just kill innovation,” a vice president of the Pharmaceutical Manufacturers Association told the *New York Times*.<sup>52</sup> Clinton officials struck back by arguing that the price of vaccines had become an insurmountable hurdle for many families—and their target diseases an economic burden for the country. In a speech outside the Arlington, Va. county health department, Clinton told the story of Rodney Miller, whose hospital bills for meningitis—a disease that could be prevented with a new \$20 vaccine—totaled more than \$46,000. “American taxpayers are getting hit with ten dollars in avoidable health care costs for every one dollar we could spend on immunization,” Clinton said.<sup>53</sup>

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<sup>50</sup> Ibid.

<sup>51</sup> Memo from Kevin Thurm to Christine Varney, Re Childhood Immunization Initiative, 3/21/93, Folder 8, Box 14, Domestic Policy Council, Rasco Subject File, William J. Clinton Presidential Library.

<sup>52</sup> Robert Pear, "Clinton Considers Plan to Vaccinate All U.S. Children," *New York Times*, Feb 1, 1993, A1.

<sup>53</sup> Statement of the President, Arlington County Department of Human Services, 2/12/93, Folder 7, Box 14, Domestic Policy Council, Rasco Subject File, William J. Clinton Presidential Library.

Throughout the late winter and early spring of 1993, the President was active and visible in promoting the initiative, often in terms that lay the blame for low vaccination rates at the feet of greedy pharmaceutical companies. Vaccine prices, said Clinton, were rising at six times the rate of inflation, while pharmaceutical companies were spending a billion more each year to advertise and lobby than to develop new drugs. The prices of some vaccines had risen well over 1,000 percent in the previous decade.<sup>54</sup> And while some states had succeeded in past years in contracting with drug companies to buy vaccines at federal discount rates (allowable under the 1962 Vaccination Assistance Act), in recent years, the industry had refused to negotiate. “Our message to the drug companies today is: Change your priorities. You’re not going to profit at the expense of our children. These practices must stop,” Clinton said before the crowd of reporters and health officials in Arlington.<sup>55</sup>

The message had traction, making headlines across the U.S. the following day. “Clinton Knocks Drug Prices,” read the cover of the *Chicago Sun-Times*.<sup>56</sup> “Clinton Calls Pharmacy Prices Shocking,” announced the front page of the *Seattle Post-Intelligencer*.<sup>57</sup> Newspapers widely reported figures cited by Clinton: that a full course of vaccines now cost nearly \$250, up from less than \$10 a decade earlier.<sup>58</sup> Blaming drug company

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<sup>54</sup> Summary, Comprehensive Childhood Immunization Act of 1993, Folder 6, Box 14, Domestic Policy Council, Rasco Subject File, William J. Clinton Presidential Library.

<sup>55</sup> Statement of the President, Arlington County Department of Human Services.

<sup>56</sup> Christopher Connell, "Clinton Knocks Drug Prices, Launches Plan for Kids' Shots," *Chicago Sun Times*, February 12, 1993, 1.

<sup>57</sup> P-I News Services, "Profits at the Expense of Children; Clinton Calls Pharmacy Prices Shocking," *Seattle Post-Intelligencer*, February 13, 1993, A1.

<sup>58</sup> Tom Teepen, "A Shot at Helping All Our Kids," *Atlanta Journal-Constitution*, February 7, 1993, 7.

profiteering was a move calculated to buttress not just the vaccine initiative, but the larger Clinton agenda for health reform. Skyrocketing health care costs had already incurred national outrage, with poll after poll revealing that Americans believed the costs of health care were too high.<sup>59</sup> Compared to most other health care commodities, vaccines were cheap, but they provided the administration with a clear example of a set of health care prices that could be controlled with government intervention. A lifetime of protection against six or more infectious diseases might cost well over \$200 at the pediatrician's office, but public clinics were able to offer the same protection for less than half that price, in large part by negotiating bulk discounts with vaccine manufacturers. Such discounts were attracting ever greater numbers to public clinics, administration officials said, putting added pressure on an overburdened system. "We need to stop pediatricians from having to send their patients into already overcrowded public clinics," said CDC director David Satcher at one press conference; it was an anecdote that many cabinet members and aides would echo throughout the spring of 1993.<sup>60</sup> The unnecessarily high price of vaccines, and the spillover of patients from private into public facilities, offered the administration two compelling pieces of evidence that the private system was, in the words of one aide, "unraveling."<sup>61</sup>

Clinton officials often repeated another piece of evidence during what would be a three-month push to move the immunization act through Congress. It was "ironic,"

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<sup>59</sup> Robert Samuelson, "Nationalize Health Care," *Newsweek*, October 26, 1992, 50.

<sup>60</sup> Federal News Service, News Conference Transcript: Vaccines for Children Program, 7/19/94, Folder 8, Box 33, Domestic Policy Council, Rasco Subject File, William J. Clinton Presidential Library.

<sup>61</sup> Memo on Immunization Bill, Folder 6, Box 14, Domestic Policy Council, Rasco Subject File, William J. Clinton Presidential Library.



Clinton said, that the U.S. “develops and produces the majority of the world’s vaccines” but was the only industrialized nation that failed to guarantee those very vaccines for all of its children.<sup>62</sup> The President, First Lady, and cabinet members told reporters that in the Western hemisphere, only Haiti and Bolivia had preschool immunization rates lower than that of the U.S., and Shalala called affordable vaccines “a tenet of all civilized nations” that the U.S. was failing to embrace.<sup>63</sup> A former chair of the Children’s Defense Fund (CDF), a group that lobbied for children’s interests in the capitol, Shalala was perhaps the staunchest supporter of this view and her connections to the organization appeared to have direct bearing on the content of the immunization act and the discourse used to promote it. In the eighties, CDF had launched an effort to promote childhood vaccination, and during the measles epidemic of 1989-1991, the organization had conducted a nationwide survey of community health centers that revealed a shortage of government funded vaccines.<sup>64</sup> In the early nineties, the fund lobbied Congress to increase funding for federal vaccine purchasing.<sup>65</sup> With Shalala appointed to Clinton’s cabinet in 1993, the organization’s position was directly reflected in the Secretary’s proposed legislation. Sara Rosenbaum, director of the Fund’s health division, also served as an advisor to Clinton domestic policy staff. The Fund promoted vaccines as a basic right of children—a right that government should secure much as it did the rights to clean water and education. “We don’t means-test the right to public education, to clean air or clean water,” Shalala

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<sup>62</sup> Statement of the President, Arlington County Department of Human Services.

<sup>63</sup> Memo from Donna Shalala to the President, 2/7/93, Folder 7, Box 14, Domestic Policy Council, Rasco Subject File, William J. Clinton Presidential Library.

<sup>64</sup> “Public Clinics Found to Lack Children’s Vaccine,” *New York Times*, June 19, 1991, C9.

<sup>65</sup> *Ibid.*

said at a Congressional hearing on the Act.<sup>66</sup> “In no other Western industrialized country but South Africa is access to so basic a child health service as vaccine directly tied to family wealth,” she wrote in a memo to promote the Act.<sup>67</sup>

The comparison of the country’s immunization policies to that of other nations—particularly less developed and non-Western nations—was a frequent theme during the debate over the Comprehensive Childhood Immunization Act. Such comparisons dated back to the late eighties, however; and they were often coupled with direct or indirect condemnations of U.S. social policy as uncivilized. Indeed, it was during the measles epidemic that health officials began to point out that the U.S.’s immunization rate was worse than that of nearly every Latin American nation.<sup>68</sup> “Third World Rate Seen in the New York Area,” proclaimed the headline of a front-page article in the *New York Times* Metro section, which went on to point out that when it came to preschool children, Grenada, Uganda, Mexico, Algeria, and El Salvador all had significantly higher immunization rates than New York City.<sup>69</sup> “The U.S. is failing a basic test of civilized societies,” stated the paper’s editorial board, criticizing government for failing to ensure the immunization of the nation’s children.<sup>70</sup>

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<sup>66</sup> Robert Pear, "Clinton, in Compromise, Will Cut Parts of Childhood Vaccine Plan," *New York Times*, May 5, 1993, A1, A20.

<sup>67</sup> Memorandum for the President, Legislative Initiative to Comprehensively Address the Nation's Childhood Immunization Crisis, 2/7/93, Folder 7, Box 14, Domestic Policy Council, Rasco Subject File, William J. Clinton Presidential Library.

<sup>68</sup> Robert Pear, "Bush Announces New Effort to Immunize Children," *New York Times*, May 12, 1992, A18.

<sup>69</sup> Felicia Lee, "Immunization of Children Is Said to Lag; Third World Rate Seen in the New York Area," *New York Times*, October 16, 1991, B1.

<sup>70</sup> "The Shame of Measles."

There were practical reasons leading health officials (and journalists) to compare American vaccination rates to those of the “third world.” By the early nineties, the World Health Organization had announced that its Expanded Program on Immunization, begun in the 1970s, had successfully immunized 80 percent of the world’s infants; the remaining 20 percent of infants were concentrated in world’s poorest countries, largely in sub-Saharan Africa.<sup>71</sup> In the realm of international health, a flurry of other activities in the early nineties—including the first World Summit for Children and the founding of the Children’s Vaccine Initiative, a cooperative effort of the Rockefeller Foundation, World Health Organization, World Bank, and United Nations to vaccinate even the “hardest-to-reach” children—also brought attention to the stark contrast between immunization rates at home and those abroad.

But when newspaper editors, politicians, and laypeople were moved to compare America’s health policy to that of “civilized”—or “uncivilized”—nations, the impulse also had subtler and sometimes more insidious origins. If Americans in the late seventies had a renewed focus on internal affairs following the country’s arduous withdrawal from the Vietnam War, Americans in the nineties were increasingly preoccupied with the perceived globalization of media, technology, the economy, and even disease. As Clinton put it in his inaugural address: “There is no longer a clear division between what is foreign and what is domestic. The world economy, the world environment, the world AIDS crisis, the world arms race: they affect us all.”<sup>72</sup> In the U.S., the emergence of

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<sup>71</sup> Jay P. Sanford et al., "The Children's Vaccine Initiative: Achieving the Vision," (Washington, D.C.: National Academy Press, 1993). (Electronic book.)

<sup>72</sup> William J. Clinton, Inaugural Address, January 20, 1993, The American Presidency Project, University of California, Santa Barbara.

AIDS, the reemergence of tuberculosis among poor and homeless populations in New York, outbreaks of malaria among refugees in California and North Carolina, and the epidemic of measles, previously seen at higher rates in Latin America than in the U.S., all brought the globalization of disease in particular into stark relief. Such episodes highlighted the U.S.'s poor performance in the provision of health care to its citizens, and also reflected moral panic concerning the perceived threat posed by the disease-breeding proclivities of predominantly poor, non-white nations. When Hillary Rodham Clinton solicited letters from the public on the nation's health care system in the spring of 1993, many reflected the notion that the country's failure to secure the health of its citizens was a sign that it was headed toward "uncivilized" disease and decrepitude. "The business of health care is not compatible with the public need for services that a civilized nation requires," wrote one citizen. Health care reform is crucial "if the streets of America are not to become like Calcutta," wrote another.<sup>73</sup>

Clinton's Comprehensive Childhood Immunization Act, as introduced to Congress on the first of April, was a \$1.1 billion program that would have vaccinated every child, expanded clinic sites and hours, educated the public, invested in research, and established a computerized system to keep track of all children's shots. Half of the requested amount—about \$500 million a year—would have gone toward providing free vaccines to every child, and it was this aspect of the bill that attracted the most attention and controversy. Newspaper reporters had no trouble locating doctors and other health experts who opposed the plan, claiming that cost was not the number one barrier

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<sup>73</sup> Letters to the First Lady, Folder 6, Box 358, White House Health Care Interdepartmental Working Group, Participants Working Papers, Ira Magaziner, William J. Clinton Presidential Library.

preventing infants from getting vaccinated. “Vaccines are available. The problem is, the kids are not available,” one pediatrician told the *Washington Post*.<sup>74</sup> In a series of editorials that ran in papers across the country, former Surgeon General C. Everett Koop (who served under Ronald Reagan) denounced the plan as an attempt to treat “the symptoms without trying to cure the disease.” Koop pointed out that a number of states had universal purchase programs in effect, and that at 63 percent, their preschool immunization rates were only marginally better than the 58 percent coverage in states without such programs.<sup>75</sup>

Initially, many of the bill’s foes were predictable along party lines and interests, foreshadowing the fate that awaited the administration’s larger plans for health reform. Republican members of Congress argued that parental ignorance was a bigger problem than cost, pointing out immunization rates were lowest among the poor, who already had access to free vaccines through Medicaid.<sup>76</sup> Drug companies argued that universal purchase would use taxpayer dollars to vaccinate children in wealthy, insured families.<sup>77</sup> Increasingly, Democrats also spoke out against the proposal; at a hearing, Senator Edward Kennedy pointed out that free vaccines had done little to raise immunization rates when England had tried the approach in the 1970s.<sup>78</sup> Facing resistance from

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<sup>74</sup> Amy Goldstein and Spencer Rich, "Health Experts Skeptical About Immunization Plan," *The Washington Post*, April 2, 1993, B1.

<sup>75</sup> C. Everett Koop, "In the Dark About Shots," *The Washington Post*, February 10, 1993, A21.

<sup>76</sup> "The Drive to Vaccinate," *The Washington Post*, May 3, 1993, A18.

<sup>77</sup> Spencer Rich, "Childhood Vaccines Program Cut Back by Administration," *The Washington Post*, May 6, 1993, A25.

<sup>78</sup> Jason DeParle, "With Shots, It's Not Only About Costs, but Stories," *New York Times*, May 16, 1993, E18.

congressional Republicans throughout April, House and Senate leaders worked out a compromise with the administration: to preserve the other components of the bill, the administration agreed to replace the universal purchase plan with a program that would provide vaccines for all Native American children, as well as children without insurance, those covered by Medicaid, and those whose insurance didn't cover vaccines. Ultimately, the Childhood Immunization Initiative was passed as part of the 1993 budget bill. Under the title Vaccines for Children, the modified program authorized the federal government to purchase enough vaccine to provide immunizations at no cost to these select groups of children. The program made federally purchased vaccines available to private physicians in every state. It also guaranteed states the ability to purchase vaccines directly from manufacturers at federally negotiated prices, thereby securing them the option of establishing state-based universal purchase programs at their discretion. (Whereas a handful of states had successfully implemented such programs in the 1970s and 1980s, states that had attempted to establish similar programs in the early 1990s had been rebuffed by pharmaceutical companies who began refusing to sell vaccines to states at the federally negotiated rates.)

During the 1996 re-election campaign, Clinton staffers compiled a long list of health care measures passed during Clinton's first term; the Vaccines for Children program was high on the list. By then, 75% of two-year-olds were fully immunized, and more than 90% of the toddlers had at least one dose of all of the recommended vaccines—a "historic high" that surpassed the president's 1993 goals and that was touted, along with equivalent vaccination rates across children of all racial and ethnic groups, as one of the administration's major accomplishments. But Republicans and the media were

reluctant to credit the Clinton program. “Immunization of Children Rises Slightly,” announced a headline in the *New York Times* on the Childhood Immunization Initiative’s progress.<sup>79</sup> And during the partisan, polarized debates over health care reform, which the Clinton administration failed to enact, Republicans argued that immunization rates had risen through the nineties not because of Clinton, but because of the steps taken by Bush officials in response to the measles epidemics that struck in 1989.<sup>80</sup>

### *Immunization and Political Values*

Both Carter and Clinton’s immunization initiatives served their respective administrations as political tools as well as instruments of reform. Despite both originating with moderate southern Democrats moved to tackle the nation’s health care woes, however, the two Presidential initiatives reflected fundamentally different beliefs about the barriers to universal vaccination as well as the appropriate role of government in the delivery and management of health care. Each initiative’s form and content also reflected the very different political, economic, social, and cultural context into which it was introduced.

The prevailing views of the U.S. health care system and its most urgent failings informed the shape that the Carter initiative took in the seventies and the distinctly different shape that Clinton’s initiative took in the nineties. In the seventies, as sociologist Paul Starr and others have described, lawmakers and experts were most

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<sup>79</sup> James Bennett, "Immunization of Children Rises Slightly," *New York Times*, July 24, 1997, B8.

<sup>80</sup> Peter Baker and Judith Havemann, "Child Immunizations Rise Sharply, U.S. Says," *The Washington Post*, July 27, 1997, A16.

concerned over the excesses of the health care system.<sup>81</sup> As political scientists Kant Patel and Mark Rushefsky note in their analysis of U.S. health care policy, from the 1940s through the 1960s, policies had been designed to address shortages in the health care system; the result, by the 1970s, was too much: too much technology, too many hospitals with too many beds, too many physicians, and a glut of goods, services, and providers that (contrary to the classical economic model of supply and demand) drove prices up, not down, as it encouraged profligate use of tests and treatments.<sup>82</sup> Applying this perception of excess to the problem of low vaccination rates that the U.S. faced in the mid-seventies meant that the problem was not perceived as one of a shortage of vaccines, but rather as one of people not making enough use of them. In the same way that the health care industry as a whole was engaged in a wide-scale effort to encourage the use of excess hospital beds and new technologies (while government, meanwhile, bemoaned the industry's lack of efficiency), the Carter initiative was conceived as an effort to get people to avail themselves of the new and effective vaccines that medicine now had to offer. In the seventies, many of the recommended vaccines were indeed still relatively new: new measles and mumps vaccines had been licensed at the turn of the decade, and the combined measles, mumps, and rubella vaccine was new as of 1971.

Although the health care system could have been characterized by excess in the nineties, as well, this was not the prevailing view, according to Patel and Rushefsky.

During the Reagan administration, federal health care measures often took the form of

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<sup>81</sup> Starr, *The Social Transformation of American Medicine*, 379-381.

<sup>82</sup> Kant Patel and Mark E. Rushefsky, *Health Care Politics and Policy in America*, 3rd ed. (Armonk, N.Y.: M.E. Sharpe, 2006), 45.



cuts; preventive health program funding was trimmed and Medicare reimbursement rates were reduced, among other measures, all in efforts to contain the rising costs of the health care system. In the interest of reducing the scale of federal government involvement in health (and other social services), states and local governments were granted more spending discretion. But despite deep cuts, health care costs, including the cost of Medicare, continued to climb through the early nineties.<sup>83</sup> By then, inequality, not excess, was viewed by many health officials and health policy experts as the fundamental failing of the health care system, according to Patel and Rushefsky. Thirty-seven million were uninsured by the time Clinton ran for office, and even among the insured, lack of regulation led to uneven coverage. The measles epidemic of 1989 revealed not only that the poor, Hispanics, and African Americans were not being served by the health care system, but also that the insured were not being served; the Measles White paper, for example, attributed the epidemic, in part, to the fact that less than half of conventional health plans covered the cost of vaccination.<sup>84</sup> By the nineties, that is, the predominant view of the health care system that took shape among many health officials was that it was unjust, its doors closed to minorities, the poor, and increasingly, the middle class. In large part, the Clinton initiative was shaped in response to this view: by attempting to secure free vaccine for every child, the initiative was an attempt to address the failure of the private system to make affordable vaccines available. By allotting funds to hire more health care workers and extend clinic hours (which it succeeded in doing), and by

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<sup>83</sup> Ibid.

<sup>84</sup> National Vaccine Advisory Committee, "The Measles Epidemic: The Problems, Barriers, and Recommendations."

attempting to establish a system to track the immunization status of every child (which it didn't succeed in doing) the initiative also sought to decrease health care access differentials across lines of class and race. Whereas Carter's initiative was designed to encourage communities to take advantage of existing resources, the Clinton initiative, by contrast, was characterized primarily by an aim to increase and redistribute resources; both approaches were responses to their political allies' dominant conceptions of the health care systems in their times.

Despite their apparent agreement that health care was a "Democratic issue," as Clinton pollster Stanley Greenberg called it, Clinton and Carter approached the politics of health care in ways that also reflected distinct political preoccupations, priorities, and values. Both took office in the midst of severe economic downturns, and both were compelled to address the nation's economy as a whole before offering proposals on reforming health care. Clinton, however, kept health care at the top of his agenda, even while introducing stimulus measures to rejuvenate the economy. Carter, by contrast, believed that comprehensive reform would have to wait until the economy had substantially recovered; his stalling eventually frustrated and alienated many in his own party.<sup>85</sup> Whereas Clinton lost no opportunity to draw out the link between the failing economy and the broken down health care system, Carter was far more tentative regarding the promise of health reform. Instead, he followed the counsel of his advisor Peter Bourne, who urged him to tell the public that national health insurance would not be a panacea, and that there were a number of other ways—childhood immunization among

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<sup>85</sup> Starr, *The Social Transformation of American Medicine*, 412-413.

them—to improve health and lower costs “without massive new federal expenditures.”<sup>86</sup> Carter’s immunization initiative is a prime example of the embodiment of this view.

The gap between Carter and Clinton’s political values became starkly evident during one month in the spring of 1993. As Clinton was attempting to push his immunization initiative—replete with universal purchase provision—through Congress, Carter was promoting immunization in his own way, with star power and volunteers in his home state of Georgia. In April of that spring, Carter’s Atlanta Project, a non-profit effort dedicated to improving quality of life for urban Atlantans, recruited 7,000 volunteers to knock on 200,000 doors to encourage parents to bring their children in for free shots at immunization drives held across the city. The project was funded by corporate donors; administered vaccines already on hand at state and local health departments; and promised volunteers and vaccinees an audience with pop star Michael Jackson at the end of the campaign.<sup>87</sup> By May, as the Clinton administration was announcing its compromise on the universal purchase provision, the Atlanta Project announced that it had immunized 17,000 children, surpassing its goal of 10,000. “We have to say, too, that we hope President Bill Clinton was watching what happened here,” wrote the editorial board of the *Atlanta Journal Constitution*. “If he was, and if he understands it, he may not feel so bad about having to drop his proposal to spend more than a billion dollars in non-existent federal money for mass free immunization.”<sup>88</sup>

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<sup>86</sup> Memo from Peter Bourne to Hamilton Jordan, Kennedy and Health Policy, 1/28/79, Folder HE, Box HE-10, Jimmy Carter Library.

<sup>87</sup> "Atlanta Project Pulled It Off," *Atlanta Journal-Constitution*, May 5, 1993, A12.

<sup>88</sup> "How to Help Immunization," *Atlanta Journal-Constitution*, May 5, 1993, A14.

The immunization initiatives of Carter and Clinton also suggest two distinct views on citizenship, or, more specifically, health citizenship, the combination of health-related rights granted by the state and related responsibilities assumed by its inhabitants.<sup>89</sup> Both administrations saw health citizenship as encompassing a balance of rights and responsibilities on the part of citizens, but when it came to immunization in particular, they weighed these out rather differently. To the Carter administration, immunization was first and foremost a duty of citizenship; to the Clinton administration, it was a right of citizenship. In crafting the administration's message on health inflation, Carter's chief domestic policy advisor Stu Eizenstat urged an emphasis on personal responsibility—the same tactic the administration had employed in the area of energy policy. “There is no health inflation policy we can develop that would do more good than sensible living by the American people,” said Eizenstat. “The American people should reduce their intake of alcohol and tobacco; they should get more exercise and drive more safely; they should have their children immunized; and they should seek early care for pregnancy, hypertension, and other conditions.”<sup>90</sup> If health care prices were high, that is, it was up to individual Americans to take steps to avoid paying such prices. Government would help, but responsibility lay ultimately with each individual citizen.

The Clinton administration adopted a very different position. The administration's view was epitomized by the argument, adopted from the Children's Defense Fund and articulated most often by Secretary Shalala, that vaccinations were, like clean water and

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<sup>89</sup> Porter, *Health, Civilization, and the State*, 57.

<sup>90</sup> Memo from Stu Eizenstat to Jody Powell, 2/28/77, Folder: HE 1/20/77-7/22/77, Folder: HE 7/1/77-1/20/81, White House Central File, Jimmy Carter Library.

education, fundamental rights that the state had a duty to provide to all children, regardless of family income. When members of Congress denounced the Childhood Immunization Act for creating a new entitlement in the midst of a budget crisis, some suggested adding a mechanism to ensure that only needy children—not all children—obtained free vaccine. Shalala responded that vaccinations should be treated no differently than other basic, agreed-upon rights of every child, such as access to an education.

When it came to matters of health, the Clinton administration (in 1993, at least) espoused the belief that citizens could not fulfill their individual responsibilities unless the state fulfilled its obligations; under Carter, citizens were urged, first and foremost, to act responsibly in the interest of the state. These distinct views are indicative of personal differences and differences in political values, but they also reflect differences in the overarching social and political contexts into which the Carter and Clinton initiatives were introduced. With respect to vaccine-related events, Carter took office on the tails of the swine flu fiasco, a “big government” effort that ended in embarrassment for Congress and the Ford administration; Carter followed with a “small government” approach to encouraging vaccination. Clinton, by contrast, took office in the wake of the measles epidemic, during which Democrats and health officials loudly voiced frustration over the Bush administration’s unwillingness to enforce federal leadership to stem the spread of infection. During the height of the epidemic, Bush told parents that vaccines were available, and that it was up to them to ensure their children were properly immunized.<sup>91</sup>

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<sup>91</sup> Ann Devroy, “Bush Announces New Push to Improve Vaccination Programs,” *The Washington Post*, June 14, 1991, A17.

Democrats, public health officials and lay observers responded by demanding government intervention to control vaccine prices and improve access to vaccines. Johns Hopkins University vaccine expert D.A. Henderson attributed the epidemic to “dangerous complacency” on the part of the federal government.<sup>92</sup> Senator Dale Bumpers (still in office) called for more federal dollars for immunization to expand clinic capacity and reach out to parents.<sup>93</sup> Parents themselves called the price of measles shots an “outrage” and a “disgrace.”<sup>94</sup> Clinton responded to these calls by lifting a pointed finger at drug companies and offering a big government, top-down solution to the problem of low immunization rates.

A broader set of issues and events are also reflected in each President’s immunization promotion efforts. Taking office in the mid 1970s, with apartheid in South Africa and the atrocities of the Khmer Rouge in Cambodia and dictatorial regimes in Argentina and Chile a constant theme of current events, Carter had placed the defense of human rights at the center of his foreign policy agenda; his domestic agenda, in turn, often framed health care as a rights issue.<sup>95</sup> When Carter announced the U.S.’s participation in the International Year of the Child in 1979, he explained the country’s participation as a matter of human rights, urging that the U.S. could do better by its 10 million children who had never been to a doctor, and the 25 million who had never been

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<sup>92</sup> Susan Okie, "Vaccination Record in U.S. Falls Sharply," *The Washington Post*, March 24, 1991, A1.

<sup>93</sup> Devroy, "Bush Announces New Push to Improve Vaccination Programs."

<sup>94</sup> Mary G. Fontrier, "Price of Vaccines for Measles Criticized," *New York Times*, September 17, 1989, LI25.

<sup>95</sup> Berkowitz, *Something Happened: A Political and Cultural Overview of the Seventies*, 111.

to a dentist.<sup>96</sup> In his social history of American medicine, Paul Starr argues that in the seventies, a “generalization of rights” early in the decade was followed by a “generalization of doubt” later in the decade; both are illustrated by Carter’s positions on vaccination and health care policy. Framing medical care, including immunization, as a right of children (a position critically distinct from framing it as a right of citizens) meshed with the “generalization of rights” that occurred in the early to mid seventies, in which movement upon movement advocated for the rights of “women, children, prisoners, students, tenants, gays, Chicanos, native Americans, and welfare clients.”<sup>97</sup> The subsequent “generalization of doubt” that spread in the late seventies refers to growing popular skepticism that social services, including health services, were either useful or effective; as Starr points out, social services were increasingly regarded as potential means of social control. Whether intentional or not, the Carter’s immunization initiative likely avoided this taint in part by virtue of its deliberate guise of a “grassroots” endeavor.

The promotion of Clinton’s initiative, meanwhile, reflected a different set of national preoccupations—specifically, the promise of genetic engineering and the specter of emerging and re-emerging infections. In 1986, the Food and Drug Administration had approved the first genetically engineered vaccine, against hepatitis B virus.<sup>98</sup> The vaccine debuted with much fanfare, making headlines across the nation; scientists predicted—and

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<sup>96</sup> Office of the White House Press Secretary, Remarks of the President Upon Announcing U.S. Participation in the International Year of the Child, 6/28/78, Folder: Children - IYC, Box 7, Collection JC-FL: Records of the First Lady’s Office, Jimmy Carter Library.

<sup>97</sup> Starr, *The Social Transformation of American Medicine*, 388.

<sup>98</sup> Philip Boffey, "U.S. Approves a Genetically Altered Vaccine," *New York Times*, July 24, 1986, A1.

newspapers reported—that the successful deployment of the technology behind the hepatitis B vaccine opened the door for the development of a host of vaccines against incorrigible infections, including HIV and malaria.<sup>99</sup> The promise of new, safer vaccines held profound meaning in the early nineties: concerns about the safety of the whole-cell diphtheria-pertussis-tetanus vaccine, which had been linked to severe side effects and infant deaths, had led to a loss of popular faith in traditional vaccine technologies in the early eighties. At the same time, the emergence and re-emergence of a host of infectious diseases—paired with the discoveries that infectious agents were at the route of some cancers and ulcers, conditions previously thought to be incommunicable—led to a national preoccupation with deadly infections, including AIDS, ebola, and tuberculosis, in the early nineties. The *New York Times* announced that the nineties were witnessing a “resurgence of plagues and pestilences of yesteryear.”<sup>100</sup> The bestselling authors of books including *The Hot Zone* and *The Coming Plague* both capitalized on and drove the cultural obsession.<sup>101</sup> The Clinton administration’s rhetoric emphasized the promise of vaccines to combat deadly infections and the pride that the U.S. should take in its role in vaccine research and development. “It’s a miracle of our system and our ingenuity that we can prevent the worst infectious diseases of children with vaccines,” said Clinton.<sup>102</sup>

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<sup>99</sup> Nell Henderson, "Genetically Engineered Vaccine Approved for Human Use," *The Washington Post*, July 24, 1986, A9.

<sup>100</sup> Belkin, "A Resurgence of Plagues and Pestilences of Yesteryear."

<sup>101</sup> Laurie Garrett, *The Coming Plague: Newly Emerging Diseases in a World out of Balance* (New York: Farrar, Straus and Giroux, 1994); Richard Preston, *The Hot Zone*, 1st ed. (New York: Random House, 1994).

<sup>102</sup> Office of the Press Secretary, Remarks by the President at Reading of Immunization Proclamation, 4/12/93, Available at <http://www.clintonlibrary.gov/archivesearch.html>, William J. Clinton Presidential Library.



All that was necessary to meet the current scourge of infections were policies to ensure the bounties of American technology were accessible to every child in the country. In the administration's conception of health citizenship, that technology was the health right of every child citizen.

In his analysis of the politics of vaccination, historian James Colgrove argues that over the course of the twentieth century, the prevailing explanation as to why parents did not have their children vaccinated shifted: prior to 1950, he writes, doctors, health officials, and lawmakers saw parental ignorance as the key reason for low immunization rates; after 1950, low immunization rates were more likely to be explained as a failure of the health care system.<sup>103</sup> Considering the Carter and Clinton vaccination initiatives side by side, however, reveals that this transition took place more slowly than Colgrove suggests. It also demonstrates that parental ignorance (and its correlate, parental or personal responsibility) is laden with significant meaning in a nation seemingly intransigent on the question of national health care.

During Carter's presidency, failings of the health care system were a concern vis-a-vis low immunization rates, but the predominant discourse at the time held parents culpable. Educational materials printed by the Department of Health, Education, and Welfare attributed low immunization rates to "parental negligence," "oversight," and "misunderstanding."<sup>104</sup> In an editorial on immunization written for *The Washington Post*,

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<sup>103</sup> Colgrove, *State of Immunity: The Politics of Vaccination in Twentieth-Century America*, 11.

<sup>104</sup> "Feature", not dated, Folder: Immunization, Box 32, Collection JC-DPS: Records of the Domestic Policy Staff, Jimmy Carter Library.

Rosalynn Carter lamented the “laissez-faire attitude of many parents.”<sup>105</sup> In an article for *Parents* magazine, Califano called immunization “the job of every parent.”<sup>106</sup> Many members of the public agreed with this assessment: “Place the blame where it belongs: on the neglectful, careless, thoughtless parent,” wrote one *Los Angeles Times* reader in a letter to the editor.<sup>107</sup> Of course, not every American agreed that it was solely the parent’s responsibility to ensure every child was immunized. “We work hard to maintain a 97% immunization level in a rural county, but can do it only through free clinics,” said Marthella McLarnan, a nurse in Mt. Vernon, Ohio, in a letter to Rosalynn Carter.<sup>108</sup> But even this request for the federal government to play a greater role in ensuring the widespread vaccination of children adhered to the widely accepted principle that personal (or in this case community) responsibility was the key to keeping immunization rates high.

During the Clinton presidency, individuals on occasion voiced the opinion that parents were to blame for not vaccinating their children, but condemnations of the health care system, which had gained currency during the measles epidemic, were far more common—at least in the beginning. When Clinton unveiled his vaccine initiative, many commentators agreed—initially, at least—that it was a good idea for government to provide all children with free vaccines, precisely because inadequacies of the health care

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<sup>105</sup> Rosalynn Carter, Notes, 12/78, Folder: Children - Immunization, Box 7, Collection JC-FL, Records of the First Lady’s Office, Jimmy Carter Library.

<sup>106</sup> Califano, “Immunizing Our Children.”

<sup>107</sup> Helen H. Doane, “Letters to the Times,” *Los Angeles Times*, May 11, 1977, E4.

<sup>108</sup> Letter from Mrs James Conard McLarnan to Rosalynn Carter, 5/22/79, Folder WE 1, Box 138, Collection JC-FL, Records of the First Lady’s Office, Jimmy Carter Library.

system appeared to be at the root of the problem. “Most developed countries have a national system for child immunization. We have only a loose patchwork of private and public care, with uncertain funding,” lamented one newspaper columnist.<sup>109</sup> Even vaccine manufacturer Merck (trying to deflect attention away from outrage over high drug prices) took up the cry that the system was the problem. “The real barriers to preschool child immunization are failures in the health care delivery system,” a company spokesperson told *The Washington Post*.<sup>110</sup>

But the consensus that placed blame on the health care system was fleeting—and in retrospect seems a harbinger of what was to come for the overall Clinton health reform plan. As Clinton backed down on universal purchase, even the media seemed to change its mind about how much—and what type—of government intervention was need to boost immunization rates. When the Clinton proposal was first announced, the editorial board of *The Washington Post* supported the idea of universal purchase.<sup>111</sup> In May, the board changed its position, positing that federal funds would be better spent on education and outreach.<sup>112</sup> *The New York Times* appeared to agree, running in mid-May a feature that highlighted the stories of poor families that failed to vaccinate their children not because of a lack of free vaccine, but because of the complexities of living in poverty.<sup>113</sup> Clinton’s own message would gradually shift, too, in particular as his administration

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<sup>109</sup> Teepen, “A Shot at Helping All Our Kids.”

<sup>110</sup> Spencer Rich and Ann Devroy, “President Blasts Cost of Vaccines,” *The Washington Post*, February 13, 1993, A1.

<sup>111</sup> Editorial, “Immunity for the Children,” *The Washington Post*, February 4, 1993, A20.

<sup>112</sup> Editorial, “The Drive to Vaccinate,” *The Washington Post*, May 3, 1993, A18.

<sup>113</sup> DeParle, “With Shots, It’s Not Only About Costs, but Stories.”

crafted its approach to its next domestic agenda item, welfare reform. Clinton's welfare reform plan—which Congress did enact in 1996—espoused a strong emphasis on personal responsibility. “Governments don't raise children, parents do,” was the message the President put forth, in the aftermath of the administration's failure to pass health care reform. Contrary to Colgrove's assessment, the notion that parents were to blame for their children's wellbeing—including their immunization status—was still firmly in place at the end of the twentieth century.<sup>114</sup>

### *Conclusion*

The Carter and Clinton immunization initiatives were crafted with ostensibly similar objectives: the immunization of 90% of the target population (schoolchildren in the Carter years; preschoolers in the Clinton years) and the establishment of a system to ensure the continued immunization of all children, all in the interest of reining in health care costs. Both initiatives also served as prototypes, in practice or in theory, that demonstrated potential roles the federal government could play in the provision of health services to its citizens. Despite sharing similar objectives and originating in Democratic administrations, however, the prototypes were hardly congruous, as Carter's grassroots-type campaign now stands in sharp contrast to Clinton's top-down vision.

This distinction between the two initiatives speaks in part to differing political philosophies on the part of the two presidents. It also speaks to a larger, enduring debate over the appropriate balance of individual rights and responsibilities in the continuing

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<sup>114</sup> Talking points, 1/5/94, Folder 8, Box 13, Domestic Policy Council, Reed Welfare Reform Subject File, William J. Clinton Presidential Library.

endeavor to make health services affordable and accessible to all individual Americans, as well as the nation as a whole. To a degree, each president's respective emphasis was informed by the particular moment in which he introduced his initiative. The swine flu campaign, inflation, and concern for human rights abroad were all reflected in the Carter initiative, just as the measles epidemic, the budget crisis, and a resurgence of infectious diseases were all reflected in the Clinton initiative. Ultimately, both initiatives achieved their stated goals; both have also had lasting effects on immunization status in the U.S., by making vaccines widely available and the laws encouraging their use widely enforceable. However, between the two, only Clinton's initiative did not survive in its original form, as it evolved from a program that would have made vaccination a guaranteed entitlement of all children to one that circumscribed the federal government's role in immunization provision much more narrowly. The political and popular response to both initiatives provides evidence in support of an abiding American preference for emphasis on personal responsibility in health care, even when it comes to the health care of the country's youngest citizens.

## Chapter 4

### **A Mother's Responsibility Women and Vaccine Skepticism**

When Health, Education, and Welfare Secretary Joseph Califano and First Lady Rosalynn Carter addressed the National Conference on Immunization in late 1978, they congratulated health workers and volunteers on their progress vaccinating the nation's children. As they urged the crowd to keep working toward the goal of immunizing ninety percent of all children, they stressed the need to reach out to parents and inform them of the importance of vaccination. This outreach was largely targeted at a particular type of parent: mothers. Califano promised conference attendees that they'd be discussing new plans to reach out to the mothers of the three million children born each year, to ensure that they received the message that vaccines were vital for their children's health. "Mothers need to know the crucial importance of shots early in their children's lives," Mrs. Carter told the crowd.<sup>1</sup>

Political discourse concerning vaccination from the 1970s through the early 1990s often emphasized parental responsibility for children's immunization status, as described in the previous chapter. However, in the multiple vaccine-related discourses from the early part of this period—in political as well as popular and scientific discourses—references to parental responsibility were often understood as references to maternal responsibility. In the 1970s, politicians, health professionals, and even parents themselves often saw mothers as the party primarily responsible for obtaining needed vaccines for

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<sup>1</sup> HEW Immunization Conference - Mrs. Carter's Remarks, December 12, 1978, Folder: Children, HEW Conference, Childhood Immunization, Box 7, Collection JC-FL, Jimmy Carter Library.

children. The Carter administration's campaign to immunize children thus targeted mothers, and indeed relied to a great extent on women volunteers to reach out to these mothers. The centrality of maternal engagement to federal immunization goals in this period had direct relevance for the vaccine crisis that unfolded in the 1980s, a connection that has yet to be explored.

If the Carter administration oversaw an expansion of federal support for immunization—maternal involvement notwithstanding—the subsequent era, marked by the 1980 election of Ronald Regan, saw a contraction of this support. Reagan's promises of a new era of small government meant that federal immunization funds were in constant threat of being slashed.<sup>2</sup> A few years into his presidency, however, a coalition (albeit a tenuous one) of doctors, pharmaceutical companies, and consumers effectively lobbied for a new law that would increase government oversight of vaccine safety. That law, the 1986 National Childhood Vaccine Injury Compensation Act, was the pet project of a newly formed consumer group that called itself Dissatisfied Parents Together, or DPT, after the diphtheria-pertussis-tetanus shot whose adverse effects came under nationwide scrutiny in the early 1980s.<sup>3</sup> As its name suggests, DPT was comprised of mothers and fathers; however, the group's membership was predominantly female from its inception, and its members often fashioned themselves as mothers who, through the suffering of their vaccine-injured children, were victims of the medical-industrial complex.<sup>4</sup> Mothers

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<sup>2</sup> United States Senate Committee on Labor and Human Resources, *Immunization and Preventive Medicine* (Washington: U.S. Government Printing Office, 1982).

<sup>3</sup> In this chapter, I use "DPT" to refer to the parents group and "DPT vaccine" to refer to the immunization.

<sup>4</sup> A.S. Relman, "The New Medical-Industrial Complex," *New England Journal of Medicine* 303, no. 17 (1980): 963-970.

emerged as the most prominent leaders in the nationwide movement that DPT gave shape to, and they grounded their claims for a greater role in scientific and medical decision-making with respect to vaccination in their right, as mothers, to information relevant to their children's health, and in their expertise as their children's primary caregivers.

The story of DPT has been analyzed in brief by historians Robert Johnston and James Colgrove.<sup>5</sup> To date, however, historians have yet to fully consider the complexity of factors that affected the timing and content of mothers' critiques of vaccination in this period, or the factors that drove these mothers to voice their concerns and begin organizing for political changes affecting vaccination. This chapter thus examines women's conceptions of vaccines and vaccine policies from the 1970s through the 1980s, in order to bridge the history of vaccines at this time to the history of women's health. Because changing vaccination policies focused on children in this period, mothers comprised the majority of lay women commenting on vaccines. During the 1970s, mothers were widely viewed as the party ultimately responsible for children's vaccination; during the same period, mothers (and grandmothers) expressed an ambivalence toward vaccines and vaccination norms. Vaccination-related discourse at this time brought into relief tensions created by second-wave feminism and the changing social, economic, and civic roles of women, particularly mothers. By the late 1970s and early 1980s, women who began to openly voice criticisms of vaccines and vaccine policies employed a rhetoric that reflected the influence of the New Left movements of the 1960s and 1970s, including the anti-medicalization, women's health, and health

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<sup>5</sup> See Colgrove, *State of Immunity: The Politics of Vaccination in Twentieth-Century America*, 211-217; Johnston, "Contemporary Anti-Vaccination Movements in Historical Perspective," 263-266.



consumer movements. They were angered by what they perceived as the medical profession's tight control over knowledge relevant to their children's well being; they were also angered by what they construed as government laxity in the arena of vaccine safety. They complained that doctors and health officials lied to, belittled, and misled patients; that the doctors were male and the patients were female in the vast majority of accounts from this period ties these grievances to the feminist critique of medicine of the previous decade.

However, despite the initial, arguably liberal, demands of these vaccine critics in the 1980s—that is, for increased government protection against vaccine risks—the movement's conservative sociopolitical climate in the late 1970s and early 1980s informed its frustration with “Soviet-style” immunization laws; this, in turn, helped form the basis for its argument for greater freedom of choice in health care decision making in the mid-1980s. While the argument for greater independence in health care decision making can be viewed in part as a legacy of the women's health movement, in this case it also reflected a persistent American impatience for big-government health care policies. Vaccine skepticism in this period thus reflects a far more complex set of ideological influences than previous histories of vaccination resistance, which have emphasized the importance of libertarian critics, have suggested. At the end of the twentieth century, by contrast, vaccination criticism layered conservative political ethics atop New Left critiques of social hegemonies.

### *A Mother's Responsibility*

The Children's Immunization Initiative that got underway in early 1977 was, at the grassroots level, carried out largely by women and mothers—members of local women's clubs, nursing leagues, and parent-teacher associations—who volunteered to reach out to other mothers and urge them to vaccinate their children. The Carter campaign's dependence on women volunteers was, by then, a well-established tradition in the history of immunization promotion. From the 1940s through the 1960s, the National Foundation for Infantile Paralysis, the national organization that supported care for polio victims and research on potential cures and vaccines, relied heavily on its tens of thousands of volunteers to raise funds and promote its cause. It was the foundation's bevy of women volunteers who raised money for polio treatment and vaccine research and helped carry out vaccine field trials in the 1940s and 1950s, imprinting upon the American memory the legendary image of mothers marching en masse, posters and collection cans in hand. They were women in hospital boards and Parent-Teacher Associations with "both the time and the passion to work against childhood disease," as well as a culturally informed sense that, as mothers, involvement in such causes was their civic duty.<sup>6</sup>

Mothers did not always exclusively comprise vaccination-drive volunteers in mid-century; rather, they most often did so when children were the specific target of such campaigns. The Salk and Sabin polio vaccines that came into use in the 1950s and 1960s were administered in the early years not only to children, but to citizens of all ages. Capitalizing on postwar patriotism, the polio vaccine campaign rallied more than 90,000

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<sup>6</sup> Smith, *Patenting the Sun: Polio and the Salk Vaccine*, 413.

men and women volunteers to staff vaccination clinic days; men in short-wave radio equipped vehicles drove the perishable vaccine from depots to clinics, while women oversaw the clerical duties necessary to vaccinating the population.<sup>7</sup> The Carter campaign, which focused exclusively on the vaccination of children, relied on volunteers in a manner that more closely resembled the early days of the March of Dimes, as well as the statewide vaccination campaign that took place in Arkansas in the early 1970s. At the urging of Betty Bumpers (wife of then-governor Dale Bumpers), along with beauty queen Miss Arkansas, mothers in the Arkansas campaign volunteered their time going door to door to spread the word about immunization and attending vaccination clinics, where they held children's hands and distributed candies and balloons.<sup>8</sup> In its push to promote immunization, the Arkansas campaign made direct appeals to women's sense of duty and potential for fulfillment as mothers: "Protect these Treasured Moments," stated campaign materials that featured a sentimental illustration of an attractive young mother seated in a rocking chair, reading a bedtime story to the smiling young son curled against her breast and doting daughter nestled at her side. In the years preceding the Carter era campaign, this type of appeal—to a mother's sense of unique responsibility and love for her children—was a popular one not just in Arkansas, but across the nation. "Every mother who loves her children will get them vaccinated both against rubella and against ordinary measles," wrote popular syndicated medical columnist Dr. Walter Alvarez in the *Los*

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<sup>7</sup> Gordon Grant, "Volunteers Will Help Keep Polio Clinics Stocked with Vaccine," *Los Angeles Times*, November 26, 1962, E9.

<sup>8</sup> Immunization Project Meeting Agenda, Governor's Mansion, Little Rock, AR, Mar 8, 1973, Folder: Children's Immunization Program, 2/77-12/78 [2], Box 7, Collection JC-FL, Jimmy Carter Presidential Library.

*Angeles Times* in 1972.<sup>9</sup> Such appeals speak to tensions between conceptions of motherhood in post-1960s America described by historian Rebecca Jo Plant; whereas modern motherhood was a private affair, this conception coexisted with a persistent ideology of moral motherhood that impressed upon mothers a sense of lifelong and exclusive responsibility for the wellbeing of their children.<sup>10</sup>

A mother's perceived duty to vaccinate her children cut in two different directions. For health officials and politicians promoting the cause of vaccination in the 1970s, mothers were often viewed as a ready resource already dedicated to the cause of protecting their children. On the other hand, when children went unvaccinated, mothers were often held culpable and labeled thoughtless, uneducated, and irresponsible.<sup>11</sup> The development of a series of measles vaccines in the early 1960s was followed, in 1966, by the Centers for Disease Control's (CDC's) announcement of a measles eradication campaign. When measles outbreaks began erupting across the country a few years later (after a dedicated federal funding program for measles vaccination had expired), many in the medical and public health community found fault with mothers: mothers who failed to bring their children to clinics, mothers who failed to realize the vaccine was available, and mothers who failed to recognize the new vaccine's importance.<sup>12</sup> Mothers were chastised for mistaking measles for simple colds and for treating it as a "mild" infection, something to be gotten over with by "sending kids down the block to an infected family

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<sup>9</sup> Walter Alvarez, "Epidemic of Measles Feared," *Los Angeles Times*, January 6, 1972, F12.

<sup>10</sup> Rebecca Jo Plant, *Mom: The Transformation of American Motherhood* (Chicago: University of Chicago Press, 2010), 3, 15-16.

<sup>11</sup> Ann Landers, "Ann Landers: Consequences," *The Washington Post*, April 14, 1975, B5.

<sup>12</sup> Auerbach, "D.C. Has Rash of 261 Measles Cases."

to catch it and have done with it.”<sup>13</sup> Health columnist Alvarez was straightforward in placing responsibility and blame on mothers. When measles erupted in Texarkana (a city straddling the Texas-Arkansas border), Alvarez blamed it on “unwise” mothers who were “too poor” or “too ignorant” to vaccinate their children.<sup>14</sup> Even when the fault for low vaccination rates was distributed across multiple parties, the responsibility ultimately rested with mothers: “the unnecessary case of diphtheria, measles, or poliomyelitis may be the responsibility of the state legislature that neglected to appropriate the needed funds, the health officer who did not implement the program, the medical society that opposed community clinics, the physician who did not immunize his patient, the religious views of the family, or the mother who didn’t bother to take her baby for immunization,” wrote federal immunization scientists in the *New England Journal of Medicine*.<sup>15</sup>

It followed, then, that concurrent with the spread and enforcement of school vaccination laws throughout the 1970s, came vaccination promotion efforts that specifically targeted mothers. As Washington, D.C. attempted to combat the resurgence of measles that struck the city in 1970, health officials there implemented a plan to mail immunization reminder notices to mothers three months after the hospital birth of their child.<sup>16</sup> New York City health officials worked with local hospitals to identify, at birth, mothers without pediatricians, so they could later be visited by representatives from local

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<sup>13</sup> Editorial, "Measles' New Muscle," *Chicago Tribune*, August 3, 1971, 10.

<sup>14</sup> Walter Alvarez, "Poverty, Ignorance Halting Vaccination," *Los Angeles Times*, April 19, 1973, G20.

<sup>15</sup> D. D. Rutstein et al., "Measuring the Quality of Medical Care: A Clinical Method," *New England Journal of Medicine* 294, no. 11 (1976): 582-588; Harold Schmeck, "Health Strategy for U.S. Urged to Reduce Unnecessary Illness," *New York Times*, March 12, 1976, 47.

<sup>16</sup> Jonathan Spivak, "Measles Resurgence Sparks New Campaign to Immunize Children," *Wall Street Journal*, February 20, 1970, 1.

health stations and encouraged to bring their children in for free vaccines.<sup>17</sup> Hospitals were an important gateway to reaching mothers, one CDC official pointed out; most mothers gave birth in hospitals, and hospitals thus had records of mothers and children and were positioned to reach out to those mothers during the first year of their newborn's life.<sup>18</sup> Older children who had escaped vaccination were identified by examination of pediatricians' records. When measles struck New Jersey in 1974, state health officials asked doctors to cull their files for patients in need of immunizations—and then call their mothers. "We want those mothers to get their kids to their doctor as soon as possible," said New Jersey health officer Martin Goldfield.<sup>19</sup>

Women generally and mothers in particular have, of course, long been viewed as a gateway to improved children's health. But in the 1960s and 1970s, efforts to encourage mothers to vaccinate their children—either out of a sense of duty or shame—were embedded within larger conversations about the social and economic roles of women. As medical professionals and health officials debated, beginning in the late 1960s, whether children should be universally vaccinated against measles and mumps, an economic argument in favor of requiring vaccines for children gained currency. While some doctors posited that both diseases were mild, and mass vaccination therefore unwarranted (particularly for children unlikely to suffer complications), others argued that vaccination offered an unprecedented convenience for families with two wage earners. When a child comes down with mumps, argued a Washington state health official, "A working mother

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<sup>17</sup> Michael Stern, "Immunizations Lag Called Peril in City," *New York Times*, June 17, 1971, 1.

<sup>18</sup> Schultz, "Why Childhood Diseases Are Coming Back."

<sup>19</sup> "645 Measles Cases Reported by State," *New York Times*, February 1, 1974, 64.

may have to stay home to care for him and more often than not, two to three weeks later, mumps develops in the susceptible siblings and adults in the family with another week or two of family disability.” The implication of such arguments was that preventing the “milder” infections through vaccination had implications for family income, workplace productivity, and, following the argument to its logical conclusion, the economy as a whole. The new vaccines against commonplace childhood maladies, fortunately, made the potential loss of income associated with these weeks of disability “preventable and unnecessary.”<sup>20</sup>

Economic arguments (of a different sort) were used to sell not only municipalities on the importance of vaccination against the milder infections, but also women themselves. Not only could vaccination protect a woman’s economically productive hours, it could also make—or break—her career, noted some vaccination proponents. A 1973 column by Dr. Alvarez promoted the cause of vaccination by telling the tale of a “very intelligent woman whose very promising career as a university professor was stopped” because she caught rubella, a vaccine preventable disease, during her pregnancy. Because of her rubella infection, her child was born deaf, and her career hopes were dashed as she devoted her time to the care of her deaf child instead of her work.<sup>21</sup> Such narratives reflected changing demographic realities as well as social ones: the women’s rights movement altered the status and longevity of women in the workplace.<sup>22</sup> It also opened the door for more women to enter the professions and the

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<sup>20</sup> Jones, “Public Acceptance of Mumps Vaccination.”

<sup>21</sup> Alvarez, “Poverty, Ignorance Halting Vaccination.”

<sup>22</sup> Susan Brownmiller, *In Our Time: Memoir of a Revolution* (New York: Dial Press, 1999).

workforce generally, with the result that the numbers of women in the workforce began a steady ascent in this period.<sup>23</sup> In this context, vaccines against the milder infections were culturally positioned as modern conveniences that prevented children from thwarting women's personal goals or lifestyle choices—much as oral contraceptives did.

Over the course of the 1970s, concerns about protecting the productivity of the wage earner became increasingly central to vaccination debates. Such justifications were not focused exclusively on the economic productivity of women, however. When Senator Dale Bumpers made his case for increased federal funding for vaccination programs in 1977, he stressed the need for vaccination programs that served families with two working parents. “You have to provide clinic hours in the evenings so that working men and women can get their children to the clinics,” he said before the Senate in 1977.<sup>24</sup> His comment applied to a particular class of parents, as it came amidst an impassioned statement on the failure of vaccination awareness programs to have any effect on “the poor people in the inner cities” and in “rural areas.”<sup>25</sup> As measles broke out in several major cities in the early 1970s, health officials lamented that vaccination campaigns had missed “Negro” and “Latin American” children in urban settings. “The problem is basically we have not learned how to reach the preschool child in the ghetto,” said Dr. Alexander Langmuir of the CDC.<sup>26</sup>

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<sup>23</sup> Philip Jenkins, *Decade of Nightmares: The End of the Sixties and the Making of Eighties America* (New York: Oxford University Press, 2006), 28-29.

<sup>24</sup> Sen. Bumpers (AR). “The Immunization of Children,” *Congressional Record*, 95th Congress, 1st session, 123 (January 31, 1977), S1662.

<sup>25</sup> *Ibid.*

<sup>26</sup> Spivak, “Measles Resurgence Sparks New Campaign to Immunize Children.”



But while poor fathers were never singled out for blame, poor mothers were. In Washington, D.C., a 1970 increase in measles cases was attributed to “poor mothers” who didn’t visit clinics because they “have no one to leave other children with, or they don’t realize measles vaccine is available.”<sup>27</sup> In 1973, lagging immunization rates in New York City were attributed to “poor mothers” who failed to prioritize vaccines because they were “struggling to get up the rent money.”<sup>28</sup> Measles outbreaks in New Jersey that same year were attributed to “poor mothers...waiting until their children entered school for free inoculations.”<sup>29</sup> This assessment—that vaccination uptake was lowest in low income areas because overburdened, uninformed, and impoverished mothers of color failed to seek free shots for their children—was not, however, paired with a complete exoneration of white, middle-class mothers. A third explanation popular among vaccine scientists and bureaucrats attributed mothers’ failure to vaccinate their children to their age, and not their race or income. “Today’s mothers are in their 20s or early 30s,” a CDC official told the *Washington Post* in 1975. “They don’t remember the polio epidemics of the 1940s and 1950s, the pictures of children in iron lungs or the mass closings of swimming pools in summer.” The front-page article featured a large photograph of Karen Pfeffer, a white, middle-class, 22-year-old mother whose daughter Tracy contracted a near-fatal case of whooping cough. “Whooping cough? Who’s ever heard of whooping cough?” the paper quoted Pfeffer. “I just didn’t realize how serious it could be.”<sup>30</sup>

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<sup>27</sup> Auerbach, "D.C. Has Rash of 261 Measles Cases."

<sup>28</sup> Stern, "Immunizations Lag Called Peril in City."

<sup>29</sup> Rudy Johnson, "Paterson Fights Rise in Measles," *New York Times*, December 27, 1973, 78.

<sup>30</sup> Meg Rosenfeld, "Many Va. Children Not Getting Shots " *The Washington Post*, April 27, 1975, 1.

If mothers—rich or poor, young or old—were the target of vaccination campaigns in the 1970s, non-working mothers were sometimes seen as the key to reaching them. The frugal Carter campaign was deeply dependent on the voluntary services provided by such women as Connie Jones, Coordinator of Volunteer Services for the Alaska Hospital Auxiliary, Mrs. Ruth Sloate of the Volunteer Clearinghouse of the District of Columbia, Mrs. Virginia Weber of the Florida Federation of Women’s Clubs, and the more than 40 other women listed on the campaign’s roster of Lead Voluntary Organizations.<sup>31</sup> By the time the Carters entered the White House, however, second-wave feminists had spent several years chipping away at the notion that volunteerism should be the universally accepted domain of women. At conferences in the early 1970s, the National Organization of Women had taken an official position against what they called the exploitative nature of volunteer work.<sup>32</sup> Rosalynn Carter—whose high-profile involvement in domestic and foreign affairs and equal partnership with her husband were favorite subjects of news outlets, even as she was often criticized by feminist leaders for lacking an identity separate from her husband—nonetheless championed the cause of volunteerism while in the White House.<sup>33</sup> When one reporter asked her if it wasn’t “denigrating” to ask women to engage in important work without pay, Carter acknowledged that it wasn’t a widely popular cause. “Voluntarism has a little bit of a bad connotation. I’ve been trying to say

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<sup>31</sup> List of Lead Voluntary Organizations, Folder: Children – Health, Education and Welfare (HEW) Conference-Childhood Immunization, 12/12/78, Box 7 (First Lady’s Office – Projects Office – Cade Subject File), Collection JC-FL, Jimmy Carter Library.

<sup>32</sup> Rhoda Gilinsky, "Volunteerism and Women: A Status Report," *New York Times*, November 12, 1978, WC16.

<sup>33</sup> Diane M. Blair and Shawn Parry-Giles, "Rosalynn Carter: Crafting a Presidential Partnership Rhetorically," in *Inventing a Voice: The Rhetoric of American First Ladies of the Twentieth Century*, ed. Molly Meijer Wertheimer (Lanham, MD: Rowman & Littlefield, 2004), 341-364.

‘public initiative’ or ‘public responsibility’,” said Carter, who encouraged women *and* men to volunteer their time in an article she wrote (somewhat paradoxically) for *Good Housekeeping*.<sup>34</sup> “I understand that women who are looking for work need to be paid for economic reasons – need to be paid for what they do. But I don’t think that limits them from doing good things for other people,” she said.<sup>35</sup> Carter’s support for voluntarism was just one example of how her political choices sometimes rested uneasily in the shifting landscape of women’s social roles. As First Lady, Carter declined to wear her motherhood on her sleeve, turning down invitations to chair both the Children’s Immunization Initiative and the International Year of the Child—even as some of her female constituents saw her as uniquely qualified to support such causes. “Mrs. Carter, Please use your influence as a concerned mother and as an intelligent participant in national planning to reinstate money in the budget for vaccines,” one mother wrote in a letter to the White House.<sup>36</sup> Such pleas, and Mrs. Carter’s chosen public roles (she advocated strongly for the mentally ill and the elderly), map neatly onto Plant’s framework of post-1960s motherhood as both a private affair and just one component of women’s multi-faceted lives.<sup>37</sup>

In Plant’s analysis, modern motherhood largely (but not completely) supplanted “moral motherhood,” a Victorian era relic that conceived of motherhood as an all-

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<sup>34</sup> Rosalynn Carter, “The Gift of Giving,” *Good Housekeeping*, December, 1978, 28-36.

<sup>35</sup> Notes from an interview conducted by Suzanne Wilding, Folder: Suzanne Wilding, Town and Country Magazine Interview with RSC November 16, 1978, Box 7 (Mary Hoyt’s Press Releases and Speeches Files), Collection JC-FL, Jimmy Carter Library.

<sup>36</sup> Letter from Mrs. James Conrad McLarnan to Rosalynn Carter, 5/22/79, Folder: WE 1, Box 138, Collection JC-FL, Records of the First Lady’s Office, Jimmy Carter Library.

<sup>37</sup> Plant, *Mom: The Transformation of American Motherhood*, 3-6, 14-15.

encompassing pursuit characterized by suffering and self-sacrifice, and serving as the basis for female citizenship.<sup>38</sup> Letters written by mothers to newspaper advice columnist Ann Landers on the subject of vaccines illustrate the persistence of moral conceptions of motherhood into the 1970s. “Heartsick Mother,” whose son suffered permanent hearing loss after a bout of measles, wrote to ask that “thoughtless, irresponsible” mothers see to it that their children got vaccinated. “I am sending my letter to Ann Landers,” she wrote, “because this problem is bigger than our own two children. It involves all children everywhere.”<sup>39</sup> “Mom Who Cares” wrote to ask, “Why do mothers and fathers who claim they love their children neglect to have them vaccinated against diseases such as polio, diphtheria, measles and mumps? Don’t they realize they can get these shots free at the county or city health centers?”<sup>40</sup> As their monikers attest, both writers wielded their identity as mothers to legitimize the civic act of chastising other parents (of both sexes) for not vaccinating their children. A mother’s decision to not vaccinate, as the first mother points out, was, after all, not a private one, as it held implications for “children everywhere.” It was a view that many mothers appeared to espouse. When the CDC mailed a vaccination survey to Louisiana mothers in 1970, the most common complaint mothers jotted on the form was that it listed only one child’s name, when in fact they had taken all of their children in for shots. Most of these mothers, presumably wishing on some level to be credited for their proper and thorough parenting, returned the form to the health officials with unsolicited details on their other children’s vaccination experiences.

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<sup>38</sup> Ibid.

<sup>39</sup> Landers, “Ann Landers: Consequences.”

<sup>40</sup> Ann Landers, “Ann Landers,” *The Washington Post*, June 1, 1976, B4.

The decision not to vaccinate one's children might have stemmed from ignorance or a lack of resources, as the comments of health officials during the measles epidemics suggested. It likely also stemmed, at least in part, from a gradual erosion of faith in both medical professionals and the products of science, trends that accelerated from the late 1960s through the 1970s.<sup>41</sup> The same batch of survey responses mentioned above also suggest a direct, if subtle, challenge to the authority and expertise of the questioning officials. While a few mothers attributed unforeseen powers to childhood vaccines (one mother claimed rubella vaccination had protected her daughter from coxsackie virus; another credited vaccination for improving her son's disposition) such votes of confidence were rare.<sup>42</sup> Far more mothers attributed to the vaccines a host of side effects, many discrediting their doctors' opinions in the process. "My pediatrician discounted the Rubella [vaccine] as the cause but call it a mother's intuition on what I say it definitely had an effect," wrote a New Orleans mother of her son's "totally blocked nose" and the pins and needles in his arms and legs, which lasted for two weeks after his shot.<sup>43</sup> Even more mothers expressed a level of impatience with the health officials' questions, tersely complaining, for example, that they had already filled out the form, that their children's names had been misspelled, or that they had no way of knowing how the shots affected

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<sup>41</sup> Starr, *The Social Transformation of American Medicine*, 379-393.

<sup>42</sup> Responses to a survey mailed by the Louisiana State Department of Health, 1970, Boxes 338638 and 338639, Record Group 442, Records of the Immunization Branch, Centers for Disease Control, National Archives and Records Administration, Southeast Region.

<sup>43</sup> *Ibid.*

their children. “Corey is 11 months old and cannot communicate,” wrote one; “If he did [have discomfort] I don’t know because he is too young to tell me,” wrote another.<sup>44</sup>

Of course, the survey responders were all mothers who *had* vaccinated their children. Testimony from mothers who chose *not* to vaccinate their children in the late 1960s and 1970s is harder to find, but the fact that some mothers made this choice is evident in media coverage. In the late 1970s, letters to Landers began to hint at a sense of doubt regarding the need for across-the-board immunizations against all childhood infections. A mother in Baton Rouge described with frustration her sister-in-law’s insistence that “it’s much better for kids to get all the childhood diseases when they are young.”<sup>45</sup> A mother in Champaign, Illinois described her disagreement over vaccination with her sister. “Mary says she is having her children immunized this week against measles, mumps, rubella and whooping cough. She also mentioned polio. I have not heard of a child getting polio for several years. I thought this disease was conquered. Also, what about the others? Why go to the trouble if there is no danger?” she asked.<sup>46</sup>

That doubt also became perceptible in magazines that targeted women, including *Good Housekeeping*, *Ladies Home Journal*, *Parents*, *Redbook*, and *Better Homes and Gardens*. Such magazines only infrequently covered the subject of vaccines in the years before 1976, when the threat of swine flu prompted several editors to run reports addressing the question of whether readers (and their children) should seek out flu shots. Coverage of vaccines generally increased significantly in the following years, in direct

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<sup>44</sup> Ibid.

<sup>45</sup> Ann Landers, "Ann Landers," *The Washington Post*, February 9, 1979, C5.

<sup>46</sup> Ann Landers, "Ann Landers," *The Washington Post*, November 8, 1977, B7.

response to the massive publicity campaign launched by Califano and the department of Health, Education, and Welfare. During the campaign, articles urged parents to check their children's vaccination records and consult with their family doctors and local health departments, stressed the importance of immunizing children with all of the recommended shots, and borrowed warnings and horror stories directly from HEW brochures.<sup>47</sup> But while they served the federally directed cause of vaccination promotion, many such articles also hinted at a rising tide of skepticism among parents. "Misguidedly, some of us fear that vaccines are dangerous; but the minimal risk must be weighed against the much greater benefit, which is disease prevention," stated an article in *Harper's Bazaar*.<sup>48</sup> "Parents frequently ask whether it's really necessary to immunize their children against measles, rubella, mumps, and poliomyelitis, as well as against diphtheria, whooping cough, and tetanus—after all, these illnesses are much less prevalent in recent years," wrote pediatrician Morris Wessel in *Parents*. "The answer is an unequivocal yes."<sup>49</sup> Such articles did not directly address the fears and questions of readers; instead they played up the risk of complications linked to vaccine preventable diseases, and urged readers to comply with vaccination recommendations. But their references to readers' doubts and fears indicates the presence of an information gap, or a void, which women, their consciousness raised by the consumer and women's health movements, took note of and began to question.

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<sup>47</sup> See for example Lynne Lamberg, "Immunization: A Call to Action," *Better Homes and Gardens*, September, 1979, 70; Schildkraut, "The New Threat to Your Children's Health."; Morris Wessel, "Immunizations Are Important," *Parents*, December, 1979, 28.

<sup>48</sup> Elaine Fein, "Immunization: Is Your Child Protected?," *Harper's Bazaar*, July, 1979, 75-76.

<sup>49</sup> Wessel, "Immunizations Are Important."

### *Questioning Authority*

The women's health movement, a component of second-wave feminism that emerged in multiple sites across the country in the 1960s, strove to democratize women's health-related knowledge and wrest control of women's health issues from the predominantly male medical profession. As medical anthropologist Sandra Morgen has noted, at geographically diverse sites, its followers took multifaceted approaches to putting women's health in women's hands.<sup>50</sup> They founded clinics, held cervical-self-examination workshops, conducted abortions, and wrote books exposing infractions of the medical profession and instructing women on how to take charge of their own health. In a few highly visible instances, activists focused on exposing the negative effects of specific drugs commonly prescribed to women, including the birth control pill, diethylstilbestrol (DES), and estrogen. Over the course of a decade, their efforts helped bring national attention to the risks of depression, blood clots, stroke, and heart attack associated with oral contraceptives; the increased risk of endometrial cancer in women who took estrogen for menopause; and the startling frequency of reproductive cancers in the daughters of women who took DES during pregnancy. The unveiling of such evidence drove feminist demands for informed consent in medical decision making and increased access to information, specifically through drug package inserts.<sup>51</sup>

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<sup>50</sup> Morgen, *Into Our Own Hands: The Women's Health Movement in the United States, 1969-1970*.

<sup>51</sup> Elizabeth Siegel Watkins, "Doctor, Are You Trying to Kill Me? Ambivalence About the Patient Package Insert for Estrogen," *Bulletin of the History of Medicine* 76 (2002): 84-104.



Feminist critiques of drug promotion practices were also informed by the concurrent anti-medicalization and consumer rights movements. As historian Susan Speaker has shown, the impact of feminist critiques was thus felt beyond the arena of women's reproductive health; a general disillusionment with the prescribing practices of doctors and growing doubt about the safety of commonly prescribed drugs directly influenced, in her analysis, large-scale rejection of minor tranquilizers in the 1970s. In Speaker's assessment, minor tranquilizers—widely prescribed to women, their risks long suppressed—became potent symbols of “social control, big science, and big industry gone wrong....” For women, what was “wrong” with the industry of medicine in particular was that physicians, who were mostly male, “refused to listen to or believe female patients, withheld knowledge or lied to them, overcharged them, [or] performed unnecessary procedures.”<sup>52</sup>

The reach of this general disillusionment—which in the critiques listed above, notably emphasized the long-hidden side effects of widely prescribed drugs—slowly began to spread to vaccines at the tail end of the 1970s. It was most evident, early on, in the pages of *Mothering* magazine, a new Colorado-based publication devoted to “natural family living” and a product of both the women's health and environmental movements. At the time, mainstream women's magazines often ran articles that urged mothers to get their children vaccinated; several, including *Good Housekeeping* and *Better Homes and Gardens*, devoted an entire page to a tearsheet parents could use to schedule and record their children's vaccines. *Mothering*, too, printed a tear sheet on vaccination. This one,

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<sup>52</sup> Speaker, "From "Happiness Pills" to "National Nightmare": Changing Cultural Assessment of Minor Tranquilizers in America, 1955-1980," 371-373. 371-73.

however, warned mothers to “be cautious with vaccines.” It warned those allergic to eggs and chickens to avoid measles vaccine, warned that vaccinating a child against polio could cause cases of the disease in other family members, and listed encephalitis and death as possible side effects of the pertussis vaccine. This list of warnings was one small sign representing a much broader crystallization of doubt regarding vaccines that took place at the beginning of the 1980s.<sup>53</sup> That the warnings were taken directly from vaccine package inserts, as a note on the bottom of the page indicated, was a direct indication of the influence of the women’s health movement, which had fought for such inserts for other drugs a decade before.<sup>54</sup>

It was not just the timing of the appearance of these vaccine doubts that linked their emergence to the feminist and consumer rights movements; they were also bound by their rhetoric. The experience of Peggy O’Mara, the New Mexico mom who joined the editorial staff of *Mothering* in the late 1970s (after the magazine moved its offices to Santa Fe), illustrates the link. O’Mara said she began questioning vaccination when she became pregnant with her first child in 1973: “Because I was accustomed to making personal healthcare decisions, it seemed like the obvious thing to do,” she later told readers.<sup>55</sup> Her own questioning—and that of her readers, who from the late 1970s through the early 1980s sent more letters on vaccination than any other topic (aside from circumcision)—are the direct result of a broad based movement that inspired women in

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<sup>53</sup> Carol Horowitz, "Immunizations and Informed Consent," *Mothering*, Winter, 1983, 37-41.

<sup>54</sup> Watkins, *On the Pill: A Social History of Oral Contraceptives, 1950-1970*.

<sup>55</sup> Peggy O'Mara, "Editorial," *Mothering*, Summer, 1996, 25.

particular to question the advice and prescriptions of their doctors—and, in this case, their children’s doctors.<sup>56</sup>

As in the women’s health movement—in which Barbara Seaman’s *The Doctor’s Case Against the Pill* laid bare the risks of oral contraceptives—key exposés alerted the public to the sometimes devastating side effects of by-then widely administered pharmaceuticals. The vaccine exposés, a 1982 NBC broadcast on side effects connected to the pertussis vaccine and the 1985 book *A Shot in the Dark*, which elaborated on the same subject, presented scientific evidence on the vaccine in lay terminology, arguing that the evidence had long been in the possession of—and had long been ignored by—the medical profession. Historian Robert Johnston, who in a 2002 essay analyzed what he called the “contemporary anti-vaccination movement,” dated the beginning of that movement to the widely viewed 1982 NBC report, “Vaccine Roulette.”<sup>57</sup> In a footnote, Johnston acknowledged that “certain communities”—he referred to the readers of *Mothering* in particular—were skeptical about vaccines prior to this date. He also pointed out that the movement that emerged in the 1980s was driven by mothers, “the parents most responsible for taking care of children, especially disabled children”; he signaled that these women were not “traditional” mothers, however, in that they had “backgrounds in business or the professions.” Johnston’s analysis suggested that the movement had only shallow roots in 1982, and while he signaled that it was significant that the movement’s founding mothers were business or professional women, he stopped short of examining the deeper meanings of this fact. As their own accounts reveal, these

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<sup>56</sup> Morgen, *Into Our Own Hands: The Women's Health Movement in the United States, 1969-1970*.

<sup>57</sup> Johnston, "Contemporary Anti-Vaccination Movements in Historical Perspective," 263.

“professional” and “business” women were alert to the overarching messages of the women’s health movement and to the potential for individual and organized resistance to effect changes in medical practice.

Popular concerns about the side effects and potential hazards of vaccines may have attracted widespread attention in the early 1980s, but they were not at all unprecedented. Johnston has described Progressive Era concerns over the risks associated with smallpox vaccination.<sup>58</sup> Physician and vaccine chronicler Paul Offit has detailed in length the episode in which hundreds of American children were paralyzed or died after receiving a polio vaccine contaminated with live virus in the mid 1950s.<sup>59</sup> In the 1960s, pharmaceutical company Parke, Davis & Co. pulled a combined diphtheria-tetanus-pertussis-polio vaccine (Quadrigen) from the market after reports of severe side effects, including brain damage.<sup>60</sup> And in the 1970s, reports of convulsions, paralysis, and death following DPT vaccination—and attributed to the pertussis, or whooping cough, component of the vaccine—caused vaccination rates to decline dramatically in the UK, Sweden, and Japan.<sup>61</sup> Even before the mass vaccination program that brought widespread attention to the risks of swine flu vaccine in 1976, public concern about the potential hazards of vaccination had health officials anticipating the need for revised policies.

“General awareness of vaccine risks has increased rapidly in recent years,” wrote

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<sup>58</sup> Johnston, *The Radical Middle Class: Populist Democracy and the Question of Capitalism in Progressive Era Portland, Oregon*, 177-220.

<sup>59</sup> Offit, *The Cutter Incident: How America's First Polio Vaccine Led to the Growing Vaccine Crisis*.

<sup>60</sup> Colgrove, *State of Immunity: The Politics of Vaccination in Twentieth-Century America*, 210.

<sup>61</sup> Jeffrey P. Koplan et al., "Pertussis Vaccine--an Analysis of Benefits, Risks and Costs," *New England Journal of Medicine* 301, no. 17 (1979): 906-911.

Assistant Secretary for Health Theodore Cooper, in a 1975 memo in which he detailed the then-recent rise in vaccine-related litigation and summarized approaches taken by other countries to compensate individuals injured by government-recommended vaccines.<sup>62</sup>

Although it was widely debated in the medical literature in the 1970s, the risks of pertussis vaccination specifically did not become the subject of popular debate until the airing of “Vaccine Roulette” in the Washington, D.C. metro area in April 1982. The hour-long broadcast, which was subsequently excerpted nationwide on the *Today* show, showed extensive footage of mentally and physically disabled American children whose handicaps were attributed, by parents and doctors, to the pertussis component of the DPT vaccine. “The medical establishment” had been “aggressive in promoting...the most unstable, least reliable vaccine we give our children,” said reporter-producer Lea Thompson in her introduction to the report, which informed parents that one in 7,000 children suffered serious adverse effects related to the vaccine, including high fevers, inconsolable crying, seizures, brain damage, and death.<sup>63</sup> In interviews whose content echoed the themes of feminist critiques of medicine, mothers of vaccine-damaged children complained that their doctors hadn’t listened to them; dissident doctors testified that the vaccine was no longer necessary; and government scientists suggested federal

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<sup>62</sup> Memo, Unaddressed from Theodore Cooper, Assistant Secretary for Health, Department of Health, Education, and Welfare, July 1975, Folder: CDC Liability Proposal, Box 8, Swine Flu Immunization Program Files, Centers for Disease Control, National Archives and Records Administration, Southeast Region.

<sup>63</sup> The risk of severe brain damage or death was much lower but widely disputed; estimates ranged from 1 in 174,000 shots to 1 in 1 million shots. For a summary, see Roy Anderson and Robert May, “The Logic of Vaccination,” *New Scientist* 96, no. 1332 (1982): 410-415.

agencies had ignored and suppressed data implicating the vaccine in having caused harm.<sup>64</sup>

Doctors and scientists were swift and harsh in their response. They called the report imbalanced, distorted, and inaccurate, and accused Thompson of misinterpreting the science and committing “journalistic malpractice.”<sup>65</sup> In the nationwide panic that ensued, physicians fielded thousands of calls from concerned parents, whom they often labeled “hysterical” (a term that would have struck feminists as particularly loaded).<sup>66</sup> Thousands of parents also called the D.C. television station to say that they believed their children had been harmed by the vaccine, too.<sup>67</sup> Station representatives put a few of the parents in touch with each other, and a handful of them—Kathi Williams, Barbara Loe Fisher, Jane Dooley, Donna Middlehurst, and Middlehurst’s husband, Jeffrey Schwartz—banded together to form an advocacy group they dubbed Dissatisfied Parents Together. The following month, Williams and Marge Grant, one of the mothers who had appeared in “Vaccine Roulette,” testified before a Congressional subcommittee. The Senate hearing that took place in May 1982 had originally been scheduled to address cuts in federal funds for immunization and strategies for reaching children who remained unvaccinated in the wake of the Carter-era campaign. Instead the hearing, called by Senator Paula Hawkins of Florida (whose own son had contracted polio from the polio

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<sup>64</sup> Lea Thompson, *DPT: Vaccine Roulette* (Washington, D.C.: NBC News, April 1982).

<sup>65</sup> United States Senate Committee on Labor and Human Resources, *Immunization and Preventive Medicine*, 7.

<sup>66</sup> Elizabeth Gonzalez, “TV Report on DTP Galvanizes U.S. Pediatricians,” *Journal of the American Medical Association* 248, no. 1 (1982): 12-23.

<sup>67</sup> Donna Hilts, “The Whooping Cough Vaccine: A Protector or a Killer?,” *The Washington Post*, April 28, 1982, Va2.

vaccine), featured extensive testimony by parents of vaccine-injured children, health officials, and other parties on the risks of vaccination.<sup>68</sup>

“Vaccine Roulette” and its fallout—including media reports on the vaccine and the parents group, congressional hearings, and the publication of *A Shot in the Dark*, co-authored by Fisher and independent historian Harris Coulter—reveal that women’s gendered experiences shaped the popular response to pertussis vaccine risks. Thompson, a “consumer reporter” for Washington’s WTOP-TV who received an award for her reporting from the American Academy of University Women in 1978, did not focus exclusively on women’s issues, but she did indicate that her reporting was at times directly shaped by her own experiences as a woman and a mother.<sup>69</sup> Her report on asbestos-lined hair dryers led to a recall of 12.5 million hair dryers, and her report on nutritive deficiencies in baby formulas (which she took on following the birth of her own child) helped bring about a federal law enforcing routine testing of formula.<sup>70</sup> In “Vaccine Roulette,” she interviewed male doctors and health officials who denied the pertussis vaccine’s risks, but gave equal time to these with interviews and footage of mothers struggling to care for their severely handicapped children. In several shots, these mothers were seated alongside their husbands, but in each case, the mother was the spokesperson for her child.

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<sup>68</sup> United States Senate Committee on Labor and Human Resources, *Immunization and Preventive Medicine*.

<sup>69</sup> Robert Galano, "Crusading Camera'd Champions of the Consumer," *The Washington Post*, March 30, 1980, TV3.

<sup>70</sup> Susan Okie, "How Two Angry Mothers Beat Uncle Sam at His Own Game," *The Washington Post*, October 11, 1980, A3.

In Thompson's interviews of these mothers, a common narrative emerged; the same narrative appeared in *A Shot in the Dark* and other media from this period highlighting the risks of vaccination. In these stories, a mother senses that something is wrong with her child, either just before or just after a vaccine is administered; she questions her (nearly always) male doctor and is told not to worry or "get upset"; despite this assurance, her child suffers dramatic and irreparable harm; as a result, she is driven to advocate for a change in vaccination policy. "These doctors and officials in the government, who keep talking about the benefits and risks of this vaccine, better take fair warning," said Janet Ciotoli, a 27-year-old nurse whose son died following his DPT shot. "My baby may be just another statistic to them, but he was my child and there is nothing more powerful than a mother's fight for her child."<sup>71</sup> Janet's fight, which she shared in *A Shot in the Dark* (the book alternated between personal stories and detailed exposition of the scientific studies on pertussis) consisted of confronting her doctor and the coroner, who attributed her son's death to SIDS.<sup>72</sup> Janet prevailed in having her son's death attributed to the vaccine; the steps she took to do so were legitimized, in her view, by her identity as a mother.

Janet's story—in which she, an educated, professional woman, took her doctor's medical advice at face value, only to find that this quiescence would cost her her son's life—was one of several in *A Shot in the Dark* that link the book to a series of popular books published in the late 1970s that chastised organized medicine for its treatment of

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<sup>71</sup> Harris L. Coulter and Barbara Loe Fisher, *DPT: A Shot in the Dark* (New York: Harcourt, Brace, Jovanovich, 1985), 13.

<sup>72</sup> Janet's last name appears in her 1983 Congressional testimony; in *A Shot in the Dark*, the women who shared their stories at length were referred to by their first names only and are likewise referred to here.



women. The books, including Gena Corea's *The Hidden Malpractice*, Suzanne Arms' *Immaculate Deception*, and Gail and Tom Brewer's *What Every Pregnant Woman Should Know*, largely focused on an earlier stage of motherhood, namely, pregnancy.<sup>73</sup> They argued that the medical establishment had instilled a sense of fear and powerlessness in women, subjecting them to unnecessary, overmedicalized procedures that posed harm to them and their babies, and that served to make life more convenient for none other than their doctors. (These books were themselves influenced by *Our Bodies Ourselves*, the lay manual to women's health first published by the Boston Women's Health Course Collective in 1971.<sup>74</sup>) Women, they argued, were administered sedatives and subjected to procedures, such as pubic-hair shaving and fetal monitoring, without their consent; they were also "frightened into believing" that anesthesia and other drugs were necessary for childbirth, and that birth, "once a natural process" must take place in the hospital, among strangers.<sup>75</sup> "I assumed no choices about my birth...I thought doctors must know what they're doing," recalled one mother after another in *Immaculate Deception*.<sup>76</sup> A few years later, vaccine critics would pick up on these themes. "The public has been intimidated by scare tactics and guilt either to immunize their children or be labeled negligent," wrote

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<sup>73</sup> Suzanne Arms, *Immaculate Deception: A New Look at Women and Childbirth in America* (Boston: Houghton Mifflin Company, 1975); Gail Sforza Brewer and Tom Brewer, *What Every Pregnant Woman Should Know: The Truth About Diet and Drugs in Pregnancy* (New York: Penguin Books, 1977); Gena Corea, *The Hidden Malpractice: How American Medicine Treats Women as Patients and Professionals* (New York: William Morrow and Company, 1977).

<sup>74</sup> Boston Women's Health Book Collective, *Our Bodies, Ourselves* (New York: Simon and Schuster, 1973).

<sup>75</sup> Arms, *Immaculate Deception: A New Look at Women and Childbirth in America*, 22,57.

<sup>76</sup> *Ibid.*, 58.

Maine physician Daniel Lander, who authored a 1978 booklet on immunization risks.<sup>77</sup>

“I, like so many mothers, lacked the information necessary to even ask intelligent questions...instead, I trusted the experts,” said Gerri Cohn, whose daughter Traci suffered brain damage subsequent to her DPT vaccine.<sup>78</sup>

The (almost exclusively female) authors of the aforementioned volumes focused on the process of reproduction, and usually left off shortly after childbirth, arguing in favor of breastfeeding over formula but venturing no further into childrearing. As a result, they rarely, if ever, touched on immunization. Their work, however, was related to a separate but contemporaneous body of work that took broader aim at perceived transgressions of the medical profession and that *did* specifically critique mass deployment of vaccination as a disease prevention strategy. In *Medical Nemesis*, historian and philosopher Ivan Illich argued that factors other than “medical progress”—including water and sewage treatment, better nutrition, and sociopolitical equality—were primarily responsible for improvements in health, and that professional medicine was thus not deserving of the live-saving reputation it was so commonly, and exclusively, accorded. To Illich, the medical profession could duly accrue only partial credit for the defeat of smallpox through vaccination. In his analysis, the importance of mass vaccination as a medical intervention had been dramatically overstated; deaths due to diphtheria, whooping cough, and measles, he pointed out, declined 90 percent prior to widespread

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<sup>77</sup> Daniel A. Lander, "On Immunization," *Mothering*, Fall, 1981, 32-35.

<sup>78</sup> Sandra Sugawara, "Two Parents Groups Speak out against Multiple DPT Vaccine; Side Effects Blamed for Brain Damage," *The Washington Post*, February 8, 1985, D5.

immunization.<sup>79</sup> Illich was often cited by physician-turned-popular-author Robert Mendelsohn, who became an outspoken and widely quoted critic of vaccines in the early 1980s. Mendelsohn, who wrote in his book *Male Practice* that women were the “primary victims” of “medical and surgical overkill,” listed vaccines as one of several controversial and risky practices and procedures women were coerced into accepting for their newborns.<sup>80</sup> In his 1979 book *Confessions of a Medical Heretic*, he questioned the need for vaccines against mumps, measles, and rubella, diseases which, in his view, weren’t nearly as severe as smallpox, tetanus, and diphtheria. He pointed to evidence that the diphtheria vaccine was sometimes ineffective, and he described the controversy over the safety of pertussis vaccination that was, at that point, brewing only within the profession.<sup>81</sup>

“Vaccine Roulette,” an episode of the Phil Donahue show that aired months later, and *A Shot in the Dark* all transmitted this notion of medical overkill to a national audience, linking it to a critique of the pertussis vaccine. All three exposés pointed out that whooping cough rarely caused children to die in the modern era, and that (borrowing Illich’s point) the disease had declined significantly prior to widespread vaccination. Both Sweden and West Germany had abandoned the vaccine over concerns about its side effects, “Vaccine Roulette” and *A Shot in the Dark* reported, and neither country had

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<sup>79</sup> Ivan Illich, *Medical Nemesis: The Expropriation of Health* (New York: Pantheon Books, 1976), 16.

<sup>80</sup> Robert S. Mendelsohn, *Male Practice: How Doctors Manipulate Women* (Chicago: Contemporary Books, 1981), 188-191.

<sup>81</sup> Robert S. Mendelsohn, *Confessions of a Medical Heretic* (Chicago: Contemporary Books, 1979), 143-144.

suffered epidemics as a result.<sup>82</sup> The widespread attack on pertussis vaccination shared this notion and several others with widely read works that had critiqued medicine at the end of the previous decade: not only were some vaccines possibly unnecessary, they were administered by male doctors who failed to listen to their female patients and who deliberately lied and withheld information from their patients to serve their own interests.

In “Vaccine Roulette,” Wisconsin mother Emily Yankovich described her daughter Abra’s inability to breathe in the hours after her DPT shot. She recounted taking her blue and trembling daughter to the hospital, and asking the doctor whether the shot could have caused her daughter’s condition. “He said ‘No, she probably was just choking, just take her home and she’ll be fine.’ Two weeks later she went into a grand mal seizure. She was very near dying,” Yankovich recalled. Evelyn Gaugart described taking her daughter Polly in for her DPT shot. “I says maybe she should not have this shot because it seems to me she’s just not quite herself. And he checked her all over and said, ‘she looks OK to me’ and then he gave her the shot. And the next, following morning, when I was feeding her, she went into a grand mal seizure, which, cause I didn’t know what was happening, I thought she was dying in my arms, at that moment.” After dogged pursuit and countless visits to specialists, both mothers received confirmation of what they knew all along, despite their doctors’ dismissals: that their children’s symptoms were in fact vaccine related.<sup>83</sup>

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<sup>82</sup> Britain, by contrast, faced a pertussis outbreak in 1977-1979 that health officials blamed on a vaccination rate that had fallen 50% since 1970. Three deaths and 17 cases of brain damage were attributed to the outbreak. See Anderson and May, "The Logic of Vaccination."

<sup>83</sup> Lea Thompson, *DPT: Vaccine Roulette*.

In *A Shot in the Dark*, women referred to as “a mother on the West Coast,” “a mother in Massachusetts,” “Sharon’s mother,” “Marie’s mother,” and “Patrick’s mother” are just a handful of the mothers who recounted asking their doctors about their children’s high-pitched screaming, high fevers, and muscular spasms following vaccination, only to be told “not to worry.” In each mother’s story, the child developed a seizure disorder or brain damage; a few died. With their emphasis on the need for mothers to question their doctors’ opinions, the women who shared their stories in the book reflected the influence of feminist and anti-medicalization critiques of professional medical care. “We are so conditioned to the idea that our doctor’s word is to be trusted without question that we don’t think for ourselves. I am a nurse. I watched my son die that day, and I didn’t even know what was happening until it was all over,” said Janet in *A Shot in the Dark*. “If this had not happened to my baby, I would still be part of the uninformed public. I would still be taking my doctor’s word as the word of God, like most mothers do.”<sup>84</sup> The women who spoke out against vaccination in this period (fathers spoke only on rare occasion in both “Vaccine Roulette” and *A Shot in the Dark*; none appeared to critique vaccines at the 1982 Senate hearings) frequently saw their doctors’ perceived arrogance in distinctly gendered terms. When Ellen, who described her daughter Sherry’s DPT-induced brain damage in *A Shot in the Dark*, demanded answers to her questions about Sherry’s condition, she recalled being “officially labeled a ‘troublemaker’ and ‘hysterical mother’ in Sherry’s medical records.” She went on: “They

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<sup>84</sup> Coulter and Fisher, *DPT: A Shot in the Dark*, 9.

can be so damn patronizing. You know, pat the little mother on the head and tell her to calm down.”<sup>85</sup>

And then there were the mothers who recounted being misled: “I asked the doctor what the odds are of our child having a similar reaction,” said Wisconsin mother Gail Browne, who had heard about severe vaccine-related side effects from a friend before taking her son in for his shots. “He said that I didn’t have anything really to worry about.... Then, he went into convulsions,...and the doctors told me...it was nothing to be upset about.”<sup>86</sup> Mothers also described anger at not having been informed of vaccination risks: “Never—and I repeat never—once was I warned of any possible severe neurological injuries occurring from that shot,” said Marge Grant at the 1982 Senate hearings.<sup>87</sup> In *A Shot in the Dark*, Janet and other mothers repeatedly emphasized that the risks of vaccination—and other forms of medical information—were deliberately withheld from them. When Ellen, fearful that Sherry was no longer mentally alert, took her daughter in for tests, she battled to obtain the results from her doctor: “He kept the results from me. Instead he told me not to worry,” she said.<sup>88</sup>

Still other mothers blamed not just doctors but also the government and drug industry, alluding as they did to a large scale cover-up of the dangers of the by-then widely administered vaccines. (By 1980, upwards of 96 percent of all children entering school were vaccinated against measles, rubella, polio, diphtheria, pertussis, and

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<sup>85</sup> Ibid., 40.

<sup>86</sup> Lea Thompson, *DPT: Vaccine Roulette* (NBC News, , 1982).

<sup>87</sup> United States Senate Committee on Labor and Human Resources, *Immunization and Preventive Medicine*, 44.

<sup>88</sup> Coulter and Fisher, *DPT: A Shot in the Dark*, 37.

tetanus.<sup>89</sup>) “It appears to me that the manufactures [sic] and/or certain government agencies are intentionally withholding vital information,” said Wendy Scholl, who testified before Congress in 1983 about her daughter Stacy’s measles vaccine-induced paralysis, learning disabilities, and seizures.<sup>90</sup> Senator Hawkins shared this perception of deliberate dissemblance when she asked federal vaccine officials, “What symptoms or warning signals should the parents look for from the adverse reaction from the vaccine, which I believe is the secret that has been held from them?”<sup>91</sup> The sense of a conspiracy was only heightened when officials defended the practice of administering vaccines without informing parents of the risks, as one FDA official did in his interview with television reporter Lea Thompson: “If we told parents there was a risk of brain damage, there’s no question what their response would be,” he said.<sup>92</sup>

The benevolent paternalism belied by the official’s comment was proof that if patients wanted objective information on medical risks, they were going to have to demand it, if not seek it out themselves. As historian Elizabeth Watkins has written, “informed medical consumerism” was a “guiding principle” of the women’s health movement.<sup>93</sup> The women who spoke out against vaccines in the early 1980s followed in this tradition. In *Mothering* magazine, Carol Horowitz, a health educator with a masters

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<sup>89</sup> United States Senate Committee on Labor and Human Resources, *Immunization and Preventive Medicine*, 4.

<sup>90</sup> United States Senate Committee on Labor and Human Resources, *Task Force Report on Pertussis* (Washington, DC: U.S. Government Printing Office, 1983), 77.

<sup>91</sup> United States Senate Committee on Labor and Human Resources, *Immunization and Preventive Medicine*, 41.

<sup>92</sup> Thompson, *DPT: Vaccine Roulette*.

<sup>93</sup> Watkins, *The Estrogen Elixir: A History of Hormone Replacement Therapy in America*, 130.

degree in public health from Berkeley, described how she conducted computer-based searches of the medical literature on vaccine risks for the years 1980 and 1981. “What is known about vaccines is a whole other story from what is told. Health care consumers should insist on reading the package inserts which come with vaccines,” she wrote.<sup>94</sup> Much of the discourse that questioned vaccine safety demonstrated support for the democratization of medical knowledge, another of the women’s health movement’s guiding principles. At the end of “Vaccine Roulette,” vaccine scientist Saul Krugman appeared on screen, saying that convulsions were not a contraindication against DPT vaccination. The camera then cut to reporter Lea Thompson, who read directly from the American Academy of Pediatrics’ *Redbook* entry warning against giving the shot to children who had previously suffered convulsions.<sup>95</sup> When the coroner refused to attribute her son’s death to DPT vaccination, Janet, in *A Shot in the Dark*, recounted returning to him with a copy of *The Physician’s Desk Reference*, in which her son’s precise condition was described.<sup>96</sup> The book concluded with the following admonishment: “The time has come to be educated about vaccines.”<sup>97</sup>

### *Framing their Demands*

The effect of the feminist and women’s health movements was such that, as Watkins has described, women were, over the course of the 1970s, more and more likely

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<sup>94</sup> Horowitz, “Immunizations and Informed Consent.”

<sup>95</sup> Thompson, *DPT: Vaccine Roulette*.

<sup>96</sup> Coulter and Fisher, *DPT: A Shot in the Dark*, 10.

<sup>97</sup> *Ibid.*, 408.



to receive information from their doctors regarding the risks and benefits of their own medical treatments; by then, the expectation that women *should* participate in their own medical decisions had permeated most doctors' offices.<sup>98</sup> The late 1970s debate over the risks and benefits of taking estrogen, for example, had focused on the need for women to make an "informed choice," rather than simply listening to their doctor, "who, after all, does not have to live the woman's life," as *New York Times* writer Jane Brody put it.<sup>99</sup> By the end of the 1970s, as a result of the feminist and women's health movements, this type of questioning had become mainstream. In the 1980s, women who expressed concern about vaccine safety mapped this previously self-limited behavior onto their children; many who did so stated that, after all, their children were "part of them."<sup>100</sup> And the vaccination of their children did affect them directly; indeed, many who spoke out against the pertussis vaccine detailed how their lives were irreparably altered by their children's vaccine-related injuries. In "Vaccine Roulette," Gail Browne described how her son's disabilities had led her and her husband to abandon hopes of another child as they struggled to pay for his extensive care.<sup>101</sup> Testifying before Congress, Wendy Scholl described an endless quest for providers and financial aid for her disabled daughter's care, made worse when her husband lost his job and their new insurer wouldn't cover their daughter's condition.<sup>102</sup>

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<sup>98</sup> Watkins, *The Estrogen Elixir: A History of Hormone Replacement Therapy in America*.

<sup>99</sup> Quoted in *Ibid.*, 111.

<sup>100</sup> Coulter and Fisher, *DPT: A Shot in the Dark*, 407.

<sup>101</sup> Thompson, *DPT: Vaccine Roulette*.

<sup>102</sup> United States Senate Committee on Labor and Human Resources, *Task Force Report on Pertussis*, 76-78.

Whereas feminists and women's health activists demanded a form of social justice, however, vaccine activists demanded political justice. DPT, as a group, acknowledged the importance of vaccines and the dangers of vaccine preventable diseases. Instead, they criticized the risk-benefit calculus cited by public health officials, who pointed out that the vaccine might cause a few dozen cases of brain damage, but that the alternative, whooping cough, would cause thousands of deaths each year. "No parent should be put in the untenable position of having to choose between a bad vaccine and a bad disease," DPT founder Barbara Fisher wrote in a letter to the editor of *The Washington Post*.<sup>103</sup> To the parents of vaccine-injured children, it was unjust that they alone should suffer the high cost of achieving better health for the nation as a whole. "Did these children, like soldiers, give their lives so that others might live?" asked mother Gerri Cohn at a Maryland state hearing on pertussis.<sup>104</sup> Because the answer was yes, DPT listed among its demands safer vaccines, more information for parents, better studies of adverse reactions, and justice, in the form of remuneration, for the families of vaccine-injured children.

That these parents viewed vaccines as a threat to their children's health in this period relates to epidemiological and demographic shifts that had occurred over the previous decades. Because of widespread vaccination, pertussis cases had diminished to just a couple thousand cases a year. Given this figure, many parents who identified with the emerging vaccine-safety movement concluded that the risk of vaccine-related harm was insupportable. CDC statistics calculated that collapse or convulsions occurred once

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<sup>103</sup> Barbara Loe Fisher, "Why Not Use a Safer Vaccine?," *The Washington Post*, May 9, 1988, A14.

<sup>104</sup> Elsa Walsh, "State Defends Vaccine," *The Washington Post*, June 30, 1982, MD6.

in every 1,750 shots, and brain damage once in every 100,000 to 172,000 shots.<sup>105</sup> But as Marge Grant told Senate committee members in a written testimony, making liberal use of the shift key as she turned an old medical adage on its head, “I can tell you most assuredly, WHEN IT HAPPENS TO YOUR CHILD, THERE ARE NO “BENEFITS” AND THE RISKS ARE 100 PERCENT!”<sup>106</sup> (The phrase would later become the motto of the parent’s group DPT.)

The dispute between parents and health officials over the appropriate risk-benefit calculation for justifying mass vaccination took place not only in the context of diminishing pertussis disease rates, but also in the context of diminishing birth rates, particularly among white, middle-class American women, who comprised the bulk (but not all) of the vaccine safety movement’s members. The value of the individual child to the American family took on a new meaning at this time, epitomized by the emergence of a national obsession with the protection of children, which historian Philip Jenkins’ work has analyzed. With the advent of the child protection movement at the very end of the 1970s, anti-smoking and anti-drug campaigns focused on the sanctity of children and citizens mobilized against a host of perceived social threats to children, including not just drugs, but also mass murderers, sexual deviants, cultists, homosexuals, child pornographers, and child abusers.<sup>107</sup> The child protection movement itself was also, to an extent, an outgrowth of feminism; as feminist writer Susan Brownmiller has documented,

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<sup>105</sup> United States Senate Committee on Labor and Human Resources, *Immunization and Preventive Medicine*, 6.

<sup>106</sup> *Ibid.*, 55.

<sup>107</sup> Jenkins, *Decade of Nightmares: The End of the Sixties and the Making of Eighties America*, 256-270.

it was feminists who brought the issue of child abuse to public light, and rape crisis centers founded by feminists that revealed the extent of sexual crimes committed against children.<sup>108</sup> Indeed, Mothers Against Drunk Driving, one of the child protection movements to emerge from this era, conceived itself in distinctly gendered terms. As Jenkins described: “This was a movement of women directed against uncontrollable men, and the stereotypical drunk driver featured in publicity materials was invariably male.”<sup>109</sup> Jenkins added that the child protection movement was also shaped by the conservative response to the advancement of a liberal social agenda over the previous decade; thus, singer-turned-conservative crusader Anita Bryant’s anti-gay campaign took the name “Save Our Children” and framed itself as a movement to protect youth from a host of vices, from pornography to molestation.<sup>110</sup>

Jenkins’ identification of the childhood protection movement’s conservative underpinnings is instructive in understanding vaccine resistance. The organized vaccine safety movement that emerged contemporaneously rightly fits within this larger children protection movement, but once again, its target was not a social transgression, it was a political one. In describing the “contemporary anti-vaccination movement,” in 2002, Johnston concluded that “vaccine-activism clearly transcends the left-right divide” at the turn of the twenty-first century. This political transcendence can be traced back to the glimmer of anti-vaccine sentiment that appeared in the seventies, when readers of both *Ann Landers* (a presumably politically diverse group) and the holistic-living tract

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<sup>108</sup> Brownmiller, *In Our Time: Memoir of a Revolution*.

<sup>109</sup> Jenkins, *Decade of Nightmares: The End of the Sixties and the Making of Eighties America*, 204.

<sup>110</sup> *Ibid.*, 120-123.

*Mothering* voiced skepticism regarding vaccines. But resistance coalesced only in the late 1970s, when, as Jenkins argues, a shift toward political conservatism was already underway, and the movement fully crystallized only in the 1980s, in the context of a staunchly conservative political climate. Thus, even as vaccine critics pressured Congress for a law establishing greater federal oversight of vaccine safety and a new federal compensation system for vaccine-injured children, they worked against the “Great Society” type laws that had made vaccines mandatory for their children in the first place.

When he won the 1980 presidential election, Ronald Reagan rode a wave of popular support for his promises to slash big government, beef up defense, and restore America to a position of power on the international stage.<sup>111</sup> Viewed within this context, the emergence of an organized vaccine resistance movement one year into Reagan’s presidency can thus be seen as a movement against big government, writ small. The Carter-era expansion of vaccine laws, which became both universally enforceable and covered every federally recommended vaccine by 1980, were clearly seen by vaccine resisters as an undue encroachment of government upon personal freedoms. As a response to these laws, the story of vaccine resistance in the early 1980s thus parallels the story of Progressive Era resistance to smallpox vaccination, which historian Michael Willrich has argued encapsulated a demand for the restoration of personal liberties in response to the expansion of both “the police power of the state and the cultural authority of medical science.”<sup>112</sup>

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<sup>111</sup> David Broder, “Carter Yields Early in Night,” *The Washington Post*, November 5, 1980, A1. See also John Ehrman, *The Eighties: America in the Age of Reagan* (New Haven: Yale University Press, 2005).

<sup>112</sup> Willrich, ““The Least Vaccinated of Any Civilized Country”: Personal Liberty and Public Health in the Progressive Era.”

Indeed, in its earliest incarnations, the vaccine-safety movement fought against the power of the state to loosen the grip of school vaccine laws strengthened in the 1970s. In its early years, its members (some of them organized into local DPT chapters, some not) used evidence implicating the pertussis vaccine as justification for policy changes that restored a greater parental role in vaccine decision making at the state level. Partnering with other Wisconsin parents, Marge Grant founded the Research Committee of Citizens for Free Choice in Immunization. The group recommended the dismantling of all state vaccine mandates, and it effectively lobbied Wisconsin legislators to amend a philosophical exemption clause to that state's vaccine laws.<sup>113</sup> In Pennsylvania, parents pressured state officials to remove pertussis completely from the list of vaccines required for school.<sup>114</sup> In Idaho, parents lobbied for and achieved the same.<sup>115</sup>

That vaccine resisters in the late 1970s and early 1980s saw the new vaccine laws as an undue expansion of government is exemplified by the frequency with which they compared the laws to those of the Soviet Union and Eastern European nations. When Maryland began enforcing its law requiring vaccines for school entry, Barbara Syska's son was expelled for lacking vaccines, and Syska, in response, filed suit against the board of education. "My fight is because it's compulsory," Syska, who had immigrated from Poland, told reporters in 1979. "I'm a refugee from a communist country. There the good of the largest number of people is important, not the individual. I came here where the

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<sup>113</sup> Thompson, *DPT: Vaccine Roulette*.

<sup>114</sup> Peter Kelley, "Whooping Cough Vaccine's Tragic Side Effects Unmasked," *Patriot-News*, October 8, 1986, C1.

<sup>115</sup> Sonia Nazario, "A Parental-Rights Battle Is Heating up over Fears of Whooping-Cough Vaccine," *Wall Street Journal*, June 20, 1990, 17.

individual is supposed to have a say.”<sup>116</sup> The comparison of the U.S. vaccine laws to the practices of oppressive regimes soon became a common refrain among vaccine critics. In her Senate testimony, mother Isabelle Gelletich, whose son suffered brain damage following DPT vaccination, equated what she saw as the cover-up of vaccination risks as “an American Holocaust.” “I wonder,” she wrote, “are my son and I the survivors of a modern day Auschwitz, both of us left crippled and maimed by apathy and deceit?”<sup>117</sup> It is only in “totalitarian societies where powerful bureaucrats routinely decide what is best for the rest of the population,” wrote Fisher and Coulter in *A Shot in the Dark*.<sup>118</sup> Epidemiologist and vaccine critic Gordon Stewart repeated the accusation on the *MacNeil-Lehrer Report*: “It’s only behind the Iron Curtain that I know of any medical programs which are mandatory, aside from the somewhat indirect mandatory effect in the United States.”<sup>119</sup>

### *Conclusion*

Vaccine critics achieved both the loosening of state laws and the passage of the National Childhood Vaccine Injury Compensation Act, which Reagan reluctantly signed into law in 1986. (Reagan openly opposed the Act, but signed it because of a provision permitting pharmaceutical companies to sell abroad drugs unapproved for use in the U.S.)

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<sup>116</sup> Emily Isberg, "No School for Non-Immunized Child," *Montgomery County Sentinel*, February 22, 1979.

<sup>117</sup> United States Senate Committee on Labor and Human Resources, *Immunization and Preventive Medicine*.

<sup>118</sup> Coulter and Fisher, *DPT: A Shot in the Dark*.

<sup>119</sup> *The MacNeil-Lehrer Report: DPT Danger*, (New York: WNET/Thirteen, 1983). Stewart’s word choice was a reference to the provisions in many state laws permitting children to forego mandatory vaccination for medical, religious, or philosophical reasons.

In addition to establishing a vaccine tax that would provide funds for the families of vaccine-injured children, the 1986 Act required doctors to note vaccine reactions in patient records and report the reactions to federal authorities. After 1986, with Fisher and Kathi Williams at the helm of the organization, DPT continued to lobby for a safer pertussis vaccine, and helped families navigate the new federal compensation system. The organization also formed a clearinghouse, the National Vaccine Information Center, or NVIC, to disseminate information on vaccine risks and inform parents of their rights. By 1993, however, demoralized and short on funds, Fisher and Williams planned to shut down the organization.

A speech that Fisher was invited to give before a group of pediatric chiropractors in Boston later that year caused them to reconsider. Fisher's enthusiastic reception by the chiropractors—and the practitioners' generous pledges of financial support—re-energized the flagging organization. "Our original goal was to get a safer pertussis vaccine for American babies," Fisher later told a reporter for *Today's Chiropractic Lifestyle*. But after her speech in Boston, she said, "we understood our fight was part of a larger fight for freedom of choice in health care.... So most of our work now is focused on fighting for the right to freely choose whether to take vaccine risks." It was a fight, she went on, against "those who are trying to take away all freedom of choice in health care."<sup>120</sup> In 1993, NVIC's new focus was influenced by the national health care debate, described in Chapter 2, which pitted those who supported federal involvement in the expansion of health care coverage against those who perceived in reform efforts

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<sup>120</sup> Maria M. Lameiras, "Fighting for a Choice: Vaccination - One Mother's Crusade," *Today's Chiropractic Lifestyle*, August, 2006, 31-36, 32.



government restriction on the potential to choose one's own care.<sup>121</sup> That chiropractors loaned their support to the movement spoke to the movement's resonance with "alternative" and natural healing advocates, a subject that is addressed in Chapter 5.

Throughout these changes, one element dictating NVIC's direction remained constant. Fisher, whose son Chris suffered a convulsion and encephalitis following his fourth DPT shot, often described her dedication to the cause in gendered terms. "I was an educated woman," she said. "But, when it came to medicine, I was clueless about vaccines....To know that I participated in what happened to my son because I did not become informed and because I trusted medical doctors without question is a difficult thing to live with, even now."<sup>122</sup> In light of her organization's mission, Fisher's personal narrative illustrates the layered ideologies that influenced vaccination skepticism in the last decades of the twentieth century.

The organized vaccine safety movement that was spearheaded by Dissatisfied Parents Together was, of course, entirely distinct from the women's health movement. But its origins reveal spillover from the feminist movement of the 1970s: women who spoke out against vaccines in the early 1980s felt patronized and oppressed by the medical profession, and argued that the medical profession's tight control over information related to the profession precluded them from making informed health care decisions. The effect of the earlier movement was, in effect, to produce what Ellen, in *A Shot in the Dark*, referred to as two broad categories of mothers: "those mothers who

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<sup>121</sup> See Skocpol, *Boomerang: Clinton's Health Security Effort and the Turn against Government in U.S. Politics*.

<sup>122</sup> Lameiras, "Fighting for a Choice: Vaccination - One Mother's Crusade," 36.

blindly accept a pediatrician's every word and can be easily reassured or controlled; and those mothers who question a diagnosis, ask for more information, and cannot be easily controlled.”<sup>123</sup>

That the social movements of the 1970s resulted in “two types of mothers” was (if an oversimplification of matters) of direct relevance for the movement that began to loudly criticize vaccine policies in the 1980s. In the 1970s, medical practitioners and health officials saw mothers as primarily responsible for children's vaccination status; mothers, too, often saw themselves in this light. At the same time, vaccine-related discourse reflected changing conceptions of women's social roles, both as mothers and as citizens. The same discourse revealed hints of lay doubt regarding the need for and safety of vaccines; the broad anti-medicalization movement, which often spoke directly to women, sped the accumulation of those doubts. By the early 1980s, when “Vaccine Roulette” brought specific vaccine risks to light for a national audience, women were widely equipped with the vocabulary to question those risks. A collective gendered experience was just one factor that shaped popular responses to vaccines in this period; concern for the protection of children and political preoccupations—including a rejection of big government vaccine policies—also loomed large. Nonetheless, as this analysis has shown, the women's health and related movements of the seventies had direct bearing on the shape and content of vaccine critiques that gained visibility and credence in the eighties, and that gave rise to a movement that would continue to influence vaccine reception into the next century.

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<sup>123</sup> Coulter and Fisher, *DPT: A Shot in the Dark*, 41.

## Chapter 5

### **“Something About Tampering with Nature...”<sup>1</sup> Environmental Ethics and Vaccine Resistance**

In a 1985 letter to physician and newspaper columnist Robert Mendelsohn, the mother of a girl named Heather described her and her husband’s struggle to decide which vaccines to give their daughter. They had vaccinated her against polio, planned to vaccinate her against tetanus, were dead set against pertussis vaccine, but weren’t sure what to do about diphtheria. They summed up their vaccine worries in a single sentence: “We have been afraid to give them to Heather because we are concerned that they contain dreadful toxic things, that they would not contribute to her health and might cause harm to her immune system.”<sup>2</sup>

Heather’s mother was one of a growing number of parents who, as described in the previous chapter, increasingly began to vocalize concerns about vaccines from the late 1970s onward. These worried parents, along with the small group of medical professionals who shared their concerns, constituted a grassroots movement that struggled against what they perceived as draconian vaccine policies and (as Heather’s mom’s letter reveals) unsafe vaccines. One aspect of this movement—the formation and activities of Dissatisfied Parents Together (DPT)—has received measurable attention

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<sup>1</sup> Colleen Redman-Copus, "The Hot Dialogue on Immunizations Continues," *Mothering*, Summer, 1983, 11.

<sup>2</sup> Robert S. Mendelsohn, *The Risks of Immunization and How to Avoid Them* (Evanston, IL: The People's Doctor, 1988), 51.

from scholars.<sup>3</sup> But the vaccine-resistance movement in the 1970s and 1980s was far more diffuse than scholarly focus on DPT suggests, and the concerns of questioning parents were more general than the advocacy group's initial focus on the pertussis vaccine would indicate. As the previous chapter has shown, vaccine-skeptical rhetoric in the 1970s and 1980s was informed as much by the publicized hazards of specific vaccines as it was by contemporary social movements, including the women's, women's health, and consumer movements. This chapter considers the influence of a separate, but overlapping, social movement, the environmental movement, on vaccine beliefs and reception from the 1980s through the early 2000s.

As Heather's mother's letter suggests, many who questioned vaccines at the end of the century worried that the trappings of modern life were "toxic" and therefore disease promoting. They frequently categorized vaccines as modern technologies with unknown—but likely devastating—consequences for human health, and they were particularly concerned about the potential relationship between vaccination and the rising prevalence of chronic and newly emergent diseases. These same critics often espoused an ecological view of health, were troubled by what they saw as the artificial nature of vaccination, and were concerned that vaccination represented a dangerous sort of tampering with the otherwise benign—but potentially wrathful—entity known as nature.

The lexicon and tactics employed by vaccine critics from the 1980s through the early 2000s reflected a set of beliefs about the natural world and a set of ethics informed by the environmental discourses of their time. Over the course of these few decades,

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<sup>3</sup> Johnston, "Contemporary Anti-Vaccination Movements in Historical Perspective," 263-266; Colgrove, *State of Immunity: The Politics of Vaccination in Twentieth-Century America*, 211-217.

vaccine fears consistently mirrored larger, persistent concerns about the uncertain, long-term effects of modern products and technologies, including pesticides, cigarettes, artificial sweeteners, and mercury, and vaccine resisters frequently used environmental metaphors to express these worries. Trepidation about the unknown, long-term effects of vaccines was initially quite vague, but gradually these generalized anxieties evolved into well-defined fears of specific hazards, such as autism, linked to specific chemical vaccine components, such as thimerosal and aluminum. At the same time, an enduring belief in the beneficence of nature—as opposed to scientists, doctors, and pharmaceutical companies—led some vaccine-resistant parents to let nature immunize their children at the chicken-pox parties (and variants thereof) that became increasingly popular in the first decade of the twentieth century. This chapter traces the environmental ethics evident in lay conceptions of vaccines and vaccination from the late 1970s through the early 2000s to demonstrate the varied ways in which vaccine doubts were informed by predominant patterns in thinking about nature and the environment. Vaccine beliefs throughout this period bear the unmistakable impression of new environmentalist thinking as well as long-held ideas about nature (a category that encompassed both the external environment as well as the body's natural immune system and naturally occurring bacteria and viruses) as benign but vengeful; possessing a purpose beyond the comprehension of humanity; and worthy of a respect and reverence usually reserved for a god.

This chapter draws on a variety of sources, ranging from the prominent to the obscure, and includes the voices of a diverse group of people whose thoughts on the subject of vaccination were not always uniform beyond bearing the imprint of new

environmentalism. In the 1970s, the brand of vaccine skepticism strongly influenced by environmental ethics comprised only a small, diffuse movement. In the 1980s, with the founding of Dissatisfied Parents Together and the publication of *A Shot in the Dark*, this type of thinking became much more visible; by the 1990s and 2000s, it became even more pronounced. I have found no evidence that self-described environmental groups expressed organized concern over the potential hazards of vaccination. Rather, my argument here is that the broader social movement to which such groups belonged had a pronounced effect on the way some Americans came to think about the environment, risk, and disease, with profound implications for the way they came to view vaccines.

*The Poisoned Needle: The Anti-Vaccinationist Legacy*

In the long history of vaccination resistance, vaccine anxieties in the late twentieth century were nothing new. Nineteenth and early twentieth-century anti-vaccinationists had decried smallpox vaccination's potential to "poison" the blood by transmitting either the disease itself, other diseases, or animal matter with unknown consequences for health. Anti-vaccinationist fears were not unfounded; the scratching of lymph taken from previously vaccinated (or otherwise infected) individuals into lacerations in the arms of those receiving vaccination under frequently unsanitary conditions did on occasion result in infections and disfigurement.<sup>4</sup> The practice of vaccination (whether it used human or calf lymph) also chafed against the ideals of nineteenth and early twentieth century health reformers and adherents of nature cures, who saw health as deriving from proper hygiene, diet, and environmental conditions, and

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<sup>4</sup> Durbach, *Bodily Matters: The Anti-Vaccination Movement in England, 1853-1907*, 3, 126-127.

who saw disease as a necessary means of ridding the body of impurities acquired by eating meat, drinking alcohol, or engaging in other unscrupulous behaviors. In Victorian England, for instance, where anti-vaccination activity was particularly robust, anti-vaccinationism found followers among medical botanists, hydropathists, hygiests and other alternative medical practitioners and their followers. But as historian Nadja Durbach has pointed out, the anti-vaccinationist cause—which also found supporters among trade unionists and teetotalers—was but one component of a larger culture of dissent in Victorian England, in which members of the working and lower middle class threw their weight behind an array of “progressive and humanitarian campaigns” that constituted a broad-based struggle against state and industrial exploitation.<sup>5</sup>

As in Victorian England, in Victorian and subsequently in the Progressive Era U.S. anti-vaccinationism also found supporters among homeopaths, botanical physicians, hydropaths, and other medical “irregulars.”<sup>6</sup> And in the U.S., as in England, anti-vaccination agitation was as much a rejection of dominant medical ideology as it was a struggle over the reach of state power, with prominent anti-vaccinationists labeling compulsory immunization a form of medical oppression akin to the religious and political oppression from which they believed their government was designed to protect them.<sup>7</sup>

Organized anti-vaccinationist activity grounded in such liberalist leanings was

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<sup>5</sup> Ibid., 41.

<sup>6</sup> Kaufman, "The American Anti-Vaccinationists and Their Arguments."

<sup>7</sup> See Chapter 2 in Colgrove, *State of Immunity: The Politics of Vaccination in Twentieth-Century America*; Willrich, "'The Least Vaccinated of Any Civilized Country': Personal Liberty and Public Health in the Progressive Era."

particularly robust in the Progressive Era U.S.<sup>8</sup> But with changes in public health priorities and in organized medicine (see Chapter 1), and with the deaths, in close succession, of Charles Higgins and Lora Little, leaders of the Anti-Vaccination League of America and the American Medical Liberty League, respectively, anti-vaccination activity faded considerably in the 1930s.<sup>9</sup>

It by no means disappeared, however, as a few devoted writers, including Annie Riley Hale, continued to attack the practice of vaccination through the 1930s and 1940s as a form of tyranny propped up by false science and capitalism.<sup>10</sup> A more vigorous revival of Victorian and Progressive Era anti-vaccinationist thinking came in the 1950s, however, when California chiropractor and naturopath R.G. Wilborn founded Health Research, a small press that began republishing nineteenth and early twentieth century works on teetotalism, fasting, natural hygiene, and other nature cures, several of which rejected vaccination as part and parcel of a overall rejection of allopathic medicine. Wilborn's enterprise also sought out original works by contemporary alternative medicine adherents, and in 1957 the press published a book titled *The Poisoned Needle*, by California naturopath Eleanor McBean.<sup>11</sup>

McBean's book, a harangue against both allopathic medicine and the practice of vaccination, compiled more than a century of commentary on the moral transgressions

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<sup>8</sup> See Part IV of Johnston, *The Radical Middle Class: Populist Democracy and the Question of Capitalism in Progressive Era Portland, Oregon*.

<sup>9</sup> Colgrove, *State of Immunity: The Politics of Vaccination in Twentieth-Century America*, 74.

<sup>10</sup> Annie Riley Hale, *The Medical Voodoo* (New York: Gotham House, 1935).

<sup>11</sup> Eleanor McBean, *The Poisoned Needle: Suppressed Facts About Vaccination* (Mokelumne Hill, Calif.: Health Research, 1957).



and physical hazards posed by vaccination. While she cited the works of a few contemporaries, including American natural hygienist Herbert Shelton and British anti-vaccinationist Lily Loat, the bulk of her volume revisited the arguments of Victorian and Progressive Era philosophers, scientists, healers, and anti-vaccinationists, including British philosopher John Stuart Mill, British naturalist Alfred Russel Wallace, and American hydropath and health reformer Russell Trall. Quoting from this array of sources, McBean argued that vaccination poisoned the blood with animal proteins, was based on the false premise of germ theory, and served only to gild the coffers of profit-hungry doctors. She decried compulsory vaccination as an act of “medical oppression” and a form of “enslavement” practiced only by the most “backward” of states. She also denounced vaccination—compulsory or not—as a direct affront to the laws of nature.

This particular premise of McBean’s had long been held by anti-vaccinationists and so-called medical irregulars of all stripes. Wallace, best known for articulating the theory of natural selection, saw vaccination as “an attempt to cheat outraged nature” at its own necessary endeavors.<sup>12</sup> Quoting Wallace, Trall, Shelton, anti-vaccinationist physician John W. Hodge, and others, McBean rearticulated a philosophy that saw nature and its human inhabitants, in their untouched states, as existing in perfect equilibrium. In humans, poor nutrition and the consumption of processed foods disrupted the body’s natural equipoise; it was these habits, not germs, that resulted in disease. Disease, wrote McBean, was the body’s way of cleansing itself of “excess poisons, waste matter, obstructions, and incompatible food.” “DISEASE IS NOT SOMETHING TO BE

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<sup>12</sup> Alfred Russel Wallace, *The Wonderful Century: Its Successes and Its Failures* (New York: Dodd, Mead, 1898), 314.

CURED; IT IS A CURE,” she emphatically wrote.<sup>13</sup> McBean quoted extensively from nineteenth century French biologist Antoine Bechamp, who had proposed that germs did not cause disease but were rather the result of disease, drawn to diseased tissue to consume it and return it to nature. Combining Bechamp’s premise with Russel’s theory of evolution, McBean argued, as other post-germ theory anti-vaccinationists had before her, that germs were “useful wherever they are found in nature.”<sup>14</sup> By fighting germs and not the true causes of disease, McBean wrote, “modern medical methods”—including first and foremost vaccination—“delay and frustrate the unexcelled healing efforts of nature.”<sup>15</sup>

Modern medical methods (understood as inherently “unnatural”) were not the only threat to health; McBean documented a litany of modern commodities and habits that destroyed the wellbeing of both humans and their environment. Like the century’s worth of natural healers who came before her, she emphasized the centrality of a diet of whole, unprocessed foods to good health. But McBean’s list of modern “poisons” included not only canned, refined, and otherwise processed foods but also food additives and preservatives, Coca Cola, tobacco, and chemical fertilizers and insecticide sprays. Writing just before Rachel Carson would begin work on *Silent Spring*, McBean denounced the use of DDT and blamed it and other sprays for a host of modern ills, including cancer, heart disease, and polio. In her view, mass vaccination was a calculated distraction from the true causes (“foodless foods” and “poison sprays”) of allegedly

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<sup>13</sup> Eleanor McBean, *The Poisoned Needle*, 3rd ed. (Mokelumne Hill, CA: Health Research, 1974), 27.

<sup>14</sup> Ibid.

<sup>15</sup> Ibid.

vaccine-preventable diseases (such as polio). Like Carson would, McBean (referencing the recent emergence of a literature on organic agriculture) drew an ecological view of health, in which insecticides caused harm not only to birds, butterflies, and bees, but also to humans. Insecticide sprays poisoned food directly, she wrote, and were being washed from crops into soil, where they killed earthworms and other organisms vital for healthy soil, which was vital for producing health crops to fortify humans; the sprays caused even further damage by contaminating water supplies that both humans and animals relied upon. To McBean, widespread pesticide applications, which citizens were powerless to avoid, were, like vaccination, crimes committed by government acting in the interest of powerful corporations with no regard for human health. She wrote,

“This staggering **increase** in a **preventable disease** is a grave reflection upon our present system of living with its **popularized blood pollution** practices by way of **vaccination** campaigns and **mass poisoning** as a result of government enforced **spraying of fruits and vegetables with deadly lead arsenate** and other poisons. The power politics of the drug and chemical companies have also influenced legislation to set aside vast sums of the taxpayer’s money with which to buy their poison chemicals.... The people are told that these practices are beneficial but facts disclaim these statements.”<sup>16</sup>

Like Carson, McBean tallied rising cancer rates and highlighted the correlation between increasing cancer prevalence and increasing deployment of both vaccines and insecticides. She also drew a parallel between these two categories of modern hazards and a third: atomic radiation. In McBean’s view atomic radiation was the only modern poison that caused more harm to human health than vaccination did.

McBean’s book likely had only a limited audience in the late 1950s; just 500 copies of the book’s first edition were published in 1957. But seventeen years later,

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<sup>16</sup> Ibid., 44. Emphasis in original

Health Research reissued *The Poisoned Needle*, this time printing 5,000 copies.<sup>17</sup> By then, polio and smallpox had all but disappeared from the U.S.; nonetheless, vaccination efforts were on an upswing. The 1962 Vaccination Assistance Act had allocated funds to help states expand their immunization programs. In the years that followed, three new vaccines, against measles, mumps, and rubella, had been licensed for use and recommended for children; in response, states began updating and expanding the scope of their immunization laws. The Centers for Disease Control in 1966 announced a measles eradication campaign, and health officials began debating the broader utility of compulsory immunization laws for all vaccine-preventable diseases and not just smallpox, the disease for which the bulk of existing laws had initially been written.<sup>18</sup> (See Chapters 1 and 3 for a more complete discussion of the expansion of federal vaccination efforts in the 1960s and 1970s.)

These changes in the immunization landscape took place against a backdrop of great social change in the U.S. In the 1960s a series of new social movements began to emerge, embracing the principles of participatory democracy to demand the granting and protection of an array of rights and freedoms. McBean's anti-professional stance, her assertion of the value of American freedoms, and her claims that justice (in matters of medical oppression and exploitation specifically) had too long been the exclusive province of the wealthy undoubtedly had particular resonance for readers moved by the

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<sup>17</sup> Ibid. See message from the publisher, inside front cover.

<sup>18</sup> Charles Jackson, "State Laws on Compulsory Immunization in the United States," *Public Health Reports* 84, no. 9 (1969): 787-794.

rhetoric of the New Left. The same was likely true for the litany of environmental concerns she detailed as well.

By 1974, the year *The Poisoned Needle* was reissued, *Silent Spring* had helped foster a new environmental movement, which had popularized concerns about radiation, heavy metals, and pesticides; led to the passage of federal laws to protect the quality of air, water, and other natural resources; and demonized DDT in particular in a series of widely publicized hearings.<sup>19</sup> The values that McBean wove together in *The Poisoned Needle*—the preciousness of freedom and nature combined with a mistrust of government and industrialists—anticipated popular attitudes of many seventies social activists by the better part of a generation. Indeed, as the 1970s progressed, McBean, then in her seventies, found a new audience for her thoughts. She published three more anti-vaccine books between 1977 and 1980, and her followers began writing their own books and penned pieces inspired by her work for a range of “alternative” publications.<sup>20</sup> McBean’s books may never have garnered a tremendous readership, but renewed interest in *The Poisoned Needle* in the 1970s was significant in that the book carried over a set of anti-vaccinationist ideas from the first half of the century (and earlier) to the latter half. The book thus served as a bridge between the anti-vaccinationism that faded in the 1930s and the renewed vaccine skepticism that began to gain momentum in the 1970s. The attention

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<sup>19</sup> Samuel Hays and Barbara Hays, *Beauty, Health, and Permanence: Environmental Politics in the United States, 1955-1985* (New York: Cambridge University Press, 1987), 175; Thomas R. Dunlap, *DDT: Scientists, Citizens, and Public Policy* (Princeton: Princeton University Press, 1981).

<sup>20</sup> Ida Honorof and Eleanor McBean, *Vaccination: The Silent Killer* (Sherman Oaks, Calif.: Honor Publications, 1977); Eleanor McBean, *Swine Flu Expose* (Los Angeles: Better Life Research Center, 1977); Eleanor McBean, *Vaccinations Do Not Protect* (Yorktown, Texas: Life Science, 1980); John Crawford, "The Poisoned Needle," *Mothering*, Winter, 1979, 40.

that both the book and McBean herself received in the 1970s also serves as a signal of expanding vaccination doubts in the period that has been, until now, overlooked.

### *New Vaccine Fears*

The brand of vaccine skepticism that increased in prevalence at the end of the century inherited several key ideas from McBean, and, in turn, from the natural healers and anti-vaccinationists whose work (among others') inspired her own. This long inheritance is evidenced in the vaccine doubts expressed by many parents, doctors, and others from the 1970s through the 1990s. Several of their predominant concerns were grounded in the ideas that nature was benevolent; that health derived from balance and harmony with the natural order; and that vaccines were akin to environmental hazards inasmuch as they were products of industry with uncertain and potentially harmful long-term consequences.

The vaccine beliefs held by many critics in this period mapped neatly onto the “natural values” that defined postwar American environmentalism in historian Samuel Hays’ analysis.<sup>21</sup> According to Hays, the environmentalism that emerged in the 1960s and 1970s was characterized by (among other factors) the rise of popular ecology; concern with the health consequences of environmental choices; and a sense of a ubiquitously toxic environment. Over the course of the 1970s, a series of episodes—including the detection of cancer-causing chemicals in New Orleans’ water supply, the discovery of toxic waste at Love Canal, and the nuclear accident at Three Mile Island—

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<sup>21</sup> Hays and Hays, *Beauty, Health, and Permanence: Environmental Politics in the United States, 1955-1985*, 22-24.

helped create what Hays called “a widely shared perception of harm” along with the widespread sense that government and industry had taken insufficient measures to protect the populace from harmful toxic exposures.

The consequences of such exposures, as historians Gerald Markowitz and David Rosner have shown, were often slow in coming to light, hampered both by industry obfuscation and by the scientific challenges of proving a cause-and-effect relationship between a single chemical exposure (such as tobacco smoke) and a health outcome that arose much later in life (such as lung or colon cancer). By the 1970s, Markowitz and Rosner illustrate, consumers had been given legitimate cause to question the safety of products as diverse as asbestos blankets and red food dye No. 2.<sup>22</sup> The element of uncertainty—a dominant theme in the history of environmental health—linked the stories of such products.<sup>23</sup> As Markowitz and Rosner put it, “Lead, asbestos, tobacco, and radioactive materials became widely used because scientific studies could not *prove* with certainty that these substances caused harm.”<sup>24</sup> That such widely used products were ultimately demonstrated to be harmful, despite the assurances of industry, government officials, and health professionals, left an array of consumer products open to the critique that they too might someday be proven hazardous. This focus on the uncertain and unknowable long-term consequences of consumer-product interactions marks the beginning, in the 1970s, of what historians Joseph Melling and Christopher Sellers have

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<sup>22</sup> Gerald Markowitz and David Rosner, *Deceit and Denial: The Deadly Politics of Industrial Pollution*, California/Milbank Books on Health and the Public (New York: The Milbank Memorial Fund, 2002), 4.

<sup>23</sup> Greg Mitman, Michelle Murphy, and Christopher Sellers, "Introduction: A Cloud over History," *Osiris* 19 (2004): 1-20.

<sup>24</sup> Markowitz and Rosner, *Deceit and Denial: The Deadly Politics of Industrial Pollution*, 6. Emphasis in original.

termed a new “industrial hazard regime.” In this regime, lay environmental anxieties focused less on workplace or ambient environmental exposures (as they had during earlier periods), and increasingly on the potential hazards of widespread everyday consumer product exposures.<sup>25</sup>

The new environmentalism thus provided a framework for critics to question vaccines by highlighting the scientific uncertainties inherent in their use. Writing in 1978, Maine physician and vaccine critic Daniel Lander argued that “in reality, no one knows for sure how effective or safe immunization really is and it is unlikely that we will ever know....”<sup>26</sup> Across the country in Oregon, childbirth educator Cynthia Cournoyer echoed this notion in a pamphlet she began self-publishing in 1983: When you vaccinate your child, she wrote, “you cannot be *sure* you are not also administering a serious side effect. Some disadvantages have already been proven and much is left unknown. There is no conclusive evidence vaccines are completely safe.”<sup>27</sup> Richard Moskowitz, a Harvard and New York University-trained physician turned homeopath and vaccine critic, pointed out that not only were there uncertainties inherent in vaccine use, but that no effort had been made to uncover the long-term implications of their use. “The fact is that we do not know

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<sup>25</sup> Joseph Melling and Christopher Sellers, "Introduction," in *Dangerous Trade: Histories of Industrial Hazard across a Globalizing World*, ed. Joseph Melling and Christopher Sellers (Philadelphia: Temple University Press, 2011).

<sup>26</sup> Lander, "On Immunization."; Daniel A. Lander, "Immunization: An Informed Choice," (Glen Cove, ME: Dr. Daniel Lander, Family Chiropractor, 1978).

<sup>27</sup> Cynthia Cournoyer, "What About Immunizations?," (Canby, Oregon: Concerned Parents for Information, 1983).



and have never even attempted to discover what actually becomes of these foreign substances once they are inside the human body,” he wrote in 1984.<sup>28</sup>

In addition to providing critics with a new means of legitimizing vaccine anxieties, environmentalism also provided a new lexicon with which to disparage vaccines. For many vaccine skeptics, the image of a dangerously polluted environment served as a powerful metaphor for the contemporary condition of the human body. Such critiques viewed the human body as microcosm, facing the same onslaught of toxins that had threatened the wellbeing of the natural macrocosm. Historian Peter Coates has pointed out that while nature has for centuries been perceived as indomitable, new environmentalists simultaneously lamented its fragility and the loss of its purity.<sup>29</sup> In the post-environmental era, vaccine critics saw the human body through the same lens. McBean and her followers embraced this line of thinking—that no environment, ambient or bodily, could be purified via the addition of ever more pollutants: “Certainly a city or other area cannot be immunized from pollution by introducing more contaminating substances into it... Could a thinking public be so brainwashed as to believe that the addition of more smog to their city would possibly have the effect of purifying it?”<sup>30</sup> Other commentators evoked the polluted environment to raise the specter of uncertain consequences of vaccination. Wrote herbalist Jaime Murphy in his 1994 book on vaccines, “It is no mystery that we cannot dump raw sewage into our harbors without it

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<sup>28</sup> Richard Moskowitz, "Immunizations: The Other Side," *Mothering*, 1984, 32-37.

<sup>29</sup> Peter A. Coates, *Nature: Western Attitudes since Ancient Times* (Berkeley: University of California Press, 1998).

<sup>30</sup> Crawford, "The Poisoned Needle," 40.

having a deleterious effect on the ecosystem. It is also clear that we cannot bury oil drums or carelessly discard industrial solvents without seriously polluting the land, waters, or aquifers. Similarly, we cannot pollute our cells and bloodstream with vaccines and other toxic drugs and think that these will not produce damaging side effects over time.”<sup>31</sup>

Earlier anti-vaccinationists commonly referred to vaccination as blood “pollution,” but in the 1970s and afterward, this metaphor encompassed a distinct set of meanings. It evoked the irreversible biological *and* chemical pollution of bodies and the environment; it also evoked the hubris and shortsightedness of science and industry, a portrayal that was a hallmark of the new environmentalism. Influential new environmentalists such as Barry Commoner popularized in the 1960s and 1970s the idea that society had established a pattern of committing to new technologies—nuclear weapons, fertilizers, insecticides, detergents, and automobiles among them—before the consequences of mass deployment were completely understood.<sup>32</sup> In the aftermath of several widely publicized drug scares (thalidomide, DES), and following the revelation that the 1976 swine flu inoculation campaign had done more harm than good, lessons initially relevant to the environmental arena began to color perception of mass vaccination as well. Wrote a *Boston Globe* reporter in response to the swine flu fiasco: “it was as if Mother Nature were warning us against arrogance: there are many things in a world full of biological hazards that we don’t understand, don’t even have the tools to

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<sup>31</sup> Jamie Murphy, *What Every Parent Should Know About Childhood Immunization* (Boston: Earth Healing Products, 1994), 20.

<sup>32</sup> Barry Commoner, *Science and Survival* (New York: Viking Press, 1966).

understand.”<sup>33</sup> Moskowitz, among others, applied the lessons of environmental disasters to vaccination more broadly. As he put it in 1984: “we have been taught to accept vaccination as a sacrament of our...participation in the unrestricted growth of scientific and industrial technology, utterly heedless of the long-term consequences to the health of our own species, let alone to the balance of nature as a whole.”<sup>34</sup>

In envisioning the potential for undesirable long-term consequences, many vaccine skeptics invoked the environmentalist metaphor of the chemical time bomb. In *How to Raise a Healthy Child in Spite of Your Doctor*, Dr. Robert Mendelsohn (see Chapter 4) suggested that vaccines might be a “medical time bomb” simply because “no one knows the long-term consequences of injecting foreign proteins into the body of your child.”<sup>35</sup> To La Leche League founder Marian Tompson, the consequences were clear: in her view, vaccination was creating a generation of weak, defenseless beings. “Instead of taking personal responsibility for our body’s immunological system, we try to handle everything with a vaccine, insulting our bodies and creating a sicker, more endangered species. We are, literally, walking time bombs!” she wrote in 1982.<sup>36</sup> Tompson believed, as many other vaccine critics did, that the artificial nature of vaccination was compromising children’s natural defenses. But neither Mendelsohn nor Tompson pointed specifically to the explosive potential of any particular component of vaccines; to both,

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<sup>33</sup> Richard Knox, "A Shot in Arm, a Shot in Dark," *Boston Globe*, December 26, 1976, A2.

<sup>34</sup> Moskowitz, "Immunizations: The Other Side."

<sup>35</sup> Robert S. Mendelsohn, *How to Raise a Healthy Child...In Spite of Your Doctor* (Chicago: Contemporary Books, 1984), 232.

<sup>36</sup> Reprinted in Marian Tompson, "Viewpoint (1982)," in *The Risks of Immunization and How to Avoid Them*, ed. Robert S. Mendelsohn (Evanston, IL: The People’s Doctor, 1988), 31.

the vaccines in their entirety were the explosive materials encapsulated in human bodies. Sporadically in the 1980s and increasingly in the 1990s, however, critics began to focus expressly on the chemical components of vaccines; soon *these* became the ticking time bomb. As Murphy proposed in 1994, “the combination of mercury, aluminum, and formaldehyde [in vaccines]...might have created a kind of time bomb whose ultimate outcome was being played out in the cells, tissues, and blood of the human body, and whose effect no scientist would venture to predict.”<sup>37</sup> Within a few years, as described later in this chapter, concerns about these specific components of vaccines would in fact come to fully supplant more generalized worries about vaccination.

In the meantime, La Leche League’s Tompson’s worry—that vaccination was weakening the species—was related to a broader set of perceptions regarding the artificial nature of vaccines, the superiority of natural immunity, and the importance of balance to the pursuit of health. While many people began to merely question vaccines in the late 1970s and early 1980s, a subset rejected vaccines outright; many of the latter paired this rejection with a dismissal of germ theory. Like McBean and many of her forebears, some late-twentieth century anti-vaccinationists argued that germs did not cause disease, frequently referencing Bechamp, as McBean had. Vaccines were unnecessary according to this view, which portrayed sickness as resulting not from microorganisms but from an imbalance between “a person’s inner environment and the external world,” in the words of *Mothering* contributor Leonard Jacobs. Jacobs added, “Vaccinations for creating an artificial immunity against sickness then become unnecessary; we can avoid the problem entirely by establishing and maintaining a healthy balance between the child and his or

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<sup>37</sup> Murphy, *What Every Parent Should Know About Childhood Immunization*, 39.

her environment.”<sup>38</sup> Jacobs and like-minded vaccine skeptics argued that immunity was “the natural ability to maintain balance with the environment,” and could be obtained through breastfeeding, a balanced diet, and exercise.<sup>39</sup> (Others added such elements as “relaxation” and a “positive attitude” to the list.<sup>40</sup>) This ecological view of health, which persisted in vaccine-skeptical discourse through the 1990s, was not the exclusive purview of germ-theory nihilists, however. Some, like *Mothering* reader and New York pediatrician Victor LaCerva, shared the belief that health derived from internal balance and balance with one’s environment while asserting that viruses and bacteria caused disease in bodies “out of balance.”<sup>41</sup>

What, then, did “balance” signify for people with vaccine doubts or, like LaCerva, vaccine circumspection? For many, including LaCerva, it signified an approach to health that emphasized lifestyle choices, including the decisions to breastfeed, exercise, avoid processed foods, and get adequate rest, an approach that gained increased traction in the 1970s.<sup>42</sup> It also signified the acknowledgement that humans were part of an ecosystem, their own wellbeing dependent on the wellbeing of the larger environment in which they lived. It was this perception that prompted California physician Paul Fleiss to write (also in a letter to *Mothering*), that vaccination was just one way of preventing disease, albeit a less important way than the pursuit of clean air and water and the avoidance of radiation

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<sup>38</sup> Leonard Jacobs, "Eating Well--the Best Vaccine," *Mothering*, Fall, 1978, 17.

<sup>39</sup> Ibid.

<sup>40</sup> Patricia Savage, "A Mother's Research on Immunization," *Mothering*, Fall, 1979, 76.

<sup>41</sup> Victor LaCerva, "Letter to the Editor," *Mothering*, Spring, 1979, 6.

<sup>42</sup> See Part III of James C. Whorton, *Nature Cures: The History of Alternative Medicine in America* (New York: Oxford University Press, 2002).

and nuclear bombs.<sup>43</sup> Balance also referred to a quasi-religious belief in the precise, perfectly calibrated interplay of natural systems, from the molecular to the macro, that was designed to promote health but was so intricate and complex that it was beyond the comprehension of humans. “There is a wisdom within the body,” wrote Maine physician and vaccine skeptic Lander, illustrating this point of view. “The human body has the most complex organic machinery in the world. It produces all the chemicals one will ever need to be healthy...The wisdom that created our bodies is far superior to the finite mind of all scientists in the world.”<sup>44</sup>

Lander and other vaccine critics deliberately distinguished between what they saw as “artificial” immunization—that is, vaccination—and natural immunity, which derived not from a pharmaceutical product but from lifestyle choices. As Jacobs put it, “Immunity is completely natural and not a rare privilege to be bought with money or acquired from the technological arsenal.”<sup>45</sup> Indeed, it was the artificial nature of vaccines that most often came under attack by critics from the 1970s onward, much as it had in the nineteenth and early twentieth centuries. (McBean herself frequently decried the “artificial” nature of vaccines.) Vaccines were considered artificial not for their ingredients—at least, not initially—but because they represented a contrived way of encountering disease. As Oregon childbirth educator Cournoyer argued, injecting viruses and bacteria directly into the bloodstream was a “unnatural way of handling foreign

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<sup>43</sup> Paul Fleiss, “Letter to the Editor,” *Mothering*, Winter, 1997, 15.

<sup>44</sup> Lander, “On Immunization,” 32.

<sup>45</sup> Jacobs, “Eating Well--the Best Vaccine.”

material, contrary to all other forms of ingestion.”<sup>46</sup> To many skeptics, proof of the inferiority of artificial vaccination lay in the ever-growing number of booster shots recommended for their children, and in the appearance of vaccine-preventable diseases in vaccinated children. “Did you know,” wrote La Leche League’s Tompson, “that when immunity to a disease is acquired naturally, the possibility of reinfection is only 3.2 percent? If the immunity comes from a vaccination, the chance of reinfection is 80 percent.”<sup>47</sup> Vaccine skeptic Diane Rozario, who described herself as a “strong supporter of breastfeeding and proper nutrition and a devout Roman Catholic,” argued that for this reason, vaccines shouldn’t be called immunizations. “Anti-vaccinationists don’t like the word immunization,” she wrote, “because they don’t think vaccines confer true immunity.”<sup>48</sup>

That vaccines were perceived as artificial—and that their artificial nature was something to be abhorred—was implied by the adoption of the term “toxic” to describe them. McBean (in the tradition of earlier anti-vaccinationists) had routinely referred to vaccines as “poisons”; writing in the 1970s, McBean continued to employ this metaphor, equating immunization to being bitten by a poisonous snake. In the 1970s and 1980s, however, the word had less traction than it once did, and vaccine critics broadly turned instead to the terms “toxin” and “toxic,” both of which were becoming popularly adopted with the diffusion of contemporary environmentalist thinking. As Hays points out,

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<sup>46</sup> Cynthia Cournoyer, *What About Immunizations? Exposing the Vaccine Philosophy*, 5th ed. (Santa Cruz: Nelson's Books, 1991), 27.

<sup>47</sup> Tompson, "Viewpoint (1982)."

<sup>48</sup> Diane Rozario, *The Immunization Resource Guide*, 2nd ed. (Burlington, Iowa: Patter Publications, 1994).

concerns about the toxic environment were ubiquitous in the early phases of the new environmentalism, but these morphed quickly into concerns about how substances wreaked toxic effects on human bodies.<sup>49</sup> Pesticides, artificial sweeteners, food dyes, drugs, and other consumer products were all subject to popular attack and government regulation for their potential or demonstrated toxic effects on humans, and vaccines, to some, seemed a logical inclusion. “All vaccines, like drugs, are toxic. None render the body healthy, but rather more toxic,” wrote natural hygienist Grace Girdwain in 1979.<sup>50</sup> One mother referred to vaccines as “standardly accepted injectable toxins.”<sup>51</sup> In a new edition of her self-published pamphlet, Oregon childbirth educator Cournoyer told readers that “Manufacturers of vaccines admit they are highly toxic and by their very nature, cannot be made safe.” Cournoyer went on to list the “toxic ingredients” in vaccines. In addition to “horse blood, dog kidney tissue...and other decomposing proteins,” she listed:

“Phenol – (Carbolic acid) a deadly poison  
Formaldehyde – A known cancer causing agent which is commonly used to embalm corpses.  
Mercury – A toxic heavy metal that is not easily eliminated from the body  
Alum – A preservative  
Aluminum phosphate – Used in deodorants. Toxic.  
Acetone – A solvent used in fingernail polish remover. Very volatile.  
Glycerin – A tri-atomic alcohol extracted from natural fats which are putrified and decomposed. Some toxic effects of glycerine are kidney, liver, lung damage, diuresis, pronounced local tissue damage, gastrointestinal damage and death.

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<sup>49</sup> Hays and Hays, *Beauty, Health, and Permanence: Environmental Politics in the United States, 1955-1985*, 171-177.

<sup>50</sup> Grace Girdwain, "Immunizations for Public Schools and Passports," *Mothering*, Spring, 1979, 10.

<sup>51</sup> Roxanne Bank, "A Mother Researches Immunization," in *Vaccinations*, ed. Peggy O'Mara (Santa Fe: Mothering Magazine, 1988), 18-20.



Aluminum and Oil Adjuvants – Carcinogenic (cancer-producing) in laboratory mice.”<sup>52</sup>

This focus on the chemical components of vaccines marked a distinct departure from earlier vaccine criticism, which had focused exclusively on the potential hazards of the biological components of vaccines, including “horse blood” and “cow pus.”<sup>53</sup> Cournoyer, writing in 1987, was not the first to enumerate the synthetic chemicals used in vaccines; public health worker Carol Horowitz had included a similar list in an article for *Mothering* four years earlier. “Most parents who are trying to feed their children properly would not let them eat a food which contained any of the many ingredients in immunizations,” Horowitz wrote.<sup>54</sup> Both Horowitz and Cournoyer employed the modifier “toxic” to refer to the nature of the chemicals they listed; by pointing out that some were carcinogenic, they implicated vaccines in the ever-growing epidemic of cancer. By pointing out that vaccines included heavy metals, they hinted that immunization might be implicated in other epidemics as well. To Cournoyer, the presence of such compounds in vaccines was proof that the products were under-regulated and thus unsafe. “When cancer causing elements are found in foods, they are either banned (remember cyclamates?) or an obvious warning label appears on the package (saccharin, cigarettes),”

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<sup>52</sup> Cynthia Cournoyer, *What About Immunizations?*, 4th ed. (Grants Pass, Oregon: Cynthia Cournoyer, 1987), 3.

<sup>53</sup> Cournoyer still worried about such substances, but placed heavier emphasis on chemical ingredients in vaccines. To contrast her views with the worries of earlier vaccine skeptics, see McBean, *The Poisoned Needle: Suppressed Facts About Vaccination*. See also Durbach, *Bodily Matters: The Anti-Vaccination Movement in England, 1853-1907*.

<sup>54</sup> Horowitz, “Immunizations and Informed Consent,” 37.

she wrote, building to her conclusion: “There seems to be a double standard for vaccines!”<sup>55</sup>

### *Chronic Disease Fears*

In the eyes of vaccine critics, both aspects of the artificial nature of vaccines—their unique interface with the immune system and their contents—implicated vaccines in an ever-shifting list of seemingly modern epidemics. The suspicion that vaccines might be responsible for the emergence or increasing prevalence of new (or perceived-as-new) diseases was long held by anti-vaccinationists. In her 1935 book *The Medical Voodoo*, Annie Riley Hale argued in favor of the theory that vaccination was contributing to the steady rise in cancer.<sup>56</sup> In 1957 and 1974 (her book was reissued a third time, in 1993) McBean argued that the “900 percent increase” in cancer deaths in the first half of the century was brought on by “universal blood poisoning” caused by vaccination.<sup>57</sup> McBean, quoting Hale, maintained that modern medicine’s greatest accomplishment had thus been to “swap smallpox for cancer and typhoid fever for diabetes and insanity.” The suspicion that vaccination had resulted in an unfavorable trade-off was oft-repeated by vaccine critics at the end of the twentieth century. Popular physician-author Robert Mendelsohn proposed that Americans had “traded mumps and measles for cancer and leukemia.”<sup>58</sup> Cournoyer agreed, stating that through vaccination, Americans had

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<sup>55</sup> Cournoyer, *What About Immunizations?*, 3.

<sup>56</sup> Hale, *The Medical Voodoo*.

<sup>57</sup> McBean, *The Poisoned Needle*, 21.

<sup>58</sup> Mendelsohn, *How to Raise a Healthy Child...In Spite of Your Doctor*, 211.

“essentially traded off acute, epidemic diseases of the past century for the weaker far less curable epidemic of chronic diseases of the present.”<sup>59</sup>

For much of the twentieth century, anti-vaccinationists and vaccine skeptics were unanimous in their suspicion of a link between vaccination and cancer. But around 1980, fears that vaccines were responsible for climbing cancer rates gave way to fears that vaccines were responsible for other epidemics, namely, epidemics of autoimmune diseases, learning disabilities, and childhood behavioral disorders. These anxieties were linked to the belief that vaccination constituted an unnatural bodily intrusion, and they shifted in response to other cultural anxieties. In the wake of the 1975 Asilomar Conference on Recombinant DNA, which followed an explosion of findings on genetic disorders and great advances in (and trepidations about) the science of genetic manipulation, some scientists speculated that vaccines might be introducing disease-inducing genetic material into the body.<sup>60</sup> Vaccine skeptics quickly picked up on and circulated such hypotheses. In a 1976 issue of his newsletter, *The People's Doctor*, Mendelsohn described a theory proposed by a Rutgers University geneticist, that “immunization programs against flu, measles, mumps, polio, etc. actually may be seeding humans with RNA to form pro-viruses which will then become latent cells throughout the body. Some of these latent proviruses could be molecules in search of diseases which under proper conditions become activated and cause a variety of diseases including rheumatoid arthritis, multiple sclerosis, lupus erythematosus, Parkinson's disease and

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<sup>59</sup> Cournoyer, *What About Immunizations? Exposing the Vaccine Philosophy*, 30.

<sup>60</sup> On advances in genetic research in this period, see Chapters 17 and 18 in Daniel J. Kevles, *In the Name of Eugenics: Genetics and the Uses of Human Heredity*, 1st ed. (New York: Knopf, 1985).

perhaps cancer.”<sup>61</sup> Eight years later (following, not coincidentally, the discovery of HIV), Mendlesohn wrote of the “growing suspicion” among scientists that “immunization against relatively harmless childhood diseases may be responsible for the dramatic increase in autoimmune diseases since mass inoculations were introduced.”<sup>62</sup>

With the advent of AIDS, preoccupations with the potential link between vaccination and epidemic cancer were largely supplanted by concerns that vaccines were responsible for epidemic levels of immune dysfunction. Some feared that AIDS itself might have been caused by mass inoculation, linking the emergence of AIDS to the deployment of specific, purportedly tainted vaccines, such as those against polio and hepatitis B (see Chapter 6). Others linked AIDS, and the “overall immunologic weakening of our children,” to the artificial nature of vaccination generally, and not to the contents of any one specific type of vaccine.<sup>63</sup> Pennsylvania physician Harold Buttram and microbiologist John C. Hoffman, writing in 1985, contended that vaccines operated “contrary to the principles of natural immunity,” because, as injections, they bypassed mucous membranes and instead directly stimulated a set of antibodies that were not the body’s usual first line of defense. As injections of “massive antigenic material,” vaccines thus constituted, in their view, a form of “immunologic shock treatment” that continuously depleted the immune system’s resources. They proposed that this artificial route to immunity (coupled with exposure to environmental pollution and consumption of

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<sup>61</sup> Mendelsohn, *The Risks of Immunization and How to Avoid Them*, 2.

<sup>62</sup> Mendelsohn, *How to Raise a Healthy Child...In Spite of Your Doctor*, 211.

<sup>63</sup> Harold E. Buttram and John Chriss Hoffman, "Bringing Vaccines into Perspective," *Mothering*, Winter, 1985, 42.

formula and processed foods) was responsible for causing an “AIDS-like state” in babies and young children that was manifesting as an overwhelming rise in allergic disorders.<sup>64</sup> One didn’t need expertise in medicine or immunology to draw a line between vaccines, their purportedly artificial nature, and intractable, high-profile epidemics. “The thought of injecting toxins (of fairly dubious origins) into my children, who have never known any illness more serious than an occasional cold, is absurd....In this era of malfunctions of the immune system—cancer and AIDS specifically—our country would be better off spending its research money on learning about immune functions,” one parent wrote in a letter to *The People’s Doctor* in 1988.<sup>65</sup>

Buttram continued to speak out against vaccines and maintained into the 2000s that vaccination appeared to play a role in rising rates of autoimmune diseases and allergies. In 1992, however, he argued that among recent trends in the health of American children and young adults, the “most ominous of all is the rise in childhood behavioral disorders, including hyperactivity and learning disorders.”<sup>66</sup> These very same conditions presented themselves to Barbara Loe Fisher and Harris Coulter as potential vaccine hazards when they wrote their 1985 exposé on the risks of pertussis vaccination, *DPT: A Shot in the Dark* (described in Chapter 4).<sup>67</sup> After perusing the medical literature to

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<sup>64</sup> Ibid. Buttram was not a traditional allopathic practitioner; he espoused alternative medical views and had personal ties to the anti-immunization groups of the early part of the century, including the Anti-Vaccination Society of America. Biographical details on Buttram appear in Allen, *Vaccine: The Controversial Story of Medicine’s Greatest Lifesaver*, 338-342.

<sup>65</sup> J.M., “Reader Letter,” in *The Risks of Immunization and How to Avoid Them*, ed. Robert S. Mendelsohn (Evanston, IL: The People’s Doctor, 1988), 90.

<sup>66</sup> Harold E. Buttram, “Foreword,” in *Vaccines: Are They Really Safe and Effective?*, ed. Neil Z. Miller (Santa Fe: New Atlantean Press, 1992), 9-11.

<sup>67</sup> Coulter and Fisher, *DPT: A Shot in the Dark*.

compile the evidence linking pertussis vaccination and episodes of convulsions, seizures, encephalitis, and permanent brain damage in children, they addressed the possibility that the pertussis vaccine might also be responsible for a far greater number of cases of “minimal brain dysfunction, or learning disabilities,” including hyperactivity, dyslexia, and autism. Coulter and Fisher proposed that the connection between vaccination and minimal brain dysfunction might have been missed by scientists because of the lag time between exposure and effect. They found inspiration in Rachel Carson’s *Silent Spring*, quoting her at the start of a chapter they titled “Long Term Damage”: “We are accustomed to look for the gross and immediate effect and to ignore all else. Unless this appears promptly, we deny the existence of hazard. Even research men suffer from the handicap of inadequate methods of detecting the beginnings of injury.”<sup>68</sup> Throughout their book, Coulter and Fisher presented the collected reports of parents who had documented allergies, deafness, and hyperactivity or other learning disabilities in children who had suffered reactions to the vaccine as infants; for the authors, Carson’s words suggested that no matter the time lag between the shot and these symptoms, a connection between the two was possible. They proceeded to point out that since the pertussis vaccine had come into use, the number of learning disabled children had been growing at “a phenomenal rate” and hyperactivity prevalence had increased to affect one in every twenty children. “Is it a coincidence that this dramatic rise in America’s learning-disabled population occurred precisely during the three decades when the pertussis vaccine was being extended to include virtually all American children?” they asked.<sup>69</sup> “Has the toxic

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<sup>68</sup> Ibid., 110.

<sup>69</sup> Ibid., 115.

neurological effect of the pertussis vaccine left its stamp on the mental and physical makeup of two whole generations in the modern world?”<sup>70</sup>

Coulter and Fisher laid all their grievances at the foot of the pertussis vaccine, unlike the parents who had, by then, been questioning the safety of vaccines generally for a decade in such periodicals as *Mothering*, *The People's Doctor*, and *East/West Journal*. Like other vaccine critics, Coulter and Fisher decried the pertussis vaccine's toxicity, but although they used a term that had come, in the wake of the environmental movement, to popularly connote the damaging effects of chemical exposures, they used the term “toxic” in reference to the *biological* toxins in pertussis vaccine. They described the efforts on the parts of scientists to isolate the neurotoxic component in pertussis bacteria and held out hope that a safer vaccine was possible. A less toxic, acellular (as opposed to whole-cell) pertussis vaccine was already in use in Japan, and the authors demanded that the same vaccine be made available in the U.S. Thus, although their doubts were informed by questions about long-term safety that environmentalism had made mainstream, they did not reject all vaccines outright, nor did they display the complete lack of faith in the promise of orthodox medical technologies that many other critics did display.

Coulter and Fisher's volume was one of several media that gave a mainstream voice to vaccine skepticism in the first half of the 1980s. (Mendelsohn's books and his appearance on the talk show “Donahue,” in addition to several national news features on the dangers of pertussis vaccine, also brought vaccine criticism out of alternative health and natural lifestyle magazines and into the national spotlight.) Their book was distinct

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<sup>70</sup> Ibid., 52.

from the “vaccine guides” that would begin to increase in popularity just a few years later, many of which questioned the safety and value of vaccination generally and often displayed a penchant for natural and alternative health methods, which, as historian James Whorton has pointed out, drew ever larger numbers of adherents in the 1980s and especially the 1990s.<sup>71</sup> Coulter and Fisher’s book was connected to this subsequent literature, however, in the link that it proposed between vaccination and neurological damage, especially that which resulted in learning disabilities and behavioral disorders in children.

In *A Shot in the Dark*, Coulter and Fisher noted a parallel between pertussis vaccine-related damage and cases of autism, pointing out that infantile autism was first documented by doctors a few years after the pertussis vaccine was widely deployed in the U.S. One mother quoted by the authors described the autistic-type behaviors in her son Richard, who suffered encephalitis following his third DPT shot and could assemble puzzles, but was unable to put on his own shoes. “I am convinced there is a connection between autism and pertussis vaccine,” Richard’s mother said. “The relationship of autism to pertussis-vaccine damage,” concluded Coulter and Fisher, “deserves further investigation.”<sup>72</sup> The link between vaccines and autism was one of several which deserved further attention in the authors’ estimation, but it was one of just a few that Coulter, an independent medical historian who had written extensively on alternative health, went on to investigate himself. For a subsequent book, he interviewed 60 parents of vaccine-damaged children in addition to the 100 he and Fisher had interviewed for *A*

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<sup>71</sup> See Chapters 11 and 12 in Whorton, *Nature Cures: The History of Alternative Medicine in America*.

<sup>72</sup> Coulter and Fisher, *DPT: A Shot in the Dark*, 124.



*Shot in the Dark*; from these, he devised a theory that linked widespread vaccination to what he described as epidemic sociopathic behavior in American society.

Coulter's 1990 book, *Vaccination, Social Violence, and Criminality: The Medical Assault on the American Brain*, proposed that the side effects of vaccination were far more insidious than anyone had yet recognized, and had inflicted such widespread damage on the brains of children that they were responsible for the explosion of psychiatric disorders among American children since the 1950s, the social "turmoil" of the 1960s, increases in crime, alcohol, and drug abuse, and even the pathological behavior of serial killer and rapist Ted Bundy. Coulter gave special attention to the link between vaccination and autism, attributing the rise in autism to vaccine-induced encephalitis and determining proof of causation from the temporal correlation between the first medical descriptions of autism in the 1940s and the widespread use of pertussis vaccination just prior. He also offered an explanation as to why autism had so long been limited to the offspring of the upper class: until the 1970s, when new policies made vaccination widely available to all socioeconomic classes, he argued, only the wealthy could afford vaccines; thus, until then, only the wealthy had children with autism. To Coulter, a link between autism and vaccination was indisputable—despite the fact that scientists had yet to prove it.<sup>73</sup>

Coulter's 1990 volume was one of a wave of books on the hazards of immunization that came in the wake of *A Shot in the Dark*. Many of these were by observers who universally opposed all vaccines on the premise that they had not

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<sup>73</sup> Harris Coulter, *Vaccination, Social Violence, and Criminality: The Medical Assault on the American Brain* (Berkeley: North Atlantic Books, 1990).

conclusively been proven safe, and that safer routes to building immunity existed. (This position contrasted with that of Fisher, who repeatedly emphasized that she and her organization, Dissatisfied Parents Together, were *not* opposed to vaccines.) The authors of such books as Walene James' *Immunization: The Reality Behind the Myth*, Randall Neustaedter's *The Immunization Decision*, Neil Miller's *Vaccines: Are They Really Safe and Effective?* and Viera Scheibner's *Vaccination* were not all natural healers by training, but all nonetheless shared a sense of skepticism about modern medicine paired with faith in the beneficence of nature. They worried about the artificial nature of vaccines, the lack of research on their long-term consequences, and their potential role in the increasing prevalence of chronic diseases, especially conditions affecting the immune and nervous systems.

James, a mother and writer living in West Virginia, articulated a common fear when she wrote, "recently I read that one out of eight infants born in the United States will grow up with some form of mental retardation! Could mass immunization programs have something to do with this grim statistic?"<sup>74</sup> Neustaedter, a San Francisco homeopath and acupuncturist, argued that given the lack of research on the "subtle and long-term damaging effects on the immune system and nervous system," a "much more cautious approach to immunizations" was warranted.<sup>75</sup> New Mexico journalist and father Miller asserted that "no one knows the long-term effects of tampering with the genetic codes

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<sup>74</sup> Walene James, *Immunization: The Reality Behind the Myth* (South Hadley, Mass.: Bergin & Garvey, 1988), 14.

<sup>75</sup> Randall Neustaedter, *The Immunization Decision: A Guide for Parents* (Berkeley: North Atlantic Books, Homeopathic Educational Services, 1990), 8.

and delicate structure of the human organism.”<sup>76</sup> And Scheibner, an Australian physician whose vaccine-skeptical book was published in the U.S., argued that doctors and parents needed to “start respecting nature and recognize infectious diseases for the value they bring to children.”<sup>77</sup> Like Massachusetts herbalist and writer Jamie Murphy, she was a proponent of the view that even infectious diseases serve a purpose, and that nature gives all creatures everything they need to survive. To these and other writers, the emergence in the 1980s of so-called atypical measles, the term sometimes used to refer to measles that struck already-vaccinated children, was a troubling sign of nature’s obstinacy. Recent history provided them with further examples in support of their overall view on the hazards of artificial vaccination: the “pertussis vaccine catastrophe” served as proof that vaccines could be proven harmful, to the neurological system in particular, in the long run; the cases of Guillain-Barré syndrome induced by the 1976 swine flu vaccination campaign offered a similar example on a compressed time scale.

### *Long-Held Doubts Confirmed*

*A Shot in the Dark* helped nudge vaccine skepticism to into the national spotlight and proved that there was an audience for information on vaccination alternatives—or at least for more information on vaccines and side effects than was generally provided in doctors’ offices. But most authors of subsequent vaccine-critical books struggled to produce further evidence of harm. Several pointed to Coulter’s theory, repeating the

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<sup>76</sup> Neil Z. Miller, *Vaccines: Are They Really Safe and Effective? A Parent's Guide to Childhood Shots* (Santa Fe: New Atlantean Press, 1992), 49.

<sup>77</sup> Viera Scheibner, *Vaccination: 100 Years of Orthodox Research Shows That Vaccines Represent a Medical Assault on the Immune System* (Santa Fe: New Atlantean Press, 1993), 92.

observation that the climbing prevalence of both autism and hyperactivity correlated with increased vaccination. And more and more enumerated the chemicals in vaccines and included details on their toxicity. Scheibner in 1993 wrote that vaccines contained “noxious substances” including the well-known allergen thimerosal.<sup>78</sup> Murphy, writing in 1994, noted that vaccines contained a “witch’s brew” of chemicals, including known carcinogens (formaldehyde), mercury (thimerosal), aluminum, and formalin. Murphy went on to describe tests that had documented aluminum poisoning in factory workers and findings that led the EPA to classify formaldehyde as “hazardous waste.”<sup>79</sup> Thimerosal, he pointed out, was a mercury derivative, but no tests had been done to see how much of the well-known toxin remained in the body after vaccination. Pieces of evidence from other studies, however, did provide cause for concern. He described a study published in the *British Medical Journal* that had determined there was a “theoretical risk” of harm to patients receiving injections of immunoglobulin serum, which contained thimerosal. And he added that the mercury in once-widely used teething powders had been traced—after seven decades of use—to a condition called Pink Disease, a form of mercury poisoning, in children. Two years later, Neustaedter’s book further condemned the preservative and linked it directly to neurological symptoms in vaccine damaged children. “Mercury is a violent poison with many toxic effects,” he wrote. He noted that it was toxic to the kidneys and central and peripheral nervous systems and associated with tremors, dementia, and memory loss, symptoms that closely resembled those seen in children who had reacted adversely to the DTP, pertussis, and

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<sup>78</sup> Ibid., 259.

<sup>79</sup> Murphy, *What Every Parent Should Know About Childhood Immunization*, 53.

Hib (*Haemophilus influenza*) vaccines, all of which contained thimerosal. He added that “the neurologic toxicity symptoms caused by mercury compounds have a delayed onset after exposure, which may have significance for the suspected long-term neurologic symptoms of learning disabilities and behavior disorders associated with pertussis vaccines.”<sup>80</sup>

The increasing suspicion that the chemical components of vaccines—especially thimerosal—might be toxic to children’s developing nervous systems took place against a backdrop of growing national concern about mercury exposure. Studies in the 1980s had revealed dangerously high levels of mercury in fish—including some of the highest levels ever recorded in the U.S.<sup>81</sup> The findings, reported the *New York Times*, bore out environmentalists’ warnings about pollutants in the food supply, which were especially troubling in light of growing fish consumption among increasingly health-conscious Americans.<sup>82</sup> As federal agencies examined the health and environmental effects of mercury emissions in the environment and debated the amount of mercury individuals could safely consume, state governments and community groups went ahead with steps to reduce exposure to the metal.<sup>83</sup> States issued warnings against consuming fish from local waters and passed regulations to monitor disposal of mercury-containing appliances; a

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<sup>80</sup> Randall Neustaedter, *The Vaccine Guide: Making an Informed Choice*, 2nd ed. (Berkeley: North Atlantic Books, 1996), 51-52.

<sup>81</sup> Associated Press, "High Mercury Levels Found in Everglades Fish," *The Washington Post*, March 13, 1989, A16.

<sup>82</sup> Jane Brody, "Personal Health: Safety Questions About Eating Fish," *New York Times*, June 12, 1991, C10.

<sup>83</sup> K.R. Mahaffey, G. Rice, and et al., *An Assessment of Exposures to Mercury in the United States: Mercury Study Report to Congress* (Washington, D.C.: U.S. Environmental Protection Agency, 1997).

few states even banned children's flashing sneakers, which contained mercury switches.<sup>84</sup> Advocacy groups began campaigns to phase out the use of mercury-containing thermometers and warned pregnant women and children to limit their canned tuna consumption.<sup>85</sup> News reports on mercury throughout the 1990s emphasized that even "tiny" amounts of the metal were toxic, especially to the fetus, and that exposure could cause subtle but permanent damage; many articles also quoted officials who compared mercury to lead and cigarettes, the hazards of which were long ignored and then suppressed. In a 1999 article that referred to "mercury madness," *Mothering* notified readers about widespread warnings against fish consumption and about the dangers of mercury thermometers, adding, "It only takes a drop of the toxin to contaminate a whole lake—or a child."<sup>86</sup>

The article in *Mothering* made no reference to mercury in vaccines, but it likely would have had it gone to press just one month later. In July 1999, the Public Health Service and the American Academy of Pediatrics (PHS/AAP) issued a joint statement asking vaccine manufacturers to "eliminate or reduce as expeditiously as possible the mercury content of their vaccines." The statement indicated that because of new vaccines and new vaccine recommendations, children were at risk of "exposure to a cumulative level of mercury over the first 6 months of life that exceeds one of the federal guidelines on methyl mercury." The risk of harm from this potential exposure was unknown but

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<sup>84</sup> Associated Press, "Minnesota Bans Flashing Sneakers as Toxic," *New York Times*, May 10, 1994, A18.

<sup>85</sup> Nancy Beth Jackson, "Groups Debate Safety of Canned Tuna for the Very Young," *New York Times*, May 11, 1999, F14.

<sup>86</sup> "Ending Mercury Madness," *Mothering*, July/August, 1999, 11.

certainly smaller than the risk of infectious disease, the statement went on, but was nonetheless worth addressing “because any potential risk is of concern.”<sup>87</sup> The determination that there was any risk from the mercury in vaccines came as a result of an amendment to the Food and Drug Administration Modernization Act of 1997, which required the FDA to evaluate the mercury contents of drugs and biologic products.<sup>88</sup> It also followed, by two years, the 1997 publication of the Mercury Study Report, the EPA’s examination of the health and environmental effects of mercury emissions undertaken in response to the Clean Air Act Amendments of 1990. During—and after—the production of the Mercury Study Report, the safe exposure level was the subject of intense political debate; industry cited results of a study finding no adverse effects among mercury-exposed children in fishing communities in the Seychelles, while public health and EPA officials cited a study of mercury-exposed children in a fishing community in the Faeroe islands, whose motor function, language and memory were all diminished compared to non-exposed children.<sup>89</sup> The 1999 PHS/AAP statement on vaccines set off a second debate over the health effects of mercury exposure, although this time the disagreement split the public health community. Pediatrician and outspoken vaccine proponent Paul Offit called the statement a “flawed” policy for elevating “a theoretical

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<sup>87</sup> Public Health Service and American Academy of Pediatrics, "Notice to Readers: Thimerosal in Vaccines - a Joint Statement of the American Academy of Pediatrics and the Public Health Service," *Morbidity and Mortality Weekly Report* Vol. 48, no. No. 26 (1999): 563-565.

<sup>88</sup> Leslie Ball, Robert Ball, and R. Douglas Pratt, "An Assessment of Thimerosal Use in Childhood Vaccines," *Pediatrics* 107, no. 5 (2001): 1147-1154.

<sup>89</sup> The studies and their political uses are described in Chapter 15 in Jane M. Hightower, *Diagnosis Mercury: Money, Politics, and Poison* (Washington, D.C.: Island Press/Shearwater Books, 2009).

risk above an actual risk.”<sup>90</sup> Veteran vaccine researcher Stanley Plotkin called it a “public health disaster” for delaying the vaccination of infants against hepatitis B.<sup>91</sup> (The hepatitis B vaccine was one of three vaccines, along with the diphtheria-tetanus-pertussis and *Hemophilus influenza* type B vaccines, that contained thimerosal.) In an editorial that explained and defended the call to remove thimerosal from vaccines, Johns Hopkins University epidemiologist and federal vaccine advisor Neal Halsey equated the debate over mercury to that over lead, “where sequential studies over many years provided evidence for subtle effects with progressively lower exposures.”<sup>92</sup> To Halsey, the theoretical nature of the risk of harm from thimerosal had to be balanced against the public’s tolerance of that risk, which in his estimation was growing ever more limited. Furthermore, he posited, policies to limit risk had to have the outward appearance of consistency. As he later explained to a *New York Times* reporter, his own position on the presence of thimerosal in vaccines was crystallized while canoeing on a lake in Maine, where he came across a sign reading “protect your children—release your catch.” It was problematic, he told the reporter, for the government to tell parents not to feed their children mercury-contaminated fish but to allow them to be injected them with the very same substance when it appeared in vaccines.<sup>93</sup>

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<sup>90</sup> Paul Offit, "Letter to the Editor: Preventing Harm from Thimerosal in Vaccines," *Journal of the American Medical Association* 283, no. 16 (2000): 2104.

<sup>91</sup> Stanley Plotkin, "Letter to the Editor: Preventing Harm from Thimerosal in Vaccines," *Journal of the American Medical Association* 283, no. 16 (2000): 2104-2105.

<sup>92</sup> Neal Halsey, "Limiting Infant Exposure to Thimerosal in Vaccines and Other Sources of Mercury," *Journal of the American Medical Association* 282, no. 18 (1999): 1763-1766.

<sup>93</sup> Arthur Allen, "The Not-So-Crackpot Autism Theory," *New York Times*, November 10, 2002, F66.



Leslie and Robert Ball, the FDA scientists who conducted the agency's risk assessment on thimerosal, also defended the recommendation to remove the preservative from vaccines for its feasibility in the interest of limiting total human exposure to mercury and as a way of maintaining public confidence in vaccines.<sup>94</sup> Indeed, at the end of the century, lay confidence in vaccines did appear to be flagging. The National Vaccine Information Center (the new name gradually adopted by Dissatisfied Parents Together in the late 1980s) was operating with renewed vigor after finding a strong community of supporters among chiropractors and other alternative practitioners engaged in what Fisher called a "fight for freedom of choice in healthcare."<sup>95</sup> The fight, not coincidentally, followed close on the heels of the Clinton administration's push for health care reform and its announcement that it would fund an unprecedented federal initiative to vaccinate every child in the U.S. (see Chapter 3). In addition to well-publicized ideological arguments, the establishment of new means for monitoring vaccine side effects was also bringing increased attention to potential vaccine hazards. CDC officials reported that between 1997 and 1999, the national immunization hotline had been receiving increasing numbers of calls about vaccine safety.<sup>96</sup> The expansion of the immunization schedule—vaccines against chicken pox, hepatitis B, and Haemophilus influenza B, or Hib, had been added to the childhood vaccination schedule in the late 1980s and 1990s—had been drawing ire from parents and increased scrutiny from the

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<sup>94</sup> Ball, Ball, and Pratt, "An Assessment of Thimerosal Use in Childhood Vaccines."

<sup>95</sup> Lameiras, "Fighting for a Choice: Vaccination - One Mother's Crusade," 32.

<sup>96</sup> Bruce G. Gellin, Edward W. Maibach, and Edgar K. Marcuse, "Do Parents Understand Immunizations? A National Telephone Survey," *Pediatrics* 106, no. 5 (2000): 1097-1102.

press, which reported on the machinations of the “billion dollar” vaccine industry as well as vaccine recalls and reports of possible harm.<sup>97</sup> The news that mercury posed a “theoretical risk” of neurological damage thus piled on top of reports that Miss America’s deafness was caused by the DPT vaccine; that the measles-mumps-rubella vaccine might be linked to autism; that polio vaccine recommendations had been changed to reduce the risk of contracting the disease through immunization; and that the new rotavirus vaccine had been withdrawn from the market following its implication in two deaths and 100 cases of collapsed bowels in infants.<sup>98</sup> (These vaccine worries of the late 1990s are described in greater detail in the following chapter.)

But while many health officials blamed a host of factors—including newly recommended vaccines, the Clinton Administration’s vaccination push, and the rise of the internet—for fostering popular vaccine resistance, most failed to acknowledge that the pile-up of negative, end-of-the-century vaccine news had served to repeatedly confirm skeptics’ long-held fears and convictions. When *The Lancet* published a now-infamous report from British researchers noting a potential link between measles vaccination, bowel disease, and a form of autism, NVIC received the news with equanimity; after all, the organization’s newsletter pointed out, the link between autism and vaccines was “first reported in *DPT: A Shot in the Dark* fifteen years ago” and had

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<sup>97</sup> Andrea Rock, “The Lethal Dangers of the Billion Dollar Vaccine Business,” *Money*, December 1, 1996, 148.

<sup>98</sup> These events are discussed in more detail in the following chapter. See Alan Patureau, “Around the South - in Step with the 'Real World' - Alabamian Overcomes Deafness to Compete with a Select Few in the Miss America Pageant,” *The Atlanta Journal and the Atlanta Constitution*, September 16, 1994, A3; Leon Jaroff, “Vaccine Jitters,” *Time*, September 13, 1999, 64-65; Allen Douma, “A Few Answers and a Need for Sympathy,” *The Buffalo News*, February 19, 2000, A9.

been “simmering” for over a decade.<sup>99</sup> Barbara Loe Fisher responded to the PHS/AAP thimerosal statement with a similar sense of compunction, saying the CDC’s decision was “the right thing to do and will result in the deaths and injury of fewer babies.”<sup>100</sup> Fisher and her organization were not alone in seeing the move as a “first” and “long overdue” step—albeit one that proffered limited comfort. Alternative health writer and radio personality Gary Null welcomed the removal of thimerosal from vaccines but pointed out that “vaccines may still contain formaldehyde (a highly carcinogenic material used to embalm corpses) and/or aluminum.”<sup>101</sup> To many critics, including physician Robert Sears (aka “Dr. Bob”), whose briskly selling books and website offered twenty-first century parents an “alternative” schedule for vaccinating their children, aluminum became the focus of continued vaccine fears.<sup>102</sup> Calling it “toxic and damaging to the brain and bones,” it was the vaccine chemical that Sears, writing in *La Leche League’s New Beginnings* magazine, said he was “most concerned about.” “As more and more vaccines were added to the schedule, no one realized how much mercury or how much

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<sup>99</sup> National Vaccine Information Center, “Autism and Vaccines,” *NVIC Newsletter*, Spring 2000. Available at <http://www.nvic.org/nvic-archives/newsletter/autismandvaccines.aspx>, accessed August 2010. The now infamous report in *The Lancet* is further discussed in the following chapter. Andrew J. Wakefield et al., “Ileal-Lymphoid-Nodular Hyperplasia, Non-Specific Colitis, and Pervasive Developmental Disorder in Children,” *The Lancet* 351, no. 9103 (1998): 637-641.

<sup>100</sup> “Thimerosal and Newborn Hepatitis B Vaccine,” National Vaccine Information Center press release, July 8, 1999. Available at <http://www.nvic.org/nvic-archives/pressrelease/thimerosalhepatitisB.aspx>, accessed August 2010.

<sup>101</sup> Gary Null and Martin Feldman, “Vaccination: An Analysis of the Health Risks - Part I,” *Townsend Letter for Doctors and Patients*, October, 2003, 90-96.

<sup>102</sup> See for instance Robert Sears, *The Vaccine Book: Making the Right Decision for Your Child*, 1st ed. (New York: Little, Brown, 2007).

aluminum a baby might receive at one time,” he wrote.<sup>103</sup> Thimerosal might be gone, but vaccines, it was clear, were still far from being perceived as safe. Its removal, if anything, merely proved to vaccine critics that their long-held suspicions had been justified.

### *A Crisis of Faith*

In the first decade of the twenty-first century, newspapers, television, and magazines continued to ramp up reporting on vaccine worries and doubts. In interviews with reporters, parents cited a long list of increasingly familiar-sounding reasons: they feared vaccines might cause autism, allergies, or asthma, and they didn’t understand the need to vaccinate their children against diseases, like pertussis or hepatitis B, that they perceived as extinct or rare. “It’s not like we are in the 1800s anymore,” one mother who chose not to vaccinate her daughter told the *New York Post*. “Epidemics are a thing of the past.”<sup>104</sup>

But many of those who resisted vaccination mandates in the 2000s cited another reason as well. As movie actress and sometimes pro-vaccination spokesperson Amanda Peet said, trying to explain the vaccination resistance among her peers, “there’s this child-rearing trend – only feed your kids organic food, detoxify your house. And there’s a lot of anti-corporate fervor, anti-pharmaceutical company fervor.”<sup>105</sup> Indeed, while vaccination resistance became increasingly visible in the early years of the twenty-first

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<sup>103</sup> Robert Sears, "Childhood Vaccines: Making an Educated Decision for Your Children," *New Beginnings*, January - February, 2008, 4-9.

<sup>104</sup> Hallie Levine, "Calling the 'Shots' in Kids' Health: Vaccination-Fearing Parents Battle City Immunization Laws," *New York Post*, March 4, 2001, 8.

<sup>105</sup> Donald McNeil, "Book Is Rallying Resistance to the Antivaccine Crusade," *New York Times*, January 13, 2009, D6.

century, many of its staunchest adherents were portrayed, by themselves and by the media, as those who, like the vaccine-questioning readers of *Mothering* three decades before, embraced a “natural” or “green” lifestyle, eschewing pesticide-laden foods, pledging themselves to breastfeeding, and placing trust in the virtues of a healthful diet, exercise, clean air and water, and a balanced, respectful relationship between the body and the environment.

This mode of child-rearing was as much a “trend” as it was an expression of faith. In his 2004 book *Faith in Nature*, environmental historian Thomas Dunlap traced the parallels between American environmentalism and (primarily Christian) religions. Environmentalism, like religion, “invokes the sacred,” “refuses to choose between intellect and emotion,” and “gives moral weight to the apparently trivial decisions of daily life,” Dunlap argued.<sup>106</sup> Environmentalism and religious belief systems both, furthermore, grapple with questions of human existence and conceptualize life and the universe as a complex, quasi-mysterious whole whose intricate workings are beyond the comprehension of humanity. Over three decades of resistance, vaccine skeptics applied this environmental belief system to beliefs about vaccines and their encounter with human bodies and the environment, conceptualizing the immune system as sacred (much in the way environmentalists portray wilderness) and intricately complex beyond human understanding; as something, in the words of a vaccine-skeptical mom from Texas, not to be “tampered” with.<sup>107</sup>

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<sup>106</sup> Thomas R. Dunlap, *Faith in Nature: Environmentalism as Religious Quest*, Weyerhaeuser Environmental Books (Seattle: University of Washington Press, 2004), 4, 149.

<sup>107</sup> Redman-Copus, "The Hot Dialogue on Immunizations Continues."

For many vaccine skeptics, nature offered an answer to the increasingly complicated question of whether, and against which diseases, parents should vaccinate their children—as well as the broader question of how to care for their children in a complex and incomprehensible modern world. The notion that everything in nature—viruses, bacteria, and diseases included—served an unknowable but crucial purpose was more comforting than the prospect of gambling with haphazard and ever-changing scientific knowledge. Not infrequently, vaccine skeptics attributed the sanctity of everything in nature to the workings of a higher power; in this view, nature was not akin to a deity but *was* a deity. As the mother of a vaccine damaged son explained in *A Shot in the Dark*:

“I thought I was being a good parent to give him that shot. If I had known about the risks, if I had been given an option, I might have taken my chances with the natural disease....I was so happy when he was born. He was so beautiful, with ten toes and ten fingers. God gave me a perfect child, and man, with his own ways, damaged God’s perfect work.”<sup>108</sup>

Many parents who eschewed vaccines expressed a desire, like the mother above, to leave (or have left) their child’s fate in nature’s (or a god’s) hands. In the 2000s, this desire evolved into a ritual of sorts with the revival of an event called the chicken-pox party: “A little playing, some conversation and some passing of the pox to the next family,” as one Virginia mother put it.<sup>109</sup> The development of a vaccine against chicken pox in the 1980s was followed in the 1990s by the adoption of state laws requiring proof of vaccination or immunity for children entering day care or school. Media reports soon

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<sup>108</sup> Coulter and Fisher, *A Shot in the Dark: Why the P in the DPT Vaccination May Be Hazardous to Your Child's Health*, 220.

<sup>109</sup> Shannon Henry, "A Pox on My Child: Cool!," *The Washington Post*, September 20, 2005, F1.

shared the news that parents in Britain were avoiding the chicken pox vaccine by hosting “disease parties.”<sup>110</sup> In the U.S., internet discussion boards soon began to buzz with talk of the parties, and in 2004, *Mothering* published advice on establishing and proving immunity the “natural” way. Varicella, the chicken pox virus, “is communicated easily through saliva,” the authors wrote, so they suggested having children at a “Pox Party” share whistles.<sup>111</sup> Parents who chimed in online suggested passing around kazoos, popsicles, lollipops, or M&Ms while the gathered children played games or did art projects.

Over the next few years, popularity of the parties swelled, achieving a cult-like following and considerable press in Marin County, California; Brooklyn, New York; and elsewhere. When interviewed by the media, mothers who hosted or took their children to pox parties expressed a desire to give their children natural, lifelong immunity that they, in turn, could pass on to their children. The language parents chose to describe their thinking on the subject was plainly evocative of a form of religion: “I believe in the body’s ability to build immunity and heal itself,” said a Brooklyn mom and registered nurse who hosted a chicken pox party to spread her son’s infection.<sup>112</sup> “I’m of the belief system that by putting a synthetic, or a dead virus, into a body as an inoculation creates

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<sup>110</sup> Jon Bowen, “Germs Invited to the Party,” *Chicago Sun-Times*, August 6, 2000, 8.

<sup>111</sup> Brian Wimer, Jacquelyn Emm, and Deren Bader, “A Few Tips for Chickenpox Parties,” *Mothering*, January/February, 2004, 35.

<sup>112</sup> Fran Pado, “Where the Play Dates Are Fun, but Itchy,” *New York Times*, August 21, 2005, B5.

an ongoing response to trying to build up immunity to that, and that ultimately it creates a situation where you have an overworked immune system,” said a California mom.<sup>113</sup>

In a brief essay on the shared characteristics between environmentalism and religion, historian William Cronon noted that the two also share a predilection for predictions of disaster as “a platform for critiquing the moral failings of our lives in the present.”<sup>114</sup> In this way, too, pox partiers expressed a characteristically environmental and simultaneously religious view. The California mom’s belief that vaccination would ultimately destroy her child’s naturally well-functioning immune system was illustrative of the commonly held notion that widespread, mass vaccination was a long-term disaster in the making. Through vaccination, wrote holistic health advocate Rhody Lake, “the natural immunity built into the human organism by the wisdom of nature is destroyed a little more in each generation.”<sup>115</sup> Parents who saw ultimate doom in acceptance of the chicken pox vaccine saw not only a progressive, cumulative assault on natural immunity in the making but also (because the duration of the shot’s protection was unknown) the manmade creation of a generation of women with no maternal antibodies to pass on to their own children; an epidemic of shingles, the more serious manifestation of chicken pox virus infection in adolescents and adults; and a generation of daughters who could be susceptible to chicken pox during their own pregnancies, putting two generations removed at risk of birth defects.

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<sup>113</sup> Richard Halstead, "Marin Fights Outbreak of Chicken Pox," *Marin Independent Journal*, November 15, 2006, 15.

<sup>114</sup> William Cronon, "Forward," in *Faith in Nature: Environmentalism as Religious Quest*, ed. Thomas R. Dunlap (Seattle: University of Washington Press, 2004), xii.

<sup>115</sup> Rhody Lake, "Are Germs to Blame?," *Alive*, September, 2004, 30-31.



Nature, benign when untouched and respected, was like a wrathful deity crossed in this long-held view. Many parents who avoided the chicken pox vaccine in favor of natural infection (some vaccine critics, it's worth noting, argued that pox parties themselves were far from "natural") often saw nature as capable of unleashing epidemics of more intractable, untreatable conditions and diseases. The unpredictability of nature was a widely held environmental value by the end of the twentieth century, as anthropologists Willett Kempton, James Boster, and Jennifer Hartley have pointed out; it was also one that had long-informed vaccine reception.<sup>116</sup> McBean, in 1957, believed that the "infusion of poison injected into the blood stream of the masses only served to intensify the disease in some cases, suppress the symptoms in others and create new and more serious diseases in still others....grow[ing] into a Frankenstein monster of immense proportions."<sup>117</sup> When an altered form of measles began to appear in previously vaccinated children in the 1970s and 1980s, Scheibner and other vaccine critics lamented that where nature had created measles (and other infections) to strengthen children's immune systems for the future, humanity had mutated it into "an especially vicious form of measles."<sup>118</sup> Even the earliest discussions of the use of chicken pox vaccine to prevent the infection in children provoked doomsday predictions that invoked nature as deity: "Vaccines, as we learned recently about the proposed chicken pox vaccine, often produce not health but more serious diseases," wrote Roman Catholic priest and author Andrew

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<sup>116</sup> Willett Kempton, James S. Boster, and Jennifer A. Hartley, *Environmental Values in American Culture* (Cambridge, Mass.: MIT Press, 1995).

<sup>117</sup> McBean, *The Poisoned Needle: Suppressed Facts About Vaccination*, 3-4.

<sup>118</sup> Scheibner, *Vaccination: 100 Years of Orthodox Research Shows That Vaccines Represent a Medical Assault on the Immune System*, 82.

Greeley in the *Chicago Sun-Times* in 1993. “Prometheus-like we resist nature, but she takes her revenge on us.”<sup>119</sup>

### *Conclusion*

In a 2004 essay, historians Gregg Mitman, Michelle Murphy, and Christopher Sellers argued that “it will become increasingly difficult to write the history of modern public health without asking more questions about environment, ecology, and place.”<sup>120</sup> As this analysis demonstrates, environmental history is linked to and indeed central to understanding the story of contemporary vaccination resistance, a subject central to the history of modern public health. In broad terms, vaccine resistance at the end of the twentieth century and beginning of the twenty-first was informed by long-standing ideas about nature and the environment and related ideas about the body as environment and the body’s health in relation to its external environment. From new environmentalism specifically, vaccine resistance in this period borrowed rhetoric and a set of prevailing ideas concerning, for example, the shortcomings of modern science and the uncertain fate that awaited those who adopted new technologies with only a limited understanding of their long-term consequences. Prominent lines of thinking that overlapped between environmental sentiment and vaccine beliefs also reflected a set of shared, traditionally American liberalist values.

Historian Roderick Nash, writing in the 1980s, argued that American environmental ethics had come to be dominated by the ideas that nature has both

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<sup>119</sup> Andrew Greeley, "Searching for Nature's 'Message'," *Chicago Sun-Times*, August 1, 1993, 40.

<sup>120</sup> Mitman, Murphy, and Sellers, "Introduction: A Cloud over History," 16.

“intrinsic value” and “the right to exist,” the latter an idea that placed environmentalism (an albeit “radical” movement) “squarely in the mainstream of American liberalism.”<sup>121</sup>

With the expansion of both the immunization schedule and immunization programs in the 1990s, vaccine safety groups increasingly advocated for their freedom to make health care decisions for their children, arguing that this was a right of parents upon which the state should not intrude. Historians have placed this demand, too, within the tradition of American emphasis on the importance of liberty and equality. At the same time, many vaccine critics argued for the importance of letting childhood diseases run their course—arguing, that is, for the “inherent value” of these creations of nature. The belief that everything in nature has a purpose may not have been as common among vaccine skeptics as was the belief in a parent’s right to choose her or his child’s health care, but both beliefs have direct correlates in American environmentalism as well as American political ideology as a whole.

Even if every last germ was not of value, other forms of nature were nonetheless valued by many vaccine resisters for their salubrity. Like the nineteenth century settlers described by historian Conevery Bolton Valencius, modern vaccine critics often used environmental metaphors to describe the body, referring to it as “terrain” or “soil,” or likening its vaccinated condition to a polluted piece of land or body of water.<sup>122</sup> The body, like a pristine wilderness, was seen by many as standing the best chances of survival in an untouched state, sustained on pure water and whole, unprocessed foods—

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<sup>121</sup> Roderick Nash, *The Rights of Nature: A History of Environmental Ethics*, History of American Thought and Culture (Madison: University of Wisconsin Press, 1989), 12.

<sup>122</sup> Valencius, *The Health of the Country: How American Settlers Understood Themselves and Their Land*.

the fruits of nature, that is, not the products of humanity. Those who rejected vaccines because they subscribed to alternative healing practices generally ascribed to nature a wisdom and beneficence—and sometimes even a religious authority—perceived by centuries of nature cure adherents before them.<sup>123</sup> To cross nature could weaken the body and indeed the species, either by eroding “natural” immunity or prompting the mutation of existing diseases into more horrific maladies. It also smacked of modern man’s hubris, as Moskowitz indicated when he argued that vaccination was a misguided “attempt to beat nature at her own game, to eliminate a problem that cannot be eliminated, i.e., the susceptibility to disease itself.”<sup>124</sup>

Like processed foods and pesticides, vaccination was also viewed by vaccine critics as a product of humanity; thus it was an unwelcome addition to the internal environment, whose finely tuned balance it was thought to permanently disrupt. And just as the internal environment existed in a precarious equipoise, human bodies were also seen as one component in a larger environment, their health directly related to material flows in the world they inhabited. Environmental pollution, made visible by the environmental movement, served not only as a metaphor but as a window into the state of the modern body. As one vaccine critic put it: “The ethylmercury injected in our recently vaccinated child goes into the diaper and into the landfill. If we continue to use mercury, like quicksilver, it escapes us. Whether we use it in chlorine production, amalgam fillings, vaccines, or thermometers, the mercury gets away from us and sneaks into our

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<sup>123</sup> Whorton, *Nature Cures: The History of Alternative Medicine in America*; Dunlap, *Faith in Nature: Environmentalism as Religious Quest*.

<sup>124</sup> Moskowitz, “Immunizations: The Other Side.”

food chain, into our bodies, into our babies.”<sup>125</sup> Bodies, that is, existed in a continuum with the environment; thus, there was little difference between environmental mercury and mercury in the body. As historians Markowitz and Rosner have shown, the histories of other materials, such as lead, silica, and vinyl chloride had made this pattern clear by the end of the twentieth century, building a case for the application of the precautionary principle in environmentalism and in public health.<sup>126</sup> Perceiving vaccines as toxic—a notion that environmentalism helped embed in late-twentieth-century American vocabulary—vaccine skeptics argued that the same principle should guide vaccination recommendations and use as well.

The fact that the disruption of internal or external balance was not immediately or even easily perceptible was of no consequence to vaccine resisters, who had inherited from new environmentalist thinking the rhetoric with which to articulate their fears: that vaccines, like lead or DDT or cigarettes or cyclamates, would someday be proven to have caused long-term damage, no matter how dramatic or how subtle. Damage might be difficult to detect and harder still to prove, but time and again history had shown that the modern world was the root cause of modern illnesses. In this light, it seemed more prudent to add vaccines to the list of modern technologies responsible for modern

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<sup>125</sup> Ann Montgomery, "The Insidious Elixir - Mercury, Sources, Effects and What to Do About It," *Women and Environments*, 2003, 19-22, 21.

<sup>126</sup> Markowitz and Rosner, *Deceit and Denial: The Deadly Politics of Industrial Pollution*; David Rosner and Gerald Markowitz, "Industry Challenges to the Principle of Prevention in Public Health: The Precautionary Principle in Historical Perspective," *Public Health Reports* 117, no. 6 (2002): 501-512. The precautionary principle is a policy orientation that emphasizes taking caution when proposed activities pose a threat to the environment or health, even if that threat is not scientifically well-defined or understood; the principle also shifts the burden of proof of safety or harm onto proponents of the activity. Timothy O'Riordan and James Cameron, *Interpreting the Precautionary Principle* (London: Earthscan Publications Ltd., 1994).

epidemics, among them radiation, lead, cigarettes, thalidomide, DES, and even infant formula, than to wait for the accumulation of evidence that would undoubtedly be long in coming. “We have seen [this problem] when the sons and daughters of the mothers who were given diethylstilbestrol showed up seriously ill a generation later, and when infants whose mothers were given thalidomide were born deformed,” wrote a vaccine-critical breastfeeding advocate in a letter to the *British Medical Journal*. “How long must a clinical trial be to ensure safety? One generation? Two? More?,” she went on, implying no certain answer.<sup>127</sup>

The logic leading to the conclusion that a cautious approach to vaccination was warranted was adopted not only by back-to-the-land types, organic food devotees, or even alternative medicine followers. Fisher and other members of Dissatisfied Parents Together, for instance, did not discard modern, orthodox medicine outright as part of an allegiance to natural healing methods; nonetheless, they argued that vaccines, though oft-touted as a triumph of humanity’s mastery over nature, were insufficiently studied, their hazards poorly understood and possibly unknowable within the limits of modern science and technology. Both environmentalism and vaccine resistance thus bore out the tensions between modern faith in the triumph of human logic and reasoning over the natural world and modern skepticism regarding humanity’s ability to resist the unpredictable and constantly evolving nature of that world. For skeptics who believed vaccination was to blame for ever-escalating rates of modern epidemics, environmentalism was both a justification and an exhortation to question the assurances of those in authority that new

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<sup>127</sup> Nikke Lee, “Letters - Breastfeeding Should Be Promoted,” *British Medical Journal* 321 (2000): 108.

technologies were fully vetted and safe. Coulter and Fisher illustrated this line of thinking when they quoted Rachel Carson at the very end of *A Shot in the Dark*:

“Just as we have polluted our environment with man-made chemicals, we may well be polluting ourselves with a myriad of man-made vaccines in our quest to eradicate all disease and infection from the earth. In her exploration of the ways that Americans have polluted the air, water, and earth with synthetic chemicals, Rachel Carson concluded in *Silent Spring* that ‘The choice, after all, is ours to make. If, having endured much, we have at least asserted our ‘right to know,’ and if, knowing, we have concluded that we are being asked to take senseless and frightening risks, then we should no longer accept the counsel of those who tell us we must fill our world with poisonous chemicals; we should look about and see what other course is open to us.’”<sup>128</sup>

Enduring ideas about the natural world cast childhood diseases in an almost rosy light, imbuing them with value and entrusting their course and cure to nature. At the same time, environmentalist ideas cast the vaccines to prevent those diseases in a harsh light, characterizing them as hastily adopted technologies with unknown risks. From those who believed vaccination was inherently worthwhile but for a few unsafe vaccines, to those who believed that vaccination was inherently harmful in any form, contemporary ideas about nature and the environment played a profound role in shaping their views and positions at the turn of the twenty-first century.

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<sup>128</sup> Coulter and Fisher, *A Shot in the Dark: Why the P in the DPT Vaccination May Be Hazardous to Your Child's Health*, 219.

## Chapter 6

### **“Do We Really Need Hepatitis B on the Second Day of Life?” Vaccine Acceptance at the End of the Twentieth Century**

In 1999, amidst what *Time* magazine called a national case of vaccine “jitters,” young children’s vaccination rates reached “record high levels,” according to the Centers for Disease Control.<sup>1</sup> Ninety-six percent of children were protected against diphtheria, pertussis, and tetanus, 93% were vaccinated against *Haemophilus influenzae* B (Hib), 91% had shots against measles, mumps, and rubella, 90% against polio, and 88% against chicken pox and hepatitis B.<sup>2</sup> These figures represented a substantial increase in immunization rates since 1992, the year that saw the lowest vaccination rates since the Carter administration’s Childhood Immunization Initiative. That year, close to 20% of children weren’t fully protected against diphtheria, pertussis, tetanus, or measles, and close to 30% hadn’t been vaccinated against polio.<sup>3</sup> (Figures didn’t yet exist for immunization against Hib, chicken pox, or hepatitis B, for all three had yet to be added to the recommended immunization schedule for children.)

Despite the 1992 low, child vaccination rates generally rose from the 1970s into the 2000s, thanks in large part to the policies that emerged from the Clinton and Carter

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<sup>1</sup> Jaroff, "Vaccine Jitters."

<sup>2</sup> Centers for Disease Control, "National, State, and Urban Area Vaccination Coverage Levels among Children Aged 19 - 35 Months, United States, 1999," *Morbidity and Mortality Weekly Report* 49, no. 26 (2000): 585-589.

<sup>3</sup> World Health Organization, "WHO/UNICEF Estimates of National Immunization Coverage: Estimated Coverage by Country, Year, and Vaccine," *Immunization Surveillance, Assessment, and Monitoring*, Last updated January 27, 2011. Available at [http://www.who.int/immunization\\_monitoring/routine/immunization\\_coverage/en/index4.html](http://www.who.int/immunization_monitoring/routine/immunization_coverage/en/index4.html), accessed February 2011.



immunization campaigns described in Chapter 3. During the same period, however, doubts about the wisdom of vaccination were increasingly expressed by a cross section of Americans. The coexistence of these two contradictory but tightly intertwined trends—growing vaccination skepticism and growing vaccination compliance—is testimony to the fact that vaccination resistance is often an ideological expression of libertarian discomfort with mounting state power. But the picture at the end of the twentieth century was also more complex than that, for many vaccine critics in this period asserted that they weren't anti-vaccine nor anti-big government. Rather, what they wanted was even greater government oversight of vaccine safety, free of corner-cutting, corruption, and conflicts of interest. These sentiments are apparent in the discourse over hepatitis B vaccination; this discourse is also generally illustrative of the nuanced and conflicted ways in which Americans viewed individual vaccines and vaccine policies in a time when the number and variety of shots for children was rapidly multiplying.

The hepatitis B vaccine, which consists of a series of three shots, was one of four immunizations added to the schedule of recommended childhood vaccines in the last decade of the twentieth century. A blood-borne virus that attacks the liver, hepatitis B was, like mumps, dramatically reframed by the introduction of subsequent vaccines against the infection and by the sociopolitical contexts into which these vaccines were introduced. From the early 1980s, when the first hepatitis B vaccine was introduced, to the late 1990s, when the vaccine became required for most children in the country, hepatitis B morphed from a foreign obscurity of little direct relevance to most Americans, to a ubiquitous AIDS-like scourge, to a cancer-causing infection spread by teenage lifestyles. Over the same period of time, its vaccine represented, at first, the promise of a

new era of pharmaceuticals; subsequently, against a backdrop of accumulating vaccine scares, it came to signify to vaccine critics the fallibility of all vaccines and vaccination policies.

In addition to illustrating the persistent potential for vaccines to reframe the diseases they prevent, the story of hepatitis B also demonstrates the full realization of the “new era of vaccination” ushered in three decades earlier, when the routine, universal vaccination of children against a variety of severe and mild infections got underway with the support of federal guidelines and financing. The widespread adoption of policies requiring the universal vaccination of all children against hepatitis B—despite varying individual risks—is a testament to the consolidation of federal authority in the arena of vaccination policy, as well as the centrality of convenience and cost effectiveness in shaping such policy. When these evolving policies ultimately landed upon the universal vaccination of infants, they placed responsibility for the nation’s future physical and economic health on the shoulders of the country’s very youngest citizens. But this conceptualization of the health citizenship responsibilities of children was not easily maintained. This policy evolution and the new era of vaccination it made manifest took place against a backdrop of eroding scientific authority. From the 1970s through the 1990s, the doubts raised by the women’s, environmental, and consumer movements, described in Chapters 4 and 5, had considerably chipped away at lay faith in scientific, government, and corporate pronouncements on the safety and efficacy of vaccines generally. Such doubts were at times overridden; in the case of hepatitis B vaccination, they were temporarily diminished by the AIDS epidemic, enthusiasm for genetically engineered drugs, and support for national health reform, among other factors. But doubts

nonetheless simmered from the moment the first hepatitis B vaccine was introduced, and they reached a boiling point at the end of the century, as state laws requiring the vaccine's administration to all infants were being implemented. In the negative media and legislative attention hepatitis B immunization attracted at the very end of the century, the vaccine thus became a fulcrum for the increasingly public debate about the safety of vaccines and the wisdom behind U.S. vaccination policy generally.

*“A Disease Affecting Health Workers, Male Homosexuals and Drug Addicts”*

While hepatitis had long been a concern of health officials, the disease wasn't a terribly familiar one to most Americans in the decades prior to the hepatitis B vaccine's 1981 approval by the Food and Drug Administration. Two distinct forms of hepatitis, A and B (formerly “infectious” and “serum” hepatitis, respectively) had been known since the 1950s. But countless cases of serum hepatitis had gone undetected, in large part because of the vague symptoms it caused. Infection with hepatitis B virus may or may not cause debilitating fatigue, nausea, and loss of appetite. These acute symptoms may or may not be fatal, and those who do recover may or may not become chronic carriers. Carriers, in turn, may or may not become victims, decades later, of hepatitis-induced cirrhosis or liver cancer.<sup>4</sup> Hepatitis B's fairly mundane acute symptoms—its attendant fatigue, nausea, and loss of appetite—meant that for decades it was conflated with other conditions. In the 1970s, however, armed with a new set of diagnostic tools, researchers enumerated for the first time more than 200,000 new cases in the U.S. each year and

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<sup>4</sup> See Introduction and Chapter 11 in Baruch S. Blumberg, *Hepatitis B: The Hunt for a Killer Virus* (Princeton, N.J.: Princeton University Press, 2002).

more than 200 million carriers worldwide.<sup>5</sup> Epidemiological studies were also now able to identify those at highest risk of the disease. In addition to health care workers, the list included hemophiliacs, prisoners, gay men, injection drug users, sex workers, native Alaskans, and immigrants from sub-Saharan Africa and southeast Asia.

Those new diagnostic tools emerged from the work of research physician Baruch Blumberg, who in the 1960s identified a protein in the blood of Australian aborigines, which he dubbed the Australia antigen. Australia antigen floated freely in the blood of people infected with serum hepatitis, and in 1967, the researchers determined that Australia antigen was in fact a surface protein on the virus that caused the disease. In related work, Blumberg and his colleagues found that monkeys injected with highly purified Australia antigen did not come down with serum hepatitis; the discovery suggested that noninfectious but still protective material could be separated from the virus itself. The basis for a novel vaccine had been found.<sup>6</sup>

As development of a vaccine against the infection accelerated in the late 1970s, Blumberg and other infectious disease experts predicted that an effective immunization would save hundreds of thousands, if not millions, of lives.<sup>7</sup> But news of the potential vaccine, and of hepatitis B itself, rarely reached lay audiences over the course of the

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<sup>5</sup> William Muraskin, "Hepatitis B as a Model (and Anti-Model) for AIDS," in *AIDS and Contemporary History*, ed. Virginia Berridge and Philip Strong (Cambridge: Cambridge University Press, 1993), 108-132.

<sup>6</sup> See Chapter 5 in Blumberg, *Hepatitis B: The Hunt for a Killer Virus*.

<sup>7</sup> *Ibid.*, 134-136. See also B. S. Blumberg, A. I. Sutnick, and W. T. London, "Australia Antigen and Hepatitis," *Journal of the American Medical Association* 207, no. 10 (1969): 1895-1896; A. I. Sutnick, W. T. London, and B. S. Blumberg, "Australia Antigen and the Quest for a Hepatitis Virus," *American Journal of Digestive Diseases* 14, no. 3 (1969): 189-194; W. T. London, A. I. Sutnick, and B. S. Blumberg, "Australia Antigen and Acute Viral Hepatitis," *Annals of Internal Medicine* 70, no. 1 (1969): 55-59; B. S. Blumberg et al., "Australia Antigen and Hepatitis," *New England Journal of Medicine* 283, no. 7 (1970): 349-354.

1970s. The disease had isolated moments in the spotlight: In 1974, the host of the television show *Today's Health* came down with hepatitis B when a surgical patient's blood splashed in his eye; he chronicled in detail the disease's "mean, sneaky malevolence" on TV and in print.<sup>8</sup> Two years later, hepatitis B made headlines again when Blumberg shared the Nobel Prize in Medicine for his work on the disease.<sup>9</sup> The press also reported on the 1979 outbreak of hepatitis B among youth who shared needles to take the recreational drug methylene deoxyamphetamine.<sup>10</sup> Such stories confirmed for the public the picture then emerging from epidemiological studies, which was that the disease posed a risk only to specific subsets of the population, namely surgeons and drug users.

On the eve of the hepatitis B vaccine's 1981 introduction, most lay Americans thus had little reason to worry about the virus. Early press reports on the shot affirmed this notion. In 1980, the CBS evening news reported that hepatitis B struck developing countries in Asia and Africa in "epidemic proportions," whereas in the U.S. it affected mainly "patients on dialysis, medical personnel, and people living in institutions."<sup>11</sup> When news anchor Dan Rather reported on the new vaccine, he announced that it had been approved for "a disease affecting health workers, male homosexuals, and drug addicts."<sup>12</sup> On NBC, the evening news anchor told Americans, "hospital workers get it,

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<sup>8</sup> Norman Pastorek, "Hepatitis," *Today's Health*, September, 1974, 46-69.

<sup>9</sup> Boyce Rensberger, "Sketches of Two Winners of Nobel Prizes in Medicine," *New York Times*, October 15, 1976, 13.

<sup>10</sup> "A Wave of Death from Hepatitis," *Newsweek*, August 27, 1979, 72.

<sup>11</sup> CBS Evening News, September 29, 1980, Vanderbilt Television News Archive.

<sup>12</sup> CBS Evening News, November 16, 1981, Vanderbilt Television News Archive.

so do drug addicts, mental patients, homosexuals, and millions of people in Africa and Asia.” The network’s subsequent segment on the vaccine focused largely on the “medical adventure story” of the virus’s discovery, which a reporter recounted over grainy, choppy footage of Aborigines in native attire, further reinforcing the otherness of the disease.<sup>13</sup>

Historian William Muraskin has argued that popular representations of hepatitis B in this period were deliberately constructed by the medical profession, acting in self interest. Having been identified as a high-risk group themselves, health care workers, in Muraskin’s analysis, endeavored to define hepatitis B infection as an issue “private” to their profession and outside the public’s purview. The media, reliant on the medical community for information about the virus, reported what they were told: that gays, injection drug users, and certain immigrants and refugees were at high risk, and that the spread of hepatitis in iatrogenic settings was controlled through the use of disposable gowns, masks, gloves, and other hygienic practices.<sup>14</sup> The health care profession’s internal policy—of voluntary testing for carrier status—became the implicit policy toward the population at large, too. The upshot of this policy, according to Muraskin, was twofold: it prevented “hysteria and discrimination of carriers,” but it also hampered public awareness of the extent of the epidemic and the true risk of infection.<sup>15</sup>

Muraskin’s assessment downplayed the role of bench scientists, epidemiologists, independent-minded reporters, and other Americans in constructing hepatitis B’s popular

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<sup>13</sup> Ibid.

<sup>14</sup> See for example W. Szmunn et al., “Hepatitis B Vaccine in Medical Staff of Hemodialysis Units: Efficacy and Subtype Cross-Protection,” *New England Journal of Medicine* 307, no. 24 (1982): 1481-1486.

<sup>15</sup> William Muraskin, “The Silent Epidemic: The Social, Ethical, and Medical Problems Surrounding the Fight against Hepatitis B,” *Journal of Social History* 22 (1988): 277-298.

image (however faint) in this period. Representations of the virus as one that posed little threat to “average Americans” were common in the late 1970s and very beginning of the 1980s—but not merely because doctors willed it this way. This portrayal of hepatitis B made sense given the nation’s health priorities at the time. Cancer and heart disease were by far the country’s top killers; heart attacks alone caused 300,000 deaths a year. Hepatitis, meanwhile, appeared way down the list; in 1981, many more people died of homicide and ulcers than died of hepatitis of any type.<sup>16</sup> A disease doesn’t have to cause high mortality, of course, to capture national attention, but hepatitis also failed to align with nation’s other health preoccupations: skyrocketing hospital costs, environmental scares like the meltdown at Three Mile Island, and a relentless “flurry of strange new ailments,” including Legionnaire’s disease, Lyme disease, Reye’s Syndrome, and Toxic Shock Syndrome.<sup>17</sup> When, in 1981, a new ailment appeared with characteristics similar to hepatitis, however, hepatitis’s public image underwent a radical reconstruction. In light of AIDS, control of hepatitis would take on a new sense of urgency.

### *Two Novel Vaccines*

The hepatitis B vaccine that was approved by the FDA in 1981 was an unusual product in the history of viral vaccine development. The vaccine didn’t contain live, weakened virus (like the Sabin polio vaccine) or killed, denatured virus (like the Salk polio vaccine). Instead, Heptavax B, developed by Merck, contained painstakingly

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<sup>16</sup> Centers for Disease Control and Prevention. National Center for Health Statistics. Health Data Interactive. Available at [www.cdc.gov/nchs/hdi.htm](http://www.cdc.gov/nchs/hdi.htm), accessed March 2011. See also Anonymous, "Medicine: Cardiac Shocks," *Time*, August 18, 1980.

<sup>17</sup> Anonymous, "Medicine: New Plagues for Old?," *Time*, November 24, 1980.

purified versions of the antibodies Blumberg had first discovered, harvested from the blood of people infected with hepatitis B. This novel procedure earned Hepatvax B the title of the world's first "subunit" vaccine against a virus—meaning that it stimulated an immune response by using just a part, or subunit, of the virus and not the virus in its entirety.<sup>18</sup>

In a display of awe and enthusiasm for scientific discovery, the same news reporters who had downplayed the disease's risk for average Americans played up, in the next breath, the new vaccine's development and its novel form. The vaccine, after all, was fairly big news: As news anchor Dan Rather pointed out, it was the "first completely new viral vaccine in ten years;" it was also the "first vaccine ever licensed in the United States that is made directly from human blood."<sup>19</sup> *Newsweek* called its blood-derived antibodies "ingenious" and magazines from *Time* to *Glamour* called the vaccine a "medical breakthrough."<sup>20</sup> Fervent reports in popular and scientific journals proclaimed that hepatitis B would soon join such well-known pathogenic villains as smallpox and polio as a problem of the past.<sup>21</sup>

This enthusiastic rhetoric was soon dampened by yet another medical discovery. The clinical trials that had tested the hepatitis B vaccine's efficacy in the late 1970s had

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<sup>18</sup> The vaccine's development is described in Galambos and Sewell, *Networks of Innovation: Vaccine Development at Merck, Sharp & Dohme and Mulford, 1895-1995*, 181-193.

<sup>19</sup> CBS Evening News, November 16, 1981.

<sup>20</sup> "Hepatitis Hope," *Time*, October 13, 1980; Jean Seligman, "A Vaccine for Hepatitis," *Newsweek*, October 13, 1980, 132; Carl Sherman, "Hepatitis: Why It's So Common," *Glamour*, March, 1981, 268-270.

<sup>21</sup> See for example Seligman, "A Vaccine for Hepatitis."; Lawrence Altman, "Tests of Hepatitis B Vaccine Show Nearly Complete Rate of Protection," *The New York Times*, September 29, 1980, A1.



included only gay men, who had been identified as being at high risk of the infection.<sup>22</sup> When, in 1982, the federal Advisory Committee on Immunization Practices (ACIP) issued its customary recommendations on who should receive the new vaccine, the list included those considered to be at highest risk for the disease, including health care workers with frequent blood contact; prisoners; patients and staff of institutions for the “mentally retarded”; hemodialysis patients; injection drug users; immigrants from eastern Asian and sub-Saharan Africa; and sexually active gay men.<sup>23</sup> In the flurry of commentaries that followed in the medical literature, several reports highlighted the unique susceptibility of gay men to the infection. An editorial in *JAMA* identified the same list of groups to target with the vaccine, but added that “the highest HBsAG [hepatitis B antigen] prevalence in the United States is among male homosexuals.... Frequency of intercourse, the number of sexual partners, and the prevalence of anal intercourse all contribute to this high prevalence.”<sup>24</sup>

Indeed, hepatitis B-infected gay men along with other carriers of the virus had been frequent donors of blood for the vaccine—a fact that gay media outlets initially reported on with pride. But the plasma-derived vaccine’s approval in late 1981 was quickly followed by emergent reports of a mysterious new illness causing “immune

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<sup>22</sup> W. A. Check, "Looks Like Smooth Sailing for Experimental Hepatitis B Vaccine," *Journal of the American Medical Association* 246, no. 19 (1981): 2111-2112.

<sup>23</sup> "Recommendation of the Immunization Practices Advisory Committee (ACIP) Inactivated Hepatitis B Virus Vaccine," *Morbidity and Mortality Weekly Report* 31, no. 24 (1982): 317-322.

<sup>24</sup> Harvey J. Alter, "The Evolution, Implications, and Applications of the Hepatitis B Vaccine," *Journal of the American Medical Association* 247, no. 16 (1982): 2272-2275.

system breakdown” in what some experts estimated as tens of thousands of gay men.<sup>25</sup> Within a year, health officials had documented a high rate of hepatitis B infection not just among gay men, but among gay men who were victims of what was now known as AIDS. The announcement spurred fears that the new vaccine was contaminated with the pathogen causing AIDS, increasingly presumed to be a virus.<sup>26</sup> In 1982 and 1983, the press reported that gay men and injection drug users were frequent blood donors for the vaccine, and that many health care workers were refusing the vaccine themselves for this very reason.<sup>27</sup> (Noted one physician to her daughter, in confidence: “I know where the vaccine comes from. It comes from the blood of junkies and alcoholics. And who knows what they’ve got.”<sup>28</sup>)

The CDC moved quickly to address such fears, announcing in 1983 that of 200,000 individuals vaccinated against hepatitis B since 1982, none had come down with AIDS.<sup>29</sup> There were, however, cases of AIDS in gay men who had participated in the vaccine trials, and the theory that the hepatitis vaccine (among other vaccines) played a part in AIDS’s appearance and spread would gain momentum among certain segments of the lay population as the 1980s progressed. In the meantime, however, a new link

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<sup>25</sup> Lawrence Altman, "New Homosexual Disorder Worries Health Officials," *New York Times*, May 11, 1982, C1. See also Associated Press, "Rare Cancer Found in Gay Men," *The Washington Post*, June 5, 1982, A2.

<sup>26</sup> David Dickson, "AIDS Fears Spark Row over Vaccine," *Science*, no. 221 (1983): 437.

<sup>27</sup> UPI, "Two Doctors in U.S. Agency Back Hepatitis B Vaccine," *The New York Times*, February 11, 1983, A14; "French Doctors Ban American Blood Imports," *New Scientist*, May 26, 1983, 529.

<sup>28</sup> This comment, made in 1985, was recounted in Pat Griffin Mackie, "Hepatitis B Vaccine and Newborn," *National Immunity Information Network Newsletter*, September/October, 1997, 1.

<sup>29</sup> Centers for Disease Control, "The Safety of Hepatitis B Virus Vaccine," *Morbidity and Mortality Weekly Report* 32, no. 10 (1983): 134-136. Follow-up data was published the following year: "Hepatitis B Vaccine: Evidence Confirming Lack of AIDS Transmission," *Morbidity and Mortality Weekly Report* 33 (1984): 685-687.

between hepatitis B and AIDS emerged in mainstream media reports. This new link, a recitation of the similarities between the two viral infections, would persist in popular and scientific discourse for well over a decade. The analogy between AIDS and hepatitis B infection had been drawn early on by epidemiologists working to discover the causative agent of AIDS. Both diseases, scientists noted, appeared to be transmitted sexually and showed a pattern of infection among injection drug users and blood transfusion recipients. When the Centers for Disease Control (CDC) identified in 1983 the groups at “high-risk” of AIDS—gay men with multiple sex partners, IV drug users, Haitian immigrants and hemophiliacs—these closely mirrored the list of those earlier reported to be at high risk of hepatitis B.<sup>30</sup> These parallels were repeatedly echoed by the media. As a 1985 cover story on AIDS in *Time* pointed out, both diseases were scourges of “drug addicts, blood recipients and gay men,” and scientists were still uncertain as to whether hepatitis B was a “co-agent of AIDS or merely tagalong infection.”<sup>31</sup>

As AIDS gripped the nation’s attention, interest in hepatitis also picked up. Media coverage pointed out not only how hepatitis B virus was similar to the virus that caused AIDS, but also how it was worse: fifteen times more prevalent in the population, 200 times more infectious, far more stable in the environment, responsible for far more deaths, and, unlike the AIDS virus, spread by casual contact.<sup>32</sup> But the public could take

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<sup>30</sup> Centers for Disease Control, “Current Trends Acquired Immunodeficiency Syndrome (AIDS) Update -- United States ” *Morbidity and Mortality Weekly Report* 32, no. 24 (1983): 309-311; “Recommendation of the Immunization Practices Advisory Committee (ACIP) Inactivated Hepatitis B Virus Vaccine.” This pattern has also been noted by historian Gerald Oppenheimer. See Gerald Oppenheimer, “In the Eye of the Storm: The Epidemiological Construction of AIDS,” in *AIDS: The Burdens of History*, ed. Elizabeth Fee and Daniel Fox (Berkeley: University of California Press, 1988), 267-300.

<sup>31</sup> Claudia Wallis, “AIDS: A Growing Threat,” *Time*, August 12, 1985.

<sup>32</sup> See for example Cheryl Sacra, “A Vaccine for Lovers,” *Health* 21 (1989): 47.

solace, said the vice chair of the National Foundation for Infectious Diseases, in the fact that a vaccine existed to keep this “cousin of AIDS” at bay.<sup>33</sup> This message, that the hepatitis B vaccine was a beacon of hope in a time of fear, was oft-repeated in the press. There’s no cure for AIDS, *Gay Community News* told readers, but there is one for hepatitis B, which kills five times as many people each year.<sup>34</sup> *Mademoiselle* issued the same message: “There is no AIDS vaccine yet, but there are two new ones against hepatitis B.”<sup>35</sup>

That second hepatitis B vaccine, widely available by the late 1980s, was a vastly different product from the first, blood-derived vaccine. Recombivax HB, the genetically engineered hepatitis B vaccine approved in 1986, contained viral proteins not harvested from infected patients in the clinical setting, but manufactured by genetically engineered yeast in the lab. The vaccine was hotly anticipated by medical and public health professionals for its potential to address the high cost and “theoretical disadvantages” of plasma-based vaccines.<sup>36</sup> And they weren’t the only ones excited about a vaccine made with recombinant DNA. As news of Recombivax HB’s impending approval began to leak, press reports hailed its potential to prove that genetic engineering would revolutionize the pharmaceutical industry.<sup>37</sup> Scientists and the reporters who quoted them called biotech vaccines generally “exciting and imaginative,” and referred to the hepatitis

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<sup>33</sup> Sanford Kuvin, "Vaccination Can Halt Epidemic of Hepatitis B, Cousin of AIDS," *New York Times*, April 9, 1989, E24.

<sup>34</sup> "Hepatitis, Health, and the Hard Sell," *Gay Community News*, September 10, 1983.

<sup>35</sup> Natalie Geary, "Health News: Hepatitis B," *Mademoiselle*, April, 1993, 120.

<sup>36</sup> Alter, "The Evolution, Implications, and Applications of the Hepatitis B Vaccine."

<sup>37</sup> "Uncorking the Genes: Biotech Stocks Just Coming into Own, Analyst Says," *Barron's National Business and Financial Weekly*, May 5, 1986, 10-16.

B vaccine specifically as a “pioneering product.”<sup>38</sup> Researchers told the *New York Times* that biotech shots were “cutting edge weapons” that would eliminate not only hepatitis B, but also AIDS and malaria.<sup>39</sup> The business press breathlessly reported on the race between “tiny” California biotech firms to produce the world’s first genetically engineered vaccine, and when Chiron’s Recombivax was approved, *Venture* magazine crowned it one of the best entrepreneurial ideas of 1986.<sup>40</sup> The approval of Recombivax HB—the first genetically engineered vaccine and the third genetically engineered pharmaceutical to make it to market—was heralded on the front pages of the *New York Times*, the *Los Angeles Times*, the *Wall Street Journal*, and elsewhere for ushering in what FDA commissioner Frank Young called a “new era in vaccine production.”<sup>41</sup>

By the mid 1980s, that era had been long awaited. In the 1960s and 70s, lawsuits over polio vaccine tainted with live virus had prompted half the nation’s vaccine manufacturers to pull out of the market altogether—a fact the business press reminded readers of as they reported on the new vaccine.<sup>42</sup> More recently, publicity of the side

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<sup>38</sup> Claudia Wallis, "Made-to-Order Vaccines," *Time*, October 31, 1983; Janice Castro, "A Breakthrough for Biotech," *Time*, August 4, 1986.

<sup>39</sup> Harold Schmeck, "The New Age of Vaccines," *New York Times Magazine*, April 29, 1984, 58.

<sup>40</sup> See for example Judy Packer, "Chiron Nears Sale of New Hepatitis Vaccine," *San Jose Business Journal* 3, no. 41 (1986); Tom Post et al., "The Year's Best Entrepreneurial Ideas," *Venture* 8, no. 12 (1986): 6.

<sup>41</sup> Boffey, "U.S. Approves a Genetically Altered Vaccine."; Marlene Cimon, "First Human Vaccine Produced by Genetic Engineering Okd by FDA," *Los Angeles Times*, July 24, 1986, 1; Joe Davidson, "Lab-Made Vaccine for Hepatitis B Is Cleared by FDA," *Wall Street Journal*, July 24, 1986, 1. Some vaccine critics also saw genetic engineering as the answer to risks posed by vaccination. See National Vaccine Information Center, "Pertussis Vaccine Research Update," *Vaccine News* 5, no. 1 (1990): 5. The first genetically engineered drug, a recombinant form of human insulin, was approved by the FDA in 1982; the approval of recombinant human growth hormone followed in 1985. Suzanne White Junod, "Celebrating a Milestone: FDA Approval of First Genetically-Engineered Product," *Update*, no. 5 (2007).

<sup>42</sup> See for example Gary Geipel, "A Shot in the Arm for Vaccine Makers," *Business Week*, August 4, 1986, 29-32. See also Chapter 2 of this dissertation.

effects of pertussis vaccine (described in Chapter 4) had drawn increased popular attention to the risks of vaccination generally. The same year that Recombivax hit the market, President Ronald Reagan, under pressure from consumer groups, signed the National Childhood Vaccine Injury Act into law, establishing a compensation program to reimburse families for the care of those harmed by recommended vaccines. The genetically engineered hepatitis B vaccine was therefore enthusiastically received by investors, the pharmaceutical industry, and health professionals not only because it held the promise of a new generation of vaccines, but also for its potential to address persistent safety concerns. Scientists and drug company representatives alike also emphasized that the new vaccines would be cheaper, and would finally allow for the marketing of hepatitis B vaccine in developing countries, where it was much more sorely needed than it was in the United States.<sup>43</sup>

In the words of the *Wall Street Journal*'s editorial board, Chiron's discovery had brought an end to the days when vaccine development was "an inexact scientific art."<sup>44</sup> Because the new hepatitis vaccine did not contain a whole virus, it "just can't do any damage, period," said a microbiologist at the FDA.<sup>45</sup> Nodding implicitly toward past and present fears, researchers promised that genetically engineered vaccines eliminated the "risk of actually getting herpes, hepatitis B or influenza from the injection, since the

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<sup>43</sup> This was a long-anticipated advantage of genetically engineered vaccines, particularly the genetically engineered hepatitis vaccine. However, when it was first introduced, Heptavax B (the plasma-derived vaccine) was the most expensive vaccine ever marketed. See for example Alter, "The Evolution, Implications, and Applications of the Hepatitis B Vaccine."

<sup>44</sup> Editorial, "Science and Demagoguery," *Wall Street Journal*, July 31, 1986, 1.

<sup>45</sup> Dori Stehlin, "Hepatitis B: Available Vaccine Safe and Underused," *FDA Consumer Magazine*, May, 1990.

viruses themselves are not present in the formula.”<sup>46</sup> FDA Commissioner Young echoed these sentiments in a press statement he made upon Recombivax’s approval: “These techniques should be...extended to any virus or parasite,” said. He went on to state that while the plasma-derived vaccine had never posed a risk of AIDS, the new “lab-made vaccine” should further reassure people. He also strongly urged those at high risk of hepatitis B to take advantage of this “new life-saving protection.”<sup>47</sup>

### *A Push for Widespread Vaccination*

Young’s plea came as public health officials were bemoaning stubbornly low hepatitis B vaccination rates. In the five years since the ACIP had recommended that gay men, injection drug users, health care workers, and select immigrants be vaccinated against the infection, hepatitis B prevalence had not only not decreased, but had increased, with rates particularly high among young adults.<sup>48</sup> Incrementally, federal recommendations evolved in response. Instead of targeting all risk groups, however, the ACIP’s new guidelines targeted only those guaranteed to have an encounter with the health care system—namely pregnant women and their newborns.<sup>49</sup> In 1984, the ACIP had recommended that all “high-risk” pregnant women be screened during prenatal care

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<sup>46</sup> Wallis, "Made-to-Order Vaccines."

<sup>47</sup> Associated Press, "FDA Approves Gene-Engineered Hepatitis Vaccine," *The Dallas Morning News*, July 24, 1986, 5A.

<sup>48</sup> Centers for Disease Control, "Surveillance Summary Viral Hepatitis -- 1984," *Morbidity and Mortality Weekly Report* 36, no. 3 (1987): 42-43.

<sup>49</sup> The targeting of women identified through their sexual (in this case reproductive) behavior is reminiscent of countless historical attempts to curb the spread of sexually transmitted infections by detaining and treating women, especially prostitutes, over men. See for example Brandt, *No Magic Bullet: A Social History of Venereal Disease in the United States since 1880*; Porter and Porter, "The Enforcement of Health: The British Debate."

visits for hepatitis B, and if found positive, that their infants be immunized at birth to prevent them from harboring the virus.<sup>50</sup> But the plan had little impact on total hepatitis B prevalence, because high-risk women were difficult to identify and insurers weren't always willing to cover the cost of screening them. As a result, the ACIP later noted, the U.S. continued to add another 3,500 chronic hepatitis B carriers (the unimmunized infants of infected mothers) to the population each year.

To get around the difficulty of identifying high risk women, in 1988 the ACIP recommended that *all* pregnant women be tested for hepatitis B, and, if positive, their infants vaccinated within twelve hours of birth to prevent transmission to the next generation.<sup>51</sup> But disease incidence continued to persist at high rates. And at the same time, the demographics of the infected seemed to be changing: among the infected, the proportion of homosexuals had decreased significantly since 1982, while the proportion of drug users and heterosexuals with no discernable risk factor had increased. When it released these figures, scientists in the CDC's hepatitis division suggested that the only way to combat the disease would be to immunize all infants, all adolescents, or both.<sup>52</sup> The ACIP agreed and in 1991 altered its guidelines yet again, this time recommending that all infants be vaccinated against the disease at birth.<sup>53</sup>

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<sup>50</sup> Centers for Disease Control, "Recommendation of the Immunization Practices Advisory Committee (ACIP): Postexposure Prophylaxis of Hepatitis B," *Morbidity and Mortality Weekly Report* 33, no. 21 (1984): 285-290.

<sup>51</sup> Centers for Disease Control, "Recommendations of the Immunization Practices Advisory Committee - Prevention of Perinatal Transmission of Hepatitis B Virus: Prenatal Screening of All Pregnant Women for Hepatitis B Surface Antigen," *Morbidity and Mortality Weekly Report* 37, no. 22 (1988): 341-346, 351.

<sup>52</sup> M. J. Alter et al., "The Changing Epidemiology of Hepatitis B in the United States: Need for Alternative Vaccination Strategies," *Journal of the American Medical Association* 263, no. 9 (1990): 1218-1222.

<sup>53</sup> Centers for Disease Control, "Hepatitis B Virus: A Comprehensive Strategy for Eliminating Transmission in the United States through Universal Childhood Vaccination: Recommendations of the



Health officials acknowledged that the new strategy was necessary “because vaccinating persons engaged in high-risk behaviors, life-styles or occupations...has not been feasible,” but also because many infected people had “no identifiable source for their infections.”<sup>54</sup> Most people became infected as either adolescents or adults, the CDC reported; but as with mumps two decades before, vaccinating the youngest citizens offered the most expedient means of ensuring healthy adult citizens. “We do not feel that targeting adults for vaccination has worked,” a CDC official told the *Boston Globe*. “This will be the first time,” she went on, “that a vaccine is recommended for children to prevent a disease that primarily occurs in adults.”<sup>55</sup> As described in Chapter 2, the vaccination of well children to maintain a population of well adults was a tried and tested approach to public health. What was new, however, was that in the case of hepatitis B, children were being vaccinated at birth—long before they could engage in the types of social activities, like school or play, generally implicated in the spread of contagious disease.

By the early 1990s, the message that just about everyone was at risk of hepatitis B came to dominate media reports on the disease. Outlets from the *Philadelphia Tribune* to *Good Housekeeping* reported that a third of people who came down with the disease were not in any of the known risk groups.<sup>56</sup> *Redbook* warned readers that hepatitis was “spreading fast” and the *Boston Globe* noted that the infection was spread by sharing

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Immunization Practices Advisory Committee (ACIP), "Morbidity and Mortality Weekly Report 40, no. RR-13 (1991): 1-19.

<sup>54</sup> Ibid.

<sup>55</sup> Dolores Kong, "U.S. To Urge All Children Be Vaccinated for Hepatitis B," *Boston Globe*, June 11, 1991.

<sup>56</sup> "Hepatitis B 200x More Contagious Than AIDS," *Philadelphia Tribune*, December 31, 1991, 4B; Lisa Holland, "The ABC's of Hepatitis," *Good Housekeeping*, April, 1991, 239.

gum, food, toothbrushes, and razors, and by body piercing.<sup>57</sup> *New York* magazine, in a feature titled “The Other Plague,” recounted the stories of a young woman who contracted a fatal case by getting her ears pierced, a young man who was infected when mugged at knife-point, and a woman infected at a nail salon.<sup>58</sup> Frequent mentions of the prevalence of asymptomatic carriers heightened the sense of an immediate health threat: in the words of the *New York* magazine reporter, anyone could be one of the U.S.’s 1.5 million “Typhoid Marys,” unwittingly transmitting hepatitis B to people unaware of their risk.<sup>59</sup>

Health officials at the CDC were meanwhile considering not just revised recommendations to increase hepatitis B vaccination, but a broader program to encourage higher vaccination rates overall. The measles epidemic that swept the country in 1989 and 1990, infecting more than 50,000 people and causing hundreds of deaths, was the worst rash of measles the nation had seen in over a decade.<sup>43</sup> Because of falling immunization rates generally, the incidence of rubella and pertussis was also on the rise. When a special federal advisory panel studied the measles outbreaks, their resulting White Paper (described in Chapter 3) concluded that the epidemic was driven by low immunization rates among pre-school-aged children, which were the result of multiple components—costly vaccines, inadequate insurance policies, and other barriers—of an overall broken health care system.<sup>44</sup> “This isn’t a measles problem, it’s a systems

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<sup>57</sup> Leslie Laurence, “Beware the Quite Killer,” *Redbook*, October, 1991, 24, 28, 32; Sandy Coleman, “Q&A with Leslie Hsu, South Cove Health Center in Chinatown,” *Boston Globe*, Feb 15, 1998, 2.

<sup>58</sup> Janice Hopkins Tanne, “The Other Plague: Potentially Deadly Hepatitis Is Fifteen Times More Common Than AIDS,” *New York*, July 11, 1988, 34-40.

<sup>59</sup> *Ibid.*, 35.

problem,” said renowned vaccine expert and panel member Donald A. Henderson.<sup>60</sup> The Republican-controlled White House disagreed: “The facilities are there...the vaccines are there...make sure your child is immunized,” President Bush urged parents in a speech at the White House Rose Garden.<sup>61</sup> As an incentive for the parents deemed most responsible for the rash of epidemics, his administration proposed tying welfare payments to children’s immunization status.<sup>62</sup>

In the partisan dispute that erupted in response to the welfare proposal, administration officials maintained that individual citizens needed to assume more responsibility for their personal health, while left-leaning members of the public health profession accused the White House of “punishing the poor” and spending more on six hours of the Gulf War than it would take to curb measles.<sup>63</sup> The administration’s proposal never passed, but while the political battle over measles control raged, some vaccine critics began questioning the measles vaccine as well as the constantly evolving guidelines on who should get it and when. In response to rising measles rates, the ACIP had revised its vaccination recommendations, adding a second recommended dose to the one dose previously advised for children, and adding preschoolers, college students, health care personnel and international travelers to the list of those who should get the shot. The changes were necessary, the committee wrote, to address the *two* causes of

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<sup>60</sup> Okie, "Vaccination Record in U.S. Falls Sharply."

<sup>61</sup> Devroy, "Bush Announces New Push to Improve Vaccination Programs."

<sup>62</sup> Robert Pear, "Proposal Would Tie Welfare to Vaccinations of Children," *New York Times*, November 29, 1990, A1.

<sup>63</sup> Phyllis Freeman and Anthony Robbins, "An Epidemic of Inactivity," *New York Times*, July 10, 1997, A19; Jeremy Waldron, "There We Go Again, Punishing the Poor," *New York Times*, December 12, 1990, A22.

nationwide measles outbreaks: unvaccinated preschoolers and vaccine failure. Among the roughly 17,000 measles cases that had occurred between 1985 and 1988, 42% were in vaccinated people; in some school districts, measles outbreaks occurred even though 98% of the children were immunized. Scientists had a few explanations for why this might be: vaccine-induced immunity might be fading with time, and some children might be getting vaccinated at too early an age, when their maternally inherited measles antibodies were still present and could interfere with vaccine response.<sup>64</sup>

But the committee's solution—more shots—struck some as confusing if not downright illogical.<sup>65</sup> “Does it make sense to offer booster shots of any sort if a single shot of the vaccine has not been shown to do the job?” asked one mother, to whom the vaccine suddenly seemed “too experimental, too ineffective, and too risky.”<sup>66</sup> The risks of the measles vaccine, usually given as MMR, seemed to be proven by the outbreaks themselves; further, it was increasingly difficult for parents to balance these risks against the risks of the disease. In its revised guidelines, the ACIP described measles as a “severe” disease that caused encephalitis in 1 of every 1,000 cases and death in 1 of every 1,000 cases.<sup>67</sup> This rate of complications was dramatically higher than that measured when measles vaccination began in the 1960s, noted some attentive critics, who

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<sup>64</sup> Centers for Disease Control, “Measles Prevention: Recommendations of the Immunization Practices Advisory Committee (ACIP),” *Morbidity and Mortality Weekly Report* 38, no. S-9 (1989): 1-18. College students were presumed to be at risk because the vaccine they received back in the 1960s, scientists had concluded, was too weak to confer lasting immunity.

<sup>65</sup> “Are Vaccines Generally Detrimental to the Human Defense System?,” *Townsend Letter for Doctors & Patients*, February/March, 1994.

<sup>66</sup> L. McTaggart and D. Zakruczemski, “The MMR Vaccine,” *Mothering*, Spring, 1992, 56-62.

<sup>67</sup> Centers for Disease Control, “Measles Prevention: Recommendations of the Immunization Practices Advisory Committee (ACIP).”

questioned whether the fallible vaccine was actually responsible for having created this more severe disease. Joanne Hatem, a physician who had herself suffered an adverse reaction to rubella vaccination, noted that while measles had indeed become a far more serious disease, the vaccine had its own flaws, including a far-from-perfect rate of protection and its own risk of encephalitis and death. She advised a tempered approach to immunization, advising parents to give their children the MMR shot at 15 months, and then, if a booster became necessary, to get only the component of MMR that needed boosting.<sup>68</sup>

As some parents and physicians received the more-shots mantra with caution, proponents of a more robust immunization infrastructure found an effective ally in newly elected President Bill Clinton, who spent the spring of 1993 championing the cause of childhood immunization.<sup>69</sup> The administration's Vaccines for Children program (described in Chapter 3) appropriated \$300 million to immunize Native American children, those on Medicaid, and those without insurance coverage or coverage for vaccines. The program also provided states with added funds for vaccination and provided safeguards guaranteeing states the ability to purchase vaccines at federal contract prices.<sup>70</sup> That same spring, Clinton signed a proclamation supporting National Preschool Immunization Week, an annual week of coordinated efforts to fully vaccinate preschoolers with all federally recommended vaccines, including the vaccine against

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<sup>68</sup> Joanne Hatem, "MMR Update," *NVIC News* 1, no. 3 (1991): 9.

<sup>69</sup> See Chapter 3 for an extensive discussion of Clinton's childhood immunization initiative.

<sup>70</sup> Gary Freed and Samuel Katz, "The Comprehensive Childhood Immunization Act of 1993," *New England Journal of Medicine* 329, no. 26 (1993): 1957-1960.

hepatitis B.<sup>71</sup> In the context of a national dialogue about the broken health care system, which Clinton kept front and center during his first season in office, the cost-efficiency of vaccination generally, and hepatitis B vaccination in particular, took on new salience. Vaccinating young children against hepatitis B saved more money than efforts to vaccinate any other group could ever save, health economists calculated, simply because it prevented the most chronic infections.<sup>72</sup>

The enactment of the Vaccines for Children program coincided with yet another broadened set of hepatitis B vaccine recommendations by the ACIP. The committee now urged that all unvaccinated 11- and 12-year olds be protected against the virus, as well as all children under age 11 who were either Pacific Islanders or who lived in households with immigrants from countries with high rates of hepatitis B. Health officials were blunt in justifying the widespread vaccination of adolescents. While universal infant vaccination would ultimately obviate the vaccination of adolescents and adults, in the meantime, vaccinating pre-teens would drive down disease incidence more quickly. Targeting immigrant children was necessary, they argued, because they continued to experience “high rates” of hepatitis B infection: 2% became infected each year and 2 to 5% became chronic carriers of the virus.<sup>73</sup> The numbers may not have seemed objectively high, but they did seem excessive to those like Barbara Hahn, a deaf interpreter who, in her inability to trace her own hepatitis B infection, pinned it on immigrant children.

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<sup>71</sup> Office of the Press Secretary, Remarks by the President at Reading of Immunization Proclamation.

<sup>72</sup> Harold Margolis et al., "Prevention of Hepatitis B Virus Transmission by Immunization. An Economic Analysis of Current Recommendations," *Journal of the American Medical Association* 274, no. 15 (1995): 1201-1208.

<sup>73</sup> Centers for Disease Control, "Notice to Readers Update: Recommendations to Prevent Hepatitis B Virus Transmission -- United States," *Morbidity and Mortality Weekly Report* 44, no. 30 (1994): 574-575.

“Recently, the immigration policies have brought an increasing number of foreign students into our school systems, and the incidents [sic] of hepatitis are much higher in other countries. Is that how I got this disease?” wondered Hahn. “Did I get it from a child who ran into me on the playground or from the little girl who was upset and bit me while I was working at the Cincinnati public schools?”<sup>74</sup>

This refocused attention on the infectious status of immigrants came at a time when concerns about immigrants, the resurgence of infectious diseases, and the costs of health care were both prominent and intertwined. During his first year in office, as he attempted to overhaul health care generally and access to vaccines in particular, President Clinton entered into a battle with Congress over his campaign-trail promise to overturn a 1987 ban on the immigration of people infected with HIV.<sup>75</sup> Heated opposition to Clinton’s plan reflected fears about an impending wave of immigrants from Haiti, a country with a high rate of HIV-infected people, as well as the nation’s resurgence of tuberculosis, which was frequently attributed to “immigrants and travelers.”<sup>76</sup> Arguments against the importation of additional infections frequently cited the burdensome costs of providing health care to the chronically ill. Growing resistance to the prospect of adding immigrants to these ranks was exemplified by California’s passage of Proposition 187,

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<sup>74</sup> Subcommittee on Criminal Justice, Drug Policy, and Human Resources of the Committee on Government Reform of the House of Representatives, *Hepatitis B Vaccine: Helping or Hurting Public Health?*, 106th Congress, 1st session, May 18, 1999.

<sup>75</sup> Editorial, "AIDS and Immigration," *The Washington Post*, February 12, 1993, A26; Clifford Krauss, "Senate Opposes Immigration of People with AIDS Virus," *New York Times*, February 19, 1993, A11.

<sup>76</sup> Robert Greenberger, "Clinton Team Seeks Policy to Aid Haiti and Avert Feared Surge of Emigration," *Wall Street Journal*, January 4, 1993, A5; Laura Hawkins, "Facing TB--in the Mirror," *The Washington Post*, January 12, 1993, 17.

which proposed severely limiting illegal immigrants' access to public services.<sup>77</sup> As historian Alan Kraut has pointed out, such policies were simply “old wine in new bottles,” as throughout American (and even human) history, immigrants have often been held to blame for outbreaks and epidemics—real or imagined—and the resources they consume.<sup>78</sup>

Immigration anxieties framed the context in which federal hepatitis B vaccination recommendations took shape, even if they weren't directly cited by the state-level hepatitis B vaccination laws that soon followed. As state health boards and legislatures began taking steps to mandate the hepatitis B vaccine for infants, kindergartners, and 7th graders, many instead attributed these steps directly to the Vaccines for Children program. Minnesota's vaccine task force credited the Clinton program for the extra funds and discount pricing that made it feasible to require the hepatitis B vaccine for 7th graders.<sup>79</sup> State health officials in Colorado, Louisiana, Pennsylvania, and elsewhere also credited the administration for making it possible to require the new vaccine for students,

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<sup>77</sup> Roberto Suro, "Proposition 187 Could Open Pandora's Box for Gop," *The Washington Post*, November 11, 1994, A24; Bruce Nelan, David Aikman, and David Jackson, "Not Quite So Welcome Anymore," *Time*, December 2, 1993.

<sup>78</sup> Alan M. Kraut, *Silent Travelers: Germs, Denes, and the "Immigrant Menace"* (Baltimore: Johns Hopkins University Press, 1995). Kraut's work describes the treatment of Haitian immigrants to the U.S. during the height of the AIDS epidemic, as well as many other episodes in American history in which immigration concerns have influenced public health policy and perceptions of disease and vice versa. Similar themes are addressed in Marilyn Chase, *The Barbary Plague: The Black Death in Victorian San Francisco* (New York: Random House, 2003); Judith Walzer Leavitt, *Typhoid Mary: Captive to the Public's Health* (Boston: Beacon Press, 1996); Howard Markel, *Quarantine! East European Jewish Immigrants and the New York City Epidemics of 1892* (Baltimore: Johns Hopkins University Press, 1997); Howard Markel, *When Germs Travel: Six Major Epidemics That Have Invaded America since 1900 and the Fears They Have Unleashed* (New York: Pantheon Books, 2004); Naomi Rogers, *Dirt and Disease: Polio before FDR, Health and Medicine in American Society* (New Brunswick: Rutgers University Press, 1992).

<sup>79</sup> Tom Majeski, "State Endorses Hepatitis Shots - Minnesota Is First to Recommend Immunizations for All Adolescents," *St. Paul Pioneer Press*, November 6, 1993, 1A.



hold school-based drives to encourage vaccination, and enforce new mandates—since all students were now guaranteed the vaccine, regardless of their ability to pay.<sup>80</sup>

Beyond the presence of federal funds and guidelines, state-level legislators and health officials had other reasons for requiring hepatitis B vaccination of youth beginning in the early nineties. While immigrant fears were not explicitly apparent in discourse concerning the importance of hepatitis B protection for youth, notions about contemporary teenage life were. When states such as Colorado, Idaho, California, and Pennsylvania mandated the vaccine for pre-teens, health officials and lawmakers cited as justification the growing popularity of tattoos and body piercing.<sup>81</sup> Adult attitudes toward teenage body piercing, a trend that exploded in the nineties, exemplified what historian Paula Fass has referred to as the socially constructed perception of “the rocking, highly sexualized teenager.”<sup>82</sup> In countless articles and talk shows devoted to the topic of body art in the late 1990s, parents and doctors expressed bewilderment and concern over the trend and its hazards: according to the reports, children as young as 11 and 12, often influenced by celebrities, were getting pierced and tattooed in record numbers and facing skin rashes, swelling, scar tissue, tetanus, HIV, and hepatitis B as a result. “This fad communicates status, fashion-hipness—and unfortunately, disease,” noted *Prevention*,

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<sup>80</sup> Peter Shinkle, "Vaccination Line Long as School Opening Nears," *The Advocate (Baton Rouge, La.)*, August 19, 1993, 1A; Reuters, "Hepatitis B Vaccine for Babies Urged; Most of the Affected Americans Are First Infected as Young Adults," *The Philadelphia Inquirer*, October 18, 1995, A12; Michael Romano, "Colorado Will Add Hepatitis B to Required Inoculations for Schoolchildren," *Rocky Mountain News*, April 20, 1996.

<sup>81</sup> Andrea Vogt, "CDA Schools First in Idaho to Offer Hepatitis B Shots," *Idaho Spokesman-Review*, October 7, 1997, A1; Diane Eicher, "Hepatitis B Vaccine Carries a Quandary; Debate Rages over Necessity of Wide Usage," *The Denver Post*, June 27, 1994, F1; Tina Nguyen, "Parents Need to Get Started on Schools' Hepatitis B Mandate," *Los Angeles Times*, December 26, 1998, 1.

<sup>82</sup> Fass, *Children of a New World: Society, Culture, and Globalization*, 215.

advising parents, “Get kids vaccinated. If they haven’t had hepatitis B shots, talk to their doctors.”<sup>83</sup> Body piercing was often explicitly linked to sex—pop singer Janet Jackson relayed that with piercing “you get this great sensation...it can be very sexual.”<sup>84</sup> The fad, which was also linked in many reports to an increased risk of smoking, alcohol, and drug use, came to epitomize oversexualized youth at risk of a complex set of dangers and diseases. Fortunately, commentators noted, at least one of the risks of body art was preventable with a vaccine.

Immunization against hepatitis B in this period thus became a bulwark against both immigrant-imported infections and the carelessly assumed hazards of youth sex and fashion trends. And although the rhetoric that had tightly linked hepatitis B to AIDS less than a decade earlier was beginning to diminish, the association between the two persisted in educational materials urging teens to get vaccinated. A 1994 educational campaign by the National Foundation for Infectious Disease featured “sexpert” Dr. Ruth, who continued to inform audiences that hepatitis B was “100 times more infectious than HIV.”<sup>85</sup> As the 1990s progressed, however, characterizations of hepatitis B as a sexually transmitted disease increasingly gave way to characterizations of the virus as a preventable infection linked to cancer. “This is a very safe and effective way to avoid what is a terrible disease that causes cancer and other chronic problems,” said the head of Colorado’s health board regarding shots against hepatitis B.<sup>86</sup> Indeed, this particular

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<sup>83</sup> “A Piercing Look,” *Prevention*, November, 1996, 46.

<sup>84</sup> “If Body Piercing Is So Hazardous, Why Is It So Popular?,” *Jet*, April 19, 1999, 56.

<sup>85</sup> Eicher, “Hepatitis B Vaccine Carries a Quandary; Debate Rages over Necessity of Wide Usage.”

<sup>86</sup> Romano, “Colorado Will Add Hepatitis B to Required Inoculations for Schoolchildren.”

portrayal of the infection became increasingly prominent as parental resistance to the vaccine began to emerge, as it did when Colorado attempted to mandate the vaccine for school.

### *Rejecting Hepatitis B Vaccine*

The majority of state laws and regulations mandating hepatitis B vaccination for children went into effect between 1993 and 1998. Their passage was largely streamlined by federal enthusiasm for universal vaccination and funding support for recommended vaccines, in addition to cultural preoccupations with the lifestyles of body-pierced youth and disease-harboring foreigners. But while many of the laws and regulations were uneventfully adopted, a few minor debates did erupt. When Colorado's health board proposed requiring the shot for kindergartners and seventh graders in 1996, doctors and health officials were split on the issue. As with mumps nearly three decades before, health and medical experts in the state were neither united nor entirely clear on the urgency of vaccinating children against hepatitis B. Some noted that the American Academy of Pediatrics had advised the immunization of all older children only "where resources permit." Some pointed out that the disease was unlikely to spread among elementary schoolchildren, "unless you have an infected child who's a biter or who has a blood spill."<sup>87</sup> Others trotted out arguments about the risk-taking behaviors of teenagers: "We have a lot of children in this community who feel they're invincible...they experiment with sex and drugs, then die young because they get chronic hepatitis....Since this is something we can prevent, we should prevent it," said a director of the El Paso

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<sup>87</sup> Eicher, "Hepatitis B Vaccine Carries a Quandary; Debate Rages over Necessity of Wide Usage."

County health department.<sup>88</sup> But that argument didn't hold water for everyone. "Just because we CAN vaccinate, does that mean we always should? It's a worthy public debate," said the hepatitis B project manager for Colorado's state health department.<sup>89</sup>

Those in favor of the health board's proposal prevailed. By the fall of 1997, parents of all of the state's incoming kindergartners and seventh-graders had to either provide proof of their children's hepatitis B immunization or sign a form claiming a medical, religious, or personal exemption to the requirement.<sup>90</sup> But as the requirement went into effect, popular opposition began to mount. In 1999, Patti Johnson, a member of the Colorado State Board of Education, began a campaign to encourage parents to question the vaccine, citing the small number of hepatitis B cases in young children (279 in 1996) and the large number of hepatitis B vaccine-related injuries reported to the federal government (24,776 between 1990 and 1999). Drug companies Merck and SmithKline Beecham hadn't adequately tested the vaccine for long-term safety in children, she charged, and too few had questioned why this inadequately tested vaccine was being given to children to stop a disease that affects "IV drug users, prostitutes, sexually promiscuous persons, health care workers exposed to blood, and babies born to infected mothers."<sup>91</sup> At *The Denver Post*, columnist Al Knight repeatedly chimed in on

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<sup>88</sup> Rick Ansorge, "State Adds Hepatitis B to Immunization List - Shots Required for Schoolkids Beginning 1997," *The (Colorado Springs) Gazette*, April 26, 1996, 1.

<sup>89</sup> Eicher, "Hepatitis B Vaccine Carries a Quandary; Debate Rages over Necessity of Wide Usage." Emphasis in original.

<sup>90</sup> Diane Eicher, "HBV Shot Series Must Start Now," *The Denver Post*, April 14, 1997, F2.

<sup>91</sup> Patti Johnson, "Need for Hepatitis B Vaccine Questioned," *Rocky Mountain News*, July 12, 1999, 30A. That same year, Johnson led a separate campaign targeting the use of Ritalin, the widespread use of which she believed was symptomatic of society's over-medication of children. See Marcela Gaviria, "Medicating Kids," in *Frontline* (PBS, 2001). Chiron was not a target of these complaints because its vaccine was developed in cooperation with and subsequently marketed by Merck.

the vaccine's hazards, informing readers that New Jersey's governor, Christie Whitman, had vetoed a bill to require hepatitis B vaccines for schoolchildren.<sup>92</sup> Whitman cited the vaccine's unknown duration of protection in her decision to *postpone* signing the bill; in Colorado, her "refusal" to sign was described as a bold act that questioned the wisdom of vaccinating the young to prevent a disease brought on by adult behavior.<sup>93</sup>

Vaccine doubts weren't new to Colorado, the birthplace of *Mothering* magazine. By the late 1990s several of the state's communities had become renowned for their large numbers of children claiming personal exemptions to vaccine requirements and for the outbreaks of vaccine-preventable diseases, like pertussis, which sometimes resulted.<sup>94</sup> Nor were doubts specific to the hepatitis vaccine new, either in Colorado or elsewhere. Years before state laws requiring the vaccine for children went into effect, the National Vaccine Information Center (DPT was by now referring to itself as DPT/NVIC) worried about the lack of studies examining the shot's long-term effects on children; they also questioned why the vaccine should be given to all infants, most of whom didn't belong to any of the identified risk groups.<sup>95</sup>

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<sup>92</sup> Al Knight, "The Limits of Mandatory Medicine," *The Denver Post*, March 4, 1999, B11; Al Knight, "Pinning Down the Risks of Vaccinations," *The Denver Post*, August 5, 1999, B9.

<sup>93</sup> Donna Leusner, "Some Bills Perish in Governor's Pocket," *The Star Ledger*, January 21, 1998, 15.

<sup>94</sup> Todd Hartman, "Vaccinations' Success Backfiring - Thousands in Colorado Forego Shots," *The Gazette*, January 19, 1997, 1; Arthur Allen, "Bucking the Herd," *The Atlantic Monthly*, September, 2002, 40-42. Overall vaccination coverage in this period was generally high in Colorado and the rest of the U.S.; 75 to 90% of children were fully vaccinated (against diphtheria, tetanus, pertussis, polio, measles, Hib, hepatitis B and varicella) in each state, although at 75.8%, Colorado's coverage rate was lower than that of most other states. Centers for Disease Control, "National, State, and Urban Area Vaccination Coverage Levels among Children Aged 19--35 Months -- United States, 1998," *Morbidity and Mortality Weekly Report* 49, no. S S09 (2000): 1-26.

<sup>95</sup> National Vaccine Information Center, "CDC Considers Mass Vaccination with Hepatitis B Vaccine," *Vaccine News* 5, no. 1 (1990): 7; National Vaccine Information Center, "AAP Recommends All Newborn Infants Be Vaccinated with Hepatitis B Vaccine," *NVIC News* 2, no. 1 (1992): 12.

What *was* new in the last few years of the twentieth century was that suddenly, concerns about the hepatitis B vaccine gained new currency and a large audience, not just in Colorado, but across the country. In 1998, the national media reported on France's decision to halt hepatitis B vaccination because of fears the shot caused neurological damage, particularly multiple sclerosis.<sup>96</sup> Early in 1999, the television news program *20/20* asked whether hepatitis B was "smart preventive medicine or an unnecessary risk." The report featured several adults, including several health care workers, whose neurological and autoimmune symptoms, resembling multiple sclerosis, arthritis, lupus, and Guillain Barré syndrome, set in after getting the vaccine. The broadcast also focused in depth on the story of Lyla Rose Belkin, a healthy infant who went to sleep the night she received the vaccine and never woke up.<sup>97</sup> In the spring of 1999, stirred by these reports, a House Committee held hearings on hepatitis B vaccine safety concerns. The vaccine was constantly in the headlines once again, not for its promise of an infectious disease-free future, but for its potential to have contributed to deaths and disabilities in the present.

### *A Backdrop of Mounting Skepticism*

Worries about the hepatitis B vaccine were shaped not only by individuals' experiences with the vaccine itself, but by the culmination of decades of unanswered doubts about vaccines generally. As the 1990s had progressed, an increasing amount of

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<sup>96</sup> See for example Agence France-Presse, "France Ends Program of Hepatitis B Shots," *New York Times*, October 3, 1998, A4.

<sup>97</sup> "Who's Calling the Shots?," in *20/20* (ABC News, 1999). See also Anita Manning, "Now Parents Fear Shots; Kids in USA Get 21 Shots before Start of 1st Grade," *USA Today*, August 3, 1999, 1A.

evidence appeared to indicate that the very safety concerns that Dissatisfied Parents Together had rallied to address a decade before still persisted. And more and more evidence suggested that the risks of pertussis vaccination were only the tip of the iceberg. In 1996, on the ten-year anniversary of the passage of the National Childhood Vaccine Injury Act, *Money* magazine conducted an investigation into the DPT vaccine and ran a lengthy condemnation of vaccine business and policy in America under a damning headline: “THE LETHAL DANGERS OF THE BILLION-DOLLAR VACCINE BUSINESS.”<sup>98</sup> DPT shots still caused brain damage and deaths, they reported, and though a safer shot had been available for decades, U.S. vaccine makers hadn’t brought it to market because it would increase production costs and cut into profits. DPT’s dangers weren’t the only ones they dug up: oral polio vaccine had been the only cause of cases of the disease in the U.S. for nearly two decades, the magazine reported, and it remained in use even though a safer, injected (and more expensive) version was available. On top of that, scientists had long known that polio vaccines contained monkey viruses that had been linked to cancer and might have even more insidious effects, none of which had been adequately studied. Federal health officials and pediatricians needed to “stop hiding facts” from parents and the public, concluded reporter Andrea Rock, so that they could understand the true risks of vaccination and make informed decisions.<sup>99</sup>

The worries recounted in the *Money* investigation echoed many of the same complaints that the readers and editors of *Mothering* and the members and followers of Dissatisfied Parents Together had been voicing for years. DPT/NVIC had long asserted

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<sup>98</sup> Rock, "The Lethal Dangers of the Billion Dollar Vaccine Business." Emphasis in original.

<sup>99</sup> The investigation reported that DPT vaccine caused brain damage in 1 in every 62,000 children immunized and one to two deaths a year. *Ibid.*, 150, 164.

that vaccine injuries pitted individuals in a David-versus-Goliath-like battle with “the most powerful and wealthy segments of our society: the pharmaceutical industry, organized medicine, and the federal government.”<sup>100</sup> For years after winning the passage of the National Childhood Vaccine Injury Act, DPT had continued to lobby arduously for the U.S. approval of an acellular pertussis vaccine, which had been adopted by Japan in the 1970s in response to pertussis vaccine safety concerns, and which they argued was safer than the whole-cell vaccine available in the U.S.<sup>101</sup> In 1988, members of the group had attended a National Institutes of Health conference on the vaccine, where they criticized the design of studies comparing the U.S. and Japanese vaccines and ominously warned health officials of an impending “crisis” if they didn’t move more quickly to provide Americans with a safer pertussis shot.<sup>102</sup> The implied crisis was not just one in which ever more children would suffer traceable reactions to the shot, but one in which ever more cases of the disease would occur as more and more parents avoided the shots for their children out of fear.<sup>103</sup>

In the late eighties and early nineties, DPT/NVIC’s efforts had remained largely focused on advocating for a safer pertussis vaccine; they also pressed hard for the

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<sup>100</sup> Dissatisfied Parents Together, “President Reagan Signs Vaccine Injury Compensation and Safety Bill into Law,” *DPT News* 3, no. 1 (1987): 1.

<sup>101</sup> See for example *Ibid*; Dissatisfied Parents Together, “CDC and FDA Claim Little Difference between U.S. Whole-Cell and Japan’s Acellular DPT Vaccines,” *DPT News* 3, no. 2 (1987): 10; Dissatisfied Parents Together, “U.S. Vaccine Officials Criticize the Japanese Acellular Vaccine - DPT Cites Study Flaws,” *DPT News* 4, no. 1 (1988): 4; Dissatisfied Parents Together, “Center Hosts International Scientific Workshop,” *Vaccine News* 5, no. 1 (1990): 1, 9; Dissatisfied Parents Together, “Pertussis Vaccine Research Update,” *Vaccine News* 5, no. 1 (1990): 5.

<sup>102</sup> Dissatisfied Parents Together, “U.S. Vaccine Officials Criticize the Japanese Acellular Vaccine - DPT Cites Study Flaws.”

<sup>103</sup> Pertussis rates did eventually surge, in 2010, in spite of adoption of the acellular pertussis vaccine and in spite of high vaccination rates. See Tara Parker-Pope, “Vaccination Is Steady, but Pertussis Is Surging,” *New York Times*, August 17, 2010, D1.



compensation program and vaccine reaction surveillance system promised by the 1986 law. But each time their efforts were stymied—which was frequently—the members regrouped and organized in ways that brought increasing national attention to vaccine risks. They held protests, marching with their vaccine-injured children outside the White House, the CDC, and state capital buildings. They ran information booths at fairs across the country; erected billboards telling parents to “Know the Risks!”; and mailed newsletters far and wide featuring summaries of the latest court rulings on vaccine injuries, breaking scientific research on vaccine hazards, and sentimental memorials to children reportedly killed or injured as a result of vaccines. One particular scientific development that the group kept track of were reports that polio vaccines contaminated with monkey virus were responsible for the century’s most fearsome emergent infection: HIV.

Theories that HIV had been deliberately introduced to kill gays or blacks appeared shortly after the virus itself did. Beginning in the mid-1980s, commentators in both the black and gay media frequently speculated on a link between the emergence of HIV and the mass vaccination of blacks against smallpox; some linked the virus’s emergence and spread to the widespread vaccination of individuals against hepatitis B.<sup>104</sup> Dermatologist Alan Cantwell’s books—*Queer Blood* and *AIDS and the Doctors of Death*—blamed the origin of AIDS on the hepatitis B trials conducted in gays in the 1970s.<sup>105</sup> Biochemist Jack Felder, author of *AIDS: United States Germ Warfare at Its*

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<sup>104</sup> John Fiske, *Media Matters: Everyday Culture and Political Change* (Minneapolis: University of Minnesota Press, 1994), 191-216.

<sup>105</sup> Alan Cantwell, *AIDS, the Mystery and the Solution* (Los Angeles: Aries Rising Press, 1984); Alan Cantwell, *AIDS and the Doctors of Death: An Inquiry into the Origin of the AIDS Epidemic* (Los Angeles:

*Best*, promoted the theory that immunizations, including the hepatitis B shot, were part of a comprehensive government bio-warfare plot to eliminate both blacks and gays.<sup>106</sup>

Initially, such theories were generally relegated to minor presses and the pages of *Paranoia* magazine and the like. But by the early 1990s, one theory linking HIV to vaccines—specifically, the polio vaccine—gained credence and visibility. Outlets as diverse as *Redbook*, *Rolling Stone*, and the *Lancet* published theories that traced the genetic material in human immunodeficiency virus to live polio vaccine contaminated with monkey, or simian, viruses.<sup>107</sup> Live polio vaccines had in fact long been cultured in kidney tissue taken from African green monkeys, and as early as the 1950s, government scientists and Merck researchers had documented their contamination with one simian virus, SV-40, that was shown to cause cancer in lab animals.<sup>108</sup> In one hypothesis linking vaccines to HIV, AIDS got its start when poliovirus contaminated with simian immunodeficiency virus, or SIV, was administered to gay men to treat recurrent herpes.<sup>109</sup> Another hypothesis proposed that the virus had been seeded in African populations through global polio vaccination campaigns using contaminated vaccines.<sup>110</sup>

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Aries Rising Press, 1988); Alan Cantwell, *Queer Blood: The Secret AIDS Genocide Plot* (Los Angeles: Aries Rising Press, 1993).

<sup>106</sup> Felder's self-published book is described in Fiske, *Media Matters: Everyday Culture and Political Change*, 203-205.

<sup>107</sup> Tom Curtis, "The Origin of AIDS," *Rolling Stone*, March 19, 1992, 54-59, 61, 106, 108; Walter Kyle, "Simian Retroviruses, Poliovaccine, and Origin of AIDS," *The Lancet* 339, no. 8793 (1992): 600-601; Peter Korn, "The New AIDS Mystery," *Redbook*, July, 1994, 80-83.

<sup>108</sup> Wade, "Division of Biologics Standards: Scientific Management Questioned."; Galambos and Sewell, *Networks of Innovation: Vaccine Development at Merck, Sharp & Dohme and Mulford, 1895-1995*, 80-83.

<sup>109</sup> Kyle, "Simian Retroviruses, Poliovaccine, and Origin of AIDS."

<sup>110</sup> See "Blackstream Knowledge" in Fiske, *Media Matters: Everyday Culture and Political Change*.

In late 1995, the National Vaccine Information Center (which by now had completely dropped DPT from its name) identified a body of scientific work that appeared to unify the pervasive but still diffuse suspicions about the relationship between vaccines and unexplained diseases, including autism and HIV. That year, NVIC published a special, urgent report on the work of University of South California scientist W. John Martin, who for several years had been publishing papers on a “stealth virus” cultured from people with autoimmune and neurological disorders, including chronic fatigue syndrome, lupus, seizures, brain damage, and autism. His most recent scientific reports had identified the stealth virus (so called because, like HIV, it hid itself from the body’s defense mechanisms) as a genetic relative of viruses found in the very African green monkey used to make polio and other live virus vaccines. Because they were so hard to identify, vaccine-introduced stealth viruses seemed, to vaccine skeptics, a perfect explanation for the otherwise bewildering spread of little understood conditions, such as autism.<sup>111</sup> NVIC threw their support behind Martin, informing members that his funding was running out and urging them to make immediate donations for stealth virus research; they also put out a call for members to get tested for stealth viruses and become part of the database Martin was assembling at USC.<sup>112</sup>

NVIC’s support for Martin’s work (which was preliminary, and has yet to be replicated by other researchers) is illustrative of the organization’s scientific strategy.

From its early years as DPT, NVIC had an ongoing tradition of working with

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<sup>111</sup> W. John Martin, "Stealth Virus Isolated from an Autistic Child," *Journal of Autism and Developmental Disorders* 25, no. 2 (1995): 223-224.

<sup>112</sup> Barbara Loe Fisher, "Discovery of an Atypical Virus Infecting Humans Linked to Viral Vaccines Produced on Monkey Tissues," *The Vaccine Reaction* 1, no. 4 (1995): 1-6.

“establishment” doctors and scientists, including the American Academy of Pediatrics and biologists and immunologists at major research universities. While they maintained this tradition of reaching out to establishment professionals, they also began to develop a pattern of finding scientists whose work was so theoretical or unusual or unique within mainstream science and medicine that they found themselves treated like vaccine-injured people themselves, that is, like David against the oppressive and disbelieving Goliath of drug companies, organized medicine, fellow scientists, and the federal government.

This is how NVIC treated Martin, who was asked to leave USC following allegations of fraud.<sup>113</sup> It is also how they came to treat British gastroenterologist Andrew Wakefield, whose 1998 paper in *The Lancet*, reporting a link between MMR vaccine, gastrointestinal disorders, and autism, was condemned by CDC staff and members of the American Academy of Pediatrics. NVIC received all such scientific reports with equanimity (as described in Chapter 5, DPT’s founding members had been arguing a link between vaccines and neurological conditions, including autism, for close to 15 years) as well as a renewed sense of purpose. When Wakefield came under attack by the scientific community, Barbara Loe Fisher, who was by now the president of NVIC, railed against scientists and policymakers for criticizing his work. “It is tragic that vaccine policymakers in the government and the private sector would prematurely condemn independent clinical and basic science research which could lead to the identification of children perhaps genetically or otherwise at high risk of being injured by vaccines,” she wrote. “The kind of cutting edge research that Dr. Wakefield has undertaken could lead

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<sup>113</sup> Martin went on to found an independent research facility and in the 2000s became a voice of hope for parents of autistic children.

to screening techniques and therapies for these children. We need more science and less stonewalling.”<sup>114</sup>

Vaccine skeptics were in fact just about to get more science, if not on the precise vaccines or hazards they had been keeping in their sights. In the year leading up to the end of the millennium, a series of events brought vaccine safety and the federal vaccine approval process under direct scrutiny by the public. In late August of 1998, Wyeth Laboratories’ new RotaShield vaccine against rotavirus, a diarrheal disease, was licensed for use in infants. Six months later, in March of 1999, the ACIP recommended that the three-dose vaccine be given to all infants at ages 2, 4, and 6 months. But CDC scientists monitoring the national Vaccine Adverse Event Reporting System, which had been established as part of the 1986 National Childhood Vaccine Injury Act, soon noticed an unusually high number of cases of intussusceptions, a painful and potentially fatal bowel obstruction, in children who had received the vaccine.<sup>115</sup> In July of 1999, the finding made for damning headlines and evening news stories.<sup>116</sup> Wyeth stopped making the vaccine and the CDC recommended that parents and pediatricians stop giving it to

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<sup>114</sup> AUTISM AND INTESTINAL DISORDERS PARENT GROUPS AND VACCINE POLICYMAKERS CLASH OVER RESEARCH INTO VACCINES, National Vaccine Information Center Press Release, March 3, 1998, Available at <http://www.nvic.org/vaccines-and-diseases/Autism/researchvaccine.aspx>, accessed March 2011. Contrary to contemporary popular understanding of the significance of Wakefield’s 1998 paper, the publication was not the cause of lay vaccine worries but rather a product of them. By the time his Lancet paper was published, many vaccine skeptics were already convinced of a link between vaccines, including MMR, and autism, and were simply looking for “establishment” generated proof. Wakefield’s work served this purpose; that his work was treated dismissively by his scientific peers made him a hero to many parents searching for an explanation of their children’s autism in the early 2000s.

<sup>115</sup> Centers for Disease Control, "Intussusception among Recipients of Rotavirus Vaccine--United States, 1998-1999," *Morbidity and Mortality Weekly Report* 48, no. 27 (1999): 577-581.

<sup>116</sup> Lawrence Altman, "U.S. In a Push to Bar Vaccine Given to Infants," *New York Times*, July 16, 1999, A1; "Rotavirus Vaccine Pulled after Illnesses," *The Gainesville Sun*, July 18, 1999, 4G; "Doctors Stop Giving Vaccine after Warning," *The Virginian-Pilot*, July 17, 1999, C5; "U.S. Recommends Suspension of a Wyeth Vaccine," *The Philadelphia Inquirer*, July 16, 1999, C1.

children. When the ACIP met and reviewed the data in October of that year, they issued what the *New York Times* called “a rare and embarrassing reversal”: they withdrew their earlier recommendation that all infants be immunized against rotavirus.<sup>117</sup>

Further chagrin for vaccine scientists came later that same year, with the publication of *The River* by British journalist Edward Hooper.<sup>118</sup> Hooper’s massive work revived and painstakingly buttressed the theory that AIDS had been caused by polio vaccine trials. His analysis strongly suggested that an experimental oral polio vaccine, developed using chimpanzee tissue, transmitted HIV’s simian precursor virus to humans when it was tested in the late 1950s on populations in Burundi, Rwanda, and Congo; Congo was in fact home to the earliest documented HIV infection, in 1959. The hypothesis triggered a firestorm of debate in the scientific community but also drew lay attention to the very real possibility that vaccines could spread foreign viruses with unknown consequences.

Hooper’s book reminded readers of the contamination of early polio vaccines with SV40, as did many of his reviewers. Reviewers’ and commentators’ thoughts on Hooper’s work were undoubtedly as influential as the book itself, as few lay observers consumed the 1,000-page, exhaustively footnoted tome. “It could be the biggest “Oops!” in history,” wrote a reviewer in the *Toledo Blade*.<sup>119</sup> The *New York Times* called the book an “embarrassment” for scientists, since it revealed “that leading researchers kept sloppy

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<sup>117</sup> Centers for Disease Control, “Withdrawal of Rotavirus Vaccine Recommendation,” *Morbidity and Mortality Weekly Report* 48, no. 43 (1999): 1007; Lawrence Altman, “In Turnabout, Federal Panel Votes against a Vaccine,” *New York Times*, October 23, 1999, A11.

<sup>118</sup> Edward Hooper, *The River: A Journey to the Source of HIV and AIDS* (Boston: Little, Brown and Co., 1999).

<sup>119</sup> Michael Woods, “How HIV Started Is Debated,” *The Blade*, December 13, 1999, 32.

records and that prestigious peer-reviewed medical journals published reports that omitted crucial details.”<sup>120</sup> The book’s reception by the scientific community was just as significant. Even experts skeptical of its hypothesis praised the work in such scientifically revered publications as *Science* and *Nature*, and the culprit vaccine’s developer, the Philadelphia-based Wistar Institute, invited independent labs to test remaining stores of the vaccine to see if it did indeed contain chimp virus. (It did not—but this finding did not conclusively disprove Hooper’s theory).<sup>121</sup> The book’s overall reception gave further credence to the notion that vaccines were not just fallible in minor, insignificant ways, but could very well be implicated in the nation’s most troubling epidemics in decades.

In 1999, the reception of Hooper’s hypothesis was just one more tremor shaking the foundation on which public confidence in vaccines stood. As pediatricians trashed their stocks of rotavirus vaccine and parents rescheduled appointments, the ACIP and the American Academy of Pediatrics—which were now issuing coordinated immunization guidelines—released yet another revision of the recommended vaccine schedule for children: children should now get four polio vaccine injections, instead of the two injections and two oral immunizations they previously received.<sup>122</sup> The reason: although oral polio vaccine was more protective, the vaccine had been the sole cause of poliomyelitis cases (144 of them) in the U.S. since 1979. Given the progress of global

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<sup>120</sup> Lawrence Altman, "New Book Challenges Theories of AIDS Origins," *New York Times*, November 30, 1999, F1.

<sup>121</sup> Robin Weiss, "Is AIDS Man-Made?," *Science* 286, no. 5443 (1999): 1303; John P. Moore, "Up the River without a Paddle?," *Nature* 401, no. 6751 (1999): 325-326. On the results of the independent testing, see Rebecca Voelker, "The World in Medicine: No Chimp DNA in Vaccine," *Journal of the American Medical Association* 284, no. 14 (2000): 1777.

<sup>122</sup> The CDC’s ACIP and the AAP had recently begun coordinating their vaccination recommendations; previously, the AAP had issued its own recommendations distinct from those of the ACIP.

campaigns to eradicate polio beyond the U.S.'s borders, the ACIP concluded that the more effective but more risky vaccine was no longer needed.<sup>123</sup>

NVIC and other vaccine critics saw the revised policy as an admission of what they had long claimed were the often-denied dangers of vaccines. They received the announcement that vaccine manufacturers should abandon use of the mercury-based preservative thimerosal (described in the previous chapter) with similar satisfaction. Late in 1999, the editors of *Mothering* noted that the year had been marked by a “flurry of activity regarding the safety, ethics and politics of vaccines”; their bulleted list of developments on the vaccine front included the withdrawal of RotaShield, the FDA’s thimerosal announcement, the replacement of oral polio vaccine with injected polio vaccine, and the CDC’s suspension of hepatitis B injections for low-risk infants.<sup>124</sup> The last point was a bit of an overstatement; the suspension, which was based on the presence of thimerosal in hepatitis B vaccine, was temporary and the agency actually advised that infants whose mothers did not carry the hepatitis B virus be vaccinated at six months instead of right after birth.<sup>125</sup> But the hepatitis B vaccine did come under broader scrutiny in the spring and summer of 1999, thanks to House subcommittee hearings chaired by Florida Representative John Mica. The hearings were called to address charges that a vaccine now required for nearly all children had been implicated in cases of multiple

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<sup>123</sup> Committee on Infectious Diseases, "Prevention of Poliomyelitis: Recommendations for Use of Only Inactivated Poliovirus Vaccine for Routine Immunization," *Pediatrics* 104, no. 6 (1999): 1404-1406; "Revised Recommendations for Routine Poliomyelitis Vaccination," *Journal of the American Medical Association* 282, no. 6 (1999): 522; Centers for Disease Control, "Recommendations of the Advisory Committee on Immunization Practices: Revised Recommendations for Routine Poliomyelitis Vaccination," *Morbidity and Mortality Weekly Report* 48, no. 27 (1999): 590.

<sup>124</sup> "Vaccine Roulette: Weighing the Odds," *Mothering*, November/December, 1999, 30.

<sup>125</sup> Public Health Service and American Academy of Pediatrics, "Notice to Readers: Thimerosal in Vaccines - a Joint Statement of the American Academy of Pediatrics and the Public Health Service."



sclerosis and other neurological and autoimmune disorders. The testimonies shared at the hearings demonstrated how dramatically the hepatitis B virus and its vaccine had been reframed by the nation's shifting social and cultural concerns over the course of the 1990s.

*“Helping or Hurting Public Health?”*

On the morning of the hearings in May 1999, Representative Mica informed those in the chamber that they were assembled to answer four questions: Did the benefits of hepatitis B vaccine outweigh its risks? Were its hazards adequately disclosed to parents? Were the adverse reactions it caused being adequately studied? And what conflicts of interest existed when CDC considered how and whether to recommend a vaccine? In the testimony that followed, proponents of the vaccine emphasized the seriousness of hepatitis B infection, its tendency to cause untraceable infections, and the everyday challenges faced by those living with the virus in their bloodstream. People who spoke out against the vaccine—primarily people who had been injured themselves, or whose children had been injured following vaccination—emphasized the low infection risk of most infants, the greed of drug companies, and the dismissal they faced from doctors and other health professionals. When witnesses for each side made reference to hepatitis B itself, they seemed to be discussing two different diseases. To officials from the CDC and members of the American Liver Foundation and Hepatitis Foundation, hepatitis B was a lethal disease that infected 1 in 20 Americans and caused 5,000 deaths each year, many of these from liver cancer. To members of Massachusetts Citizens for Vaccination Choice and Parents Requesting Open Vaccination Education, and to the doctors and

parents who had witnessed blindness, deafness, seizures, and other effects following vaccination, hepatitis B was instead a rare, sexually transmitted infection that threatened drug addicts and foreigners, and posed no risk to American infants from healthy families.<sup>126</sup> Two decades of varied representations of the disease piled up in the House chamber, a potent illustration of how value-driven perceptions of the disease and its vaccine were destined to make objective answers to Mica’s questions an impossibility.

By the date of the hearings, 42 states had adopted laws or regulations requiring the vaccine for school or day care, and thousands of side effects following vaccination had been reported to the Vaccine Adverse Events Reporting System. Mica noted that he had called the hearings in part because of a New Hampshire report indicating that the state had 3 cases of hepatitis B and 48 adverse reactions to the vaccine in children under ten. At his request, FDA statistician Dr. Susan Ellenberg testified that in the entire country in 1997, 95 children under two years of age contracted hepatitis B and 43 had died following hepatitis B vaccination. But “the problems are all in the interpretation” of those numbers, said Ellenberg, because the reporting system cast a very wide net. Since anyone could report a reaction or death as being probably caused by a recently received vaccine, none of the reactions or deaths were definitively attributable to vaccines until investigated—and in the case of hepatitis B vaccine, that hadn’t happened yet. CDC scientist Harold Margolis assured Mica that the agency was conducting several ongoing studies. But to Mica, all of the present evidence added up to the fact that when parents

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<sup>126</sup> Committee on Government Reform, Subcommittee on Criminal Justice, Drug Policy, and Human Resources, *Hepatitis B Vaccine: Helping or Hurting Public Health?*, 106th Congress, 1st session, May 18, 1999, 7-31, 280-284.

were asked to vaccinate their babies against hepatitis B, they did so with insufficient—indeed, nonexistent—knowledge of the true risks of the vaccine.

That the perceived danger of the vaccine had begun to overshadow the perceived danger of the disease speaks in large part to changing attitudes toward HIV and hepatitis B's relationship to the disease. In the 1980s and into the early nineties, AIDS was a horrific and unmanageable specter, and hopes for an AIDS vaccine were projected onto the hepatitis B vaccine, which came to stand for the promise of triumph over insidious blood-borne infections. But by the late 1990s, the spread of AIDS had begun to come under control in the U.S., thanks to campaigns that urged the use of condoms and the effectiveness and availability of antiretroviral drugs. The manageability of AIDS tipped the balance—slightly, but perceptibly—between fears of the disease itself and fears of the vaccine or vaccines that may have caused both AIDS and the rest of the nation's autoimmune diseases. With AIDS under relative control, and with the push for broader hepatitis B immunization requirements, comparisons between the two diseases were no longer convenient for health officials who increasingly emphasized the fact that anyone—not just drug users and promiscuous individuals—was at risk of hepatitis B. Indeed, in the course of the hearings, only one fleeting mention of the disease's comparability to HIV was made. At the same time, parents of vaccine injured children continued to quote from CDC publications stating that the disease was sexually transmitted, asserting that it was, as Lyla Rose Belkin's father put it, an infection of “junkies, gays, and promiscuous homosexuals.”<sup>127</sup>

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<sup>127</sup> Ibid., 67.

The emphasis on defining the precise nature and probability of the hazards posed by the hepatitis B vaccine also speaks to the skyrocketing emotional value of children in the very last decades of the twentieth century. Historians Paula Fass and Mary Ann Mason have argued that this emotional value began to soar in direct response to the breakdown of marriage in the same period: as divorce and non-traditional living arrangements became increasingly common, the bond between parent and child came to exceed the bond between spouses in emotional importance.<sup>128</sup> Spouses, that is, came and went, but children provided a source of emotional gratification that was supposed to last a lifetime. This attitude was evident in the testimony of Marilyn Kirschner, the single mother whose teenage daughter had become incapacitated by seizures, migraines, nausea, and fatigue that grew worse after each of her three hepatitis shots. “This vaccine has ripped out a part of our lives that can’t be replaced,” she said. The parents whose children suffered from hepatitis B itself felt similarly, as Thelma Thiel, chair of the Hepatitis Foundation International, revealed when she spoke of the loss of her “precious” four-year-old son to cirrhosis. This commonality between parents on opposing sides of the issue was well articulated by Barbara Loe Fisher of the NVIC, who testified in favor of more robust vaccine safety testing: “...whether death or disability is caused by a disease or a vaccine, the pain is the same...we are all here because we love our children and we want to protect them from harm. ...we [need to] embrace the principle that every child’s life is important and no child’s life is expendable.”<sup>129</sup>

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<sup>128</sup> “Introduction” in Paula S. Fass and Mary Ann Mason, *Childhood in America* (New York: New York University Press, 2000).

<sup>129</sup> *Hepatitis B Vaccine: Helping or Hurting Public Health?*, 258.

To parents on both sides of the hepatitis B debate, statistical figures concerning the risk of disease or vaccine injury were meaningless when faced with the lived reality of caring for an irreversibly damaged child. For all the commonalities faced by parents living with sick or disabled children, the origins of their plights led to slightly divergent but ideologically similar attitudes toward state involvement in family health matters. Parents of hepatitis B positive children spoke of the stigma of the disease, the constant fear that their child would pass the infection to others, and their deep desire that parents in their communities would comply with state rules and have their own children immunized. Parents whose children became ill after vaccination, however, saw in those very same rules a state acting in the interest of itself and its corporate supporters with little regard for the welfare of individual children and their families. But that didn't always mean that they wanted less state involvement—like the parents of children infected with hepatitis B, they often wanted more: more oversight, more care, more attention paid to their concerns. Said one mother of a vaccine injured daughter: “Lindsay, nor anyone [sic], should have to suffer like this because scientific studies weren't done to determine if the vaccine was safe to give to every child. My daughter shouldn't have to suffer like this because government officials and drug company executives didn't do their jobs.”<sup>130</sup>

In the hearings, scientists and lay citizens were given equal time and attention by the assembled lawmakers. That lay and scientific testimony were equivalently valued on Capitol Hill that day is just one illustration of the degree to which scientific authority had been eroded over the previous quarter century. This erosion had been accomplished in

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<sup>130</sup> *Hepatitis B Vaccine: Helping or Hurting Public Health?*, 94.

large part through the social movements that had first gotten underway in the 1960s and 1970s, and whose influence on the opinions of vaccine critics was yet discernible in 1999. The emphasis that Mica and vaccine-injured witnesses placed on the uncertainty of the vaccine's long-term safety and protection were made possible by the now-entrenched risk-oriented rhetoric of the environmental movement. The predominantly female patients who recounted their struggles to get male doctors to believe that their symptoms were real and vaccine-related recalled the anti-hegemonic discourse of the women's movement. And the influence of the consumer movement was evident in the pervasive distrust of both government and industry scientists on display. One reportedly vaccine-injured woman, a public health nurse from Indiana who asserted that she was not anti-vaccine, testified that she was troubled to learn that Merck scientists had attended CDC meetings held to assess vaccine safety. "[How] can an employee of a pharmaceutical company that manufactures the vaccine be objective in designing experiments to show fault in a product that generates close to \$1 billion in sales for his company?" she asked.<sup>131</sup> The accusation was voiced again and again in the debate over hepatitis B vaccine, for by the late 1990s, the newly vaccine worried and longtime vaccine skeptics alike perceived an abuse of power and violation of trust on the part of government officials engaged in the pursuit of public health.

### *Conclusion*

In the immediate aftermath of the hearings, health officials voiced concern that "antivaccine groups" were gaining ground, getting the media interested, spreading word

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<sup>131</sup> Ibid., 112.

of vaccine risks on the internet, and “gaining the ears of state and federal legislatures.”<sup>132</sup> One specific fear was that such groups would successfully repeal hepatitis B requirements in the states where they existed—a logical response to the crisis of faith that seemed to be growing ever more deeply entrenched.

But nothing of the sort happened. When New Jersey attempted to mandate the hepatitis B vaccine for its schoolchildren later in 1999, legislators, in response to parental concerns, wrote in a personal exemption to the requirement. (New Jersey allowed only religious exemptions for all other vaccines.) Nervous state health officials, fearing an unenforceable mandate from the legislature, then decided to write and adopt their own rule while state lawmakers were in recess. The move infuriated vaccine-worried parents.<sup>133</sup> “Even if there is only a slim chance that my perfectly healthy infant might die from a Hepatitis B injection, the fact that we are talking about chances at all is appalling. Since when did the New Jersey State Health Department legitimize gambling with lives?” asked New Jersey mother Laura Maschal.<sup>134</sup> But despite parental worries and the legislative “skirmish,” New Jersey’s hepatitis B requirement went uneventfully into effect. By 2001, the vaccine was required of all elementary and middle school children in the state.

Maschal’s opinion and the venue in which it appeared (the *New York Times*) were testament to the fact that the hepatitis B vaccine had helped bring debate about the risks of vaccines and government’s power and ability to manage them fully into the public

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<sup>132</sup> Charles Marwick and Mike Mitka, "Debate Revived on Hepatitis B Vaccine Value," *Journal of the American Medical Association* 282, no. 1 (1999): 15-17.

<sup>133</sup> Lisa Suhay, "A Skirmish over the Hepatitis B Vaccination," *New York Times*, July 18, 1999, NJ1.

<sup>134</sup> Laura Maschal, "Debating Hepatitis B Vaccine," *New York Times*, July 25, 1999, NJ13.

arena. But even as this debate continued and grew—as it would in the 2000s—most Americans seemed willing to accept the state in the role of “superparent,” trusting it to determine the best policies for the welfare of their well children.<sup>135</sup> By 2002, all but three states (Alabama, Montana, and South Dakota) had adopted laws or regulations requiring the vaccine for children in daycare, grade school, or both. That year, 88% of the nation’s children were vaccinated against hepatitis B. The figure climbed to 92% the following year, where it has held steady to this day.<sup>136</sup>

Nonetheless, in the decade after the 1999 hearings, and in spite of the absence of any confirmation of the shot’s suspected dangers, the widely administered hepatitis B vaccine continued to signify the shortcomings of U.S. vaccination policy and practice for many vaccine skeptics. On World Autism Day in 2009, actress and autism activist Jenny McCarthy and husband and comic actor Jim Carrey appeared on *Larry King Live* to talk about what they believed was the top factor driving the nation’s relentless autism epidemic: vaccines. In their hour on air, they railed against corrupt drug companies and complicit doctors, arguing that too many unsafe vaccines were being forced on children in the name of profit, causing new epidemics in misguided attempts to control overblown ones. For McCarthy and Carrey, one vaccine in particular captured for them all that was wrong with contemporary vaccination practice. “The vaccine program is unbalanced,”

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<sup>135</sup> Mason, “The State as Superparent.”

<sup>136</sup> World Health Organization, “WHO/UNICEF Estimates of National Immunization Coverage: Estimated Coverage by Country, Year, and Vaccine.”



said an impassioned Carey. “It’s a good thing that’s gone too far... Do we really need hepatitis B on the second day of life?”<sup>137</sup>

The subject of the relationship between autism and vaccines had reached mainstream airwaves in the early 2000s, when the confluence of events that brought criticism onto the hepatitis B vaccine paved the way for a much broader social critique of vaccines and vaccination policy. Although many of these critiques focused on the MMR vaccine—whose purported risks had the imprimatur of a *Lancet*-published study behind them—critiques of the hepatitis B vaccine had sustained traction. This was precisely because policies governing the vaccine had stretched the very definition of childhood vaccination beyond what some perceived as an acceptable limit.

The federal policy recommending the universal vaccination of children against hepatitis B, and the historical moment of which it was born, represented the apex of the new era of vaccination heralded in the late 1960s. The state-level policies which subsequently required the vaccine for all children were made possible by the consolidation of federal authority made manifest in the Vaccines for Children program. These policies—federal and state—embraced the vaccination of infants, placing significant responsibilities of health citizenship on the shoulders of the nation’s youngest possible members. This approach represented the most cost effective route to a healthy populace as well as the most convenient one; as one pediatrician put it, “at least with infants you can capture them because you know you see them at birth.”<sup>138</sup> The

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<sup>137</sup> "Jenny McCarthy and Jim Carrey Discuss Autism; Medical Experts Weigh In," in *Larry King Live* (CNN, 2009). Transcript available at <http://transcripts.cnn.com/TRANSCRIPTS/0904/03/lk1.01.html>.

<sup>138</sup> Elisabeth Rosenthal, "Parents Face Questions on Vaccinating Infants for Hepatitis B," *New York Times*, March 3, 1993, C12.

vaccination of all children, as opposed to those at highest risk of infection, was also determined to be more cost-effective than screening for those at high risk of hepatitis B. Moreover, this approach conformed to the principles of early, universal vaccination against childhood disease that had been worked out decades before, with the administration of vaccines against rubella and mumps to all children at an early age. Hepatitis B wasn't ever considered a childhood disease, but the presence of an effective vaccine made it possible for health officials and pediatricians to treat it like one. Furthermore, the professional entrenchment of pediatric care as a preventive specialty and the political attainability of public health care services for children made the vaccination of children the most expedient means of protecting the population at large against any disease.

The realization of this era, defined by the federally advised universal vaccination of children against preventable infections, coincided with the arrival of broad-based criticism toward science and governmental authority generally, and toward vaccine scientists and policymakers specifically. The effects of this criticism would be felt, but not for several years: when state legislators attempted in 2006 to pass universal school mandates for another sexually transmitted, oncogenic infection—human papillomavirus—their efforts would meet with public outrage and legislative failure. Looking back, the laws mandating the vaccination of all children against hepatitis B had found a temporarily open window in the early to mid-1990s.<sup>139</sup> In the decade ahead, that window began to fall shut.

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<sup>139</sup> This conceptualization borrows from the concept of the “policy window” developed by political scientist John Kingdon. See John W. Kingdon, *Agendas, Alternatives, and Public Policies* (New York: Longman, 1995).

## Conclusion

In the current era of vaccination, unofficially heralded by the adoption of the Vaccination Assistance Act of 1962, the protection of the adult populace and future generations of Americans against the acute and far-ranging effects of severe and “mild” infections has rested in large part upon the shoulders—or literally, in the arms—of children. This era of vaccination, now roughly five decades old, was marked by several defining characteristics. In this period, federal authority in the area of vaccine recommendations became strong and widely recognized. Public acceptance of the mandatory universal vaccination of children became firmly established. And this acceptance was held in place by public awareness and acknowledgement of a health threat worth avoiding, in addition to a patchwork of local laws and regulations requiring vaccines for children attending daycare, grade school, and sometimes college.

In some cases, the designation of a health “threat” occurred upon the appearance of a vaccine itself. Neither mumps nor chicken pox nor, in the 2000s, cervical cancer—discussed below—were defined as public health priorities in and of themselves before their vaccines were licensed for use. But they were treated as such afterward. Vaccines brought attention to these diseases and others, and in the process refashioned the tools at hand for understanding the diseases and their risks. Sometimes, as in the case of measles and hepatitis B, the disease began to appear worse or more widespread than it had before, or it was framed as such in order to encourage vaccine uptake. In other instances, vaccines made diseases seem like an unnecessary inconvenience to a productive and comfortable middle-class lifestyle. This was the view captured in John F. Kennedy’s

announcement of the Vaccination Assistance Act in 1962, and it was the view Merck tried to capitalize on when it advertised its mumps vaccine over a decade later. (The company adopted the slogan, “To help avoid the discomfort, the inconvenience – and the possibility of complications: Mumpsvox.”<sup>1</sup>)

Kennedy’s promise on announcement of the Vaccination Assistance Act was that Americans no *longer* had to suffer preventable infections; it was also that *no* American should have to suffer. In the period introduced with Kennedy’s legislation, vaccines promised to be great equalizers in a nation whose health care system has been fraught with dramatic inequalities in access to care and services. The federal vaccine programs of recent decades have strived to make vaccines available to all children regardless of family means. Because they are demonstrably cost-effective (for the most part), easy to administer, and enforceable, vaccines and the policies that govern them have come to comprise a not-insignificant portion of this country’s universalized health care.

The nation’s vaccination enterprises have been astoundingly successful in this regard. In 2009, 95% of all children had received at least three doses of vaccine against diphtheria, pertussis, and tetanus; 93% were protected against polio; 90% were protected against measles, mumps, and rubella; 92% had basic immunizations against *Haemophilus influenza B*; 92% were immunized against hepatitis B; and 90% against varicella, or chicken pox. Less than one percent of children—in fact, just about one-half of one percent—received no vaccines at all.<sup>2</sup>

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<sup>1</sup> Merck, "The First Live Mumps Vaccine," *British Medical Journal* 2, no. 5910 (1974).

<sup>2</sup> Centers for Disease Control, "National, State, and Local Area Vaccination Coverage among Children Aged 19--35 Months --- United States, 2009," *Morbidity and Mortality Weekly Report* 59, no. 36 (2010): 1171-1177.

But while these overall coverage rates should have been adequate in most cases to establish herd immunity and keep the population free and clear of preventable infections, significant outbreaks of vaccine-preventable diseases continued to occur well into the 2000s. Some were attributed to communities with high concentrations of vaccine refusers.<sup>3</sup> Others, such as outbreaks of mumps and pertussis in 2010, occurred despite high vaccination rates, prompting health officials to wonder whether vaccine-induced immunity was waning, whether pathogens were evolving, or whether some genetic attribute left certain people still susceptible to disease despite vaccination.<sup>4</sup> The outbreaks were a reminder that the scientific and political promises made in the 1960s, of an era of freedom from infectious disease through vaccination, was not just far from realization, but an impossibility. Disease eradication and even control through vaccination in recent decades have proved more complicated than our successes in combating polio (locally) and smallpox (globally) foreshadowed. As Rosenberg has pointed out, the biological reality of disease is inescapable.<sup>5</sup>

To a significant extent, health officials and the media blamed the persistence of vaccine-preventable infections in the 2000s on vaccine refusers, whose numbers

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<sup>3</sup> Saad Omer et al., "Vaccine Refusal, Mandatory Immunization, and the Risks of Vaccine-Preventable Diseases," *New England Journal of Medicine* 360, no. 19 (2009): 1981-1988.

<sup>4</sup> Tara Parker-Pope, "Vaccination Is Steady, but Pertussis Is Surging-Wrong Use Other Version," *New York Times*, July 20, 2010, D1; Anemona Hartcollis, "Jewish Youths Are at Center of Outbreak of Mumps," *New York Times*, February 12, 2010, 2010; Jennie Lavine, Aaron King, and Ottar Bjornstad, "Natural Immune Boosting in Pertussis Dynamics and the Potential for Long-Term Vaccine Failure," *Proceedings of the National Academy of Science* 108, no. 17 (2011): 7259-7264. Outbreaks of measles and mumps that occurred in the 1980s, by contrast, were attributed to falling immunization rates due to federal and state budget cuts for vaccine programs, or to vaccines that proved less effective in practice than they had in vaccine trials. See Wharton et al., "A Large Outbreak of Mumps in the Postvaccine Era."

<sup>5</sup> Rosenberg, "What Is Disease?."

increased in the early part of the twenty-first century. Their numbers were typically equated to the number of nonmedical vaccine exemptions parents filed to enroll their children in school. In one county in northeastern Washington state—an admittedly egregious example—close to 27% of children had nonmedical exemptions from vaccine requirements on record in 2009.<sup>6</sup> In the 2000s, this vaccine resistance movement was galvanized by growing numbers of autism activists, many of whom continue, to this day, to blame vaccines for increasing autism rates absent any definitive evidence.<sup>7</sup> The heterogeneous movement also continued to draw members from the ranks of certain religious groups; small government proponents; social conservatives; parents demanding still more flexible vaccine policies and safer vaccines; and individuals whose selectively cautious approach to vaccines stemmed from personal experience or other sources of worry at a time when the list of required vaccines for their children grew ever longer.

But with the exceptions of notorious pockets of vaccine resisters, across the country childhood vaccination rates held strong in the 2000s, and this held true despite the increasingly visible and outspoken movement critical of vaccines and vaccine policies. A few years into the twenty-first century, federal authority on the subject of recommended vaccine use was widely recognized. The recommendations of the Advisory Committee on Immunization Practices were widely followed, and they routinely served as the basis for state-level laws and recommendations which, for the most part, parents

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<sup>6</sup> Omer et al., "Vaccine Refusal, Mandatory Immunization, and the Risks of Vaccine-Preventable Diseases."

<sup>7</sup> Paul A. Offit, *Autism's False Prophets: Bad Science, Risky Medicine, and the Search for a Cure* (New York: Columbia University Press, 2008); Seth Mnookin, *The Panic Virus: A True Story of Medicine, Science, and Fear* (New York: Simon & Schuster, 2011).

adhered to for their children, even as protests from vaccine skeptics grew ever louder. These facts suggested to health officials, lawmakers, and pharmaceutical executives that a broad-based consensus had been reached on the vaccination of children. But the limits to this consensus were vividly illustrated in the debate that erupted over the new vaccine Gardasil in 2006. Gardasil, a Merck vaccine against human papillomavirus (HPV), was the first vaccine to protect against an exclusively sexually transmitted infection. This alone helped make Gardasil and the proposed policies to govern its use contentious. But considered within the broader context of half a century of vaccinating children, the national debate over Gardasil that took place between 2006 and 2008 was yet one more illustration of the historical contingency of vaccine reception.

Gardasil's story contained many of the same elements of its late-twentieth-century predecessor vaccines, but its plot unfolded at an accelerated pace. The speed with which Gardasil was approved for market by the FDA, recommended for use by the Advisory Committee on Immunization Practices, and required for school enrollment by proposed state bills reflected an assumption on the part of Merck, government officials, and state lawmakers: that the new era of vaccination, marked by public acceptance of the mandatory universal vaccination of children, no matter the vaccine or the disease against which it protected, was firmly established. But proposed laws to require HPV vaccination for sixth-grade girls drew loud fire from a broad and diverse group of lay Americans, whose points of view were spread unprecedentedly far and wide through not just traditional media but the internet, which by this time provided a widely accessible and highly visible forum for the exchange of comments, opinions, and more.

Opposition to HPV vaccine mandates reflected long-held concerns about the proper role of the state in health matters, tensions over religious values, worries about risk, and changing ideas about authority and expertise. The debate bore the still-visible influence of feminist and environmentalist patterns of thought. It also highlighted still-unresolved questions about who vaccines are for, when they should be administered, how their administration should be encouraged, and how encouragement, or enforcement, might be adjusted for vaccines that protect against diseases of varying severity. The debate, that is, revived some of the very questions raised by mumps vaccine four decades before, only this time a far more diverse set of voices chimed in with their opinions on the matter, thanks to the rise of new media and the increasingly democratic nature of media coverage of scientific issues. That their heated opinions were heard far and wide and acknowledged in statehouses across the country, in fact, speaks to the historical moment in which Gardasil and proposed mandates were introduced.

For its first three years on the market, Gardasil was one of a kind; it was the first, and at that time only, vaccine to protect against several strains of HPV, a virus that causes genital warts and anogenital cancers, including cervical cancer.<sup>8</sup> To bring the HPV vaccine to market, the FDA gave it a priority review at Merck's request.<sup>9</sup> The ACIP, in apparent agreement with the FDA, also moved quickly to issue a set of "provisional

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<sup>8</sup> A second vaccine against HPV, GlaxoSmithKline's Cervarix, was approved for use in October 2009. See Food and Drug Administration, "Approval Letter – Cervarix," October 16, 2009. Available at <http://www.fda.gov>, accessed December 2009.

<sup>9</sup> The streamlined process is reserved for drugs that represent a major new advance in treatment or that serve an unmet need. Priority review requests are typically made by drug companies. See Food and Drug Administration, "Fast Track, Accelerated Approval and Priority Review." Available at <http://www.fda.gov>, accessed March 2011.



recommendations” on how the vaccine should be used; the committee recommended that the vaccine be administered to girls aged 11 to 12 years and that females between the ages of 13 and 26 get a “catch-up immunization.”<sup>10</sup> State regulations rapidly followed. In September 2006, three months after Gardasil’s approval, Michigan became the first state to consider a bill that would require all girls to receive the HPV vaccine before entering sixth grade. A few months later, Texas governor Rick Perry issued an executive order mandating the same. Michigan’s law didn’t pass, and Perry’s order caused a local outcry and was later overturned by his legislature. Nonetheless, in 2007 another two dozen states considered bills to make HPV vaccination a requirement of girls to enroll in school.<sup>11</sup>

The bills prompted protest in every state in which they were introduced; ultimately just one state, Virginia, succeeded in enacting an HPV vaccine mandate.<sup>12</sup> But while the heated resistance effectively killed bills that would have required the vaccine for girls entering sixth grade, one quarter of all teenage girls went ahead and got the shot voluntarily (or at a parent’s urging) during Gardasil’s first two years on the market.<sup>13</sup> As

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<sup>10</sup> Centers for Disease Control, "STD Prevention Counseling Practices and Human Papillomavirus Opinions among Clinicians with Adolescent Patients --- United States, 2004," *Morbidity and Mortality Weekly Report* 55, no. 41 (2006): 1117-1120. In the committee’s first formal recommendations, they added that the “vaccine can be administered as young as age 9 years.” The committee also ruled that the vaccine should be made available to indigent and uninsured girls through the federal Vaccines for Children program. Centers for Disease Control, “Vaccines Included in the VFC Program.” June 29, 2006. Available at <http://www.cdc.gov/vaccines/programs/vfc/downloads/resolutions/0606vaccines.pdf>, accessed March 30, 2011; Centers for Disease Control, "Quadrivalent Human Papillomavirus Vaccine: Recommendations of the Advisory Committee on Immunization Practices (ACIP)," *Morbidity and Mortality Weekly Report* 56, no. RR02 (2007): 1-24.

<sup>11</sup> National Conference of State Legislatures, “ HPV Vaccine: State Legislation and Statutes.” Available at <http://www.ncsl.org/default.aspx?tabid=14381>, accessed December 2007, January 2009, and April 2011.

<sup>12</sup> National Conference of State Legislatures, “ HPV Vaccine: State Legislation and Statutes.”

<sup>13</sup> Associated Press, "Cancer Vaccine Used by 25% of Girls 13 to 17 " *New York Times*, October 10, 2008, A21.

in previous disputes over vaccination, the shot itself wasn't necessarily the problem for every opponent. In this case, opposition to mandatory HPV vaccination reflected the belief that—if health citizenship was conceived as a combination of health-related rights and responsibilities—protection against the infection should be a right of U.S. citizens, and not a mandated responsibility, or indeed a condition, of that citizenship.<sup>14</sup>

To be sure, HPV mandates had strong supporters as well. On both sides of the debate, participants brought their values to bear on their characterizations of the vaccine and its target infection. To reproductive health advocates, such as the Guttmacher Institute and Planned Parenthood, high rates of cervical cancer among Hispanic, African American, and Vietnamese women were a reflection of social and economic injustices built into the health care system, which could be remedied with a federally subsidized, locally mandated vaccine. Indeed, this was the very vision embodied in federal reforms from Kennedy's Vaccination Assistance Act to Carter's Childhood Immunization Initiative to Clinton's Vaccines for Children Program. But to groups on the religious right, including Focus on the Family and the Family Research Council, HPV was first and foremost a sexually transmitted infection; administering the vaccine to every young girl in the country, they believed, was tantamount to condoning and even encouraging

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<sup>14</sup> A debate also followed the announcement that the Department of Homeland Security would require the shot for all immigrant women between the ages of 11 and 26, because immigration law required immigrants to get all immunization recommended by the ACIP. The requirement was ultimately abandoned. See Associated Press, "Green Card Applicants Mandated to Get HPV Vaccine," *New York Daily News*, October 3, 2008; Associated Press, "Immigrant Seekers Won't Have to Get HPV Vaccine," *USA Today*, November 16, 2009.

widespread premarital sex and promiscuity, a charge that had indeed been made about the hepatitis B vaccine a decade before.<sup>15</sup>

These were just a few of Gardasil's meanings. To survivors of cervical cancer, the vaccine was, like the polio vaccine once was to polio survivors, the magic bullet they wished they'd had access to. To some vaccine critics, like the National Vaccine Information Center, the hastily approved vaccine was one more example of government and industry's inattention to safety. To some African Americans (Washington, D.C. lawmakers attempted to require the shot for the district's largely black public schools), the vaccine smacked of medical experimentation on black people and racist assumptions about black teens: "After all, your daughter is 11 and probably black...so the assumption is she'll be having unprotected sex in no time," grumbled a columnist for *The Washington Post*.<sup>16</sup>

In drawing out these different opinions, the vaccine was effective in bringing attention to both HPV and cervical cancer, much the way vaccines against measles, mumps, and hepatitis B had helped bring added attention to those diseases in the past. This time, however, Merck's efforts in prompting the public conversation about HPV and its vaccine were visibly overt. As a result, for all of the ideological differences among the many participants in the debate over Gardasil, most were united in pointing an accusatory finger at the drug company for rushing the vaccine to market, strong-arming government

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<sup>15</sup> Sue Blevins, "Whose Life Is It Anyway?," *Regulation* 21, no. 4 (1998): 55.

<sup>16</sup> Courtland Milloy, "District's HPV Proposal Tinged with Ugly Assumptions," *The Washington Post*, January 10, 2007, B1.

committee members and state legislators, using young girls as “guinea pigs,” and taking things, on the whole, “too far.”

Merck’s activities with respect to Gardasil were unprecedented in some respects. Whereas Merck and other drug companies had advertised vaccines directly to health care providers in the past, this time, they marketed the shot and its target disease(s) directly to consumers on television and over the airwaves, taking advantage of a late 1990s regulatory change in pharmaceutical marketing guidelines.<sup>17</sup> Although HPV is the most common sexually transmitted infection in the U.S., much like hepatitis B in the 1970s and early 1980s it wasn’t widely feared. The majority of HPV infections don’t cause symptoms and clear up on their own, and studies conducted in the early 2000s revealed that most U.S. women had never heard of the virus. Of those who had heard of it, only half knew it had some link to cervical cancer.<sup>18</sup> Before Gardasil was approved, Merck ran an ad campaign featuring the catchphrase “tell someone,” in which women informed each other of the link between HPV and cervical cancer. After Gardasil was approved, Merck marketed it as a cancer (not HPV) preventive directly to the would-be targets of state mandates. Its new ads featured independent young women (riding horses, on the soccer

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<sup>17</sup> FDA guidelines issued in 1997 permitted direct to consumer advertising of prescription drugs through electronic media, including television for the first time. Meredith Rosenthal et al., "Promotion of Prescription Drugs to Consumers," *New England Journal of Medicine* 346, no. 7 (2002): 498-505; Julie Donohue, Marisa Cevasco, and Meredith Rosenthal, "A Decade of Direct-to-Consumer Advertising of Prescription Drugs," *New England Journal of Medicine* 357, no. 7 (2007): 673-681.

<sup>18</sup> J. A. Tiro et al., "What Do Women in the U.S. Know About Human Papillomavirus and Cervical Cancer?," *Cancer Epidemiology Biomarkers and Prevention* 16, no. 2 (2007): 288-294.

field, sewing their own clothes, playing drums, jumping double-dutch) who declared they had chosen to be “one less” victim of cervical cancer.<sup>19</sup>

The company’s highly visible marketing efforts combined with Gardasil’s price-tag to feed anti-Merck derision. At \$360 for a series of three shots, Gardasil was the most expensive vaccine ever marketed. It also quickly became one of the most profitable, earning Merck \$1.7 billion in its first full year on the market.<sup>20</sup> The media scrutinized the company’s activities, reporting on Texas governor Rick Perry’s ties to a Merck lobbyist, the drug company’s grants and speaking fees to doctors and patient organizations, and its financial support for Women in Government, an organization of female lawmakers that disseminated sample HPV legislation online and whose members introduced HPV related bills in state legislatures.<sup>21</sup> Few venues declined to participate in Merck’s skewering. The *Journal of the American Medical Association* published a review of the company’s lobbying activities, in which the authors condemned the company for deceptively

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<sup>19</sup> Deconstructions of Merck’s ads and its presentation of “risky girlhood” appear in Laura Mamo, Amber Nelson, and Aleia Clark, "Producing and Protecting Risky Girlhoods," in *Three Shots at Prevention: The HPV Vaccine and the Politics of Medicine's Simple Solutions*, ed. Keith Wailoo et al. (Baltimore: Johns Hopkins University Press, 2010), 121-145; Giovanna Chesler and Bree Kessler, "Re-Presenting Choice: Tune in HPV," in *Three Shots at Prevention: The HPV Vaccine and the Politics of Medicine's Simple Solutions*, ed. Keith Wailoo et al. (Baltimore: Johns Hopkins University Press, 2010), 146-164.

<sup>20</sup> Merck, “Driving Growth with our Commitment to Vaccines,” *2007 Annual Review*. (Whitehouse Station, N.J.: Merck & Co., Inc., 2007). Available at <http://www.merck.com/finance/annualreport/ar2007/home.html>, accessed April 2011. In 2008, the company swept the Phame Awards, the Academy Awards of the pharmaceutical industry, based on the “creative excellence” behind its Gardasil campaign. Matthew Arnold, "Gardasil Tops at Annual Phame Awards," *Medical Marketing and Media* 43, no. 6 (2008). Available online at <http://www.mmm-online.com/issue/june/01/2008/823/>, accessed March 2011.

<sup>21</sup> See for example Laura Smitherman, "Drug Firm Pushes Vaccine Mandate," *The Baltimore Sun*, January 29, 2007; Elizabeth Rosenthal, "Drug Makers' Push Leads to Cancer Vaccines' Rise," *New York Times*, August 20, 2008, A1; Lianne Hart, "Texas HPV Vaccine Mandate Meets Swift Resistance," *Los Angeles Times*, February 27, 2007, A25.

“minimizing” the sexual transmission of HPV, “maximizing” the threat of cervical cancer, and ignoring differentials of cervical cancer risk among “subpopulations.”<sup>22</sup>

But many of the acts Merck stood accused of in 2007 and 2008 had all been committed before—not just by drug companies, but by health officials, medical associations, and other groups looking to increase uptake of vaccines in the past. Historian Judith Sealander has argued that the National Foundation for Infantile Paralysis’s campaigns of the 1950s overstated the risk of death and paralysis from polio infection.<sup>23</sup> In the 1970s, health officials amplified the threat of mumps-induced complications to ensure the vaccination of all children (not just boys) against the disease. In the 1980s and 1990s, the sexually transmitted nature of hepatitis B was minimized in an effort to justify the widespread vaccination of infants and youth. And the deliberate downplay of differentials of disease risk among subpopulations had been a recurring feature of vaccination programs and policies for the previous fifty years. Indeed, seen in this light, the marketing and policy approaches to the HPV vaccine—including ACIP’s recommendation of the vaccine for young girls and state lawmakers’ efforts to mandate the same—followed from the progression of vaccine encouragement efforts over the previous five decades.

Merck’s plan to market a disease and its risk factor in order to sell a drug was also not novel, but belonged rather, to a broader historical trend in pharmaceutical promotion

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<sup>22</sup> Sheila M. Rothman and David J. Rothman, "Marketing HPV Vaccine: Implications for Adolescent Health and Medical Professionalism," *Journal of the American Medical Association* 302, no. 7 (2009): 781-786.

<sup>23</sup> Judith Sealander, *The Failed Century of the Child: Governing America's Young in the Twentieth Century* (New York: Cambridge University Press, 2003), 334.

that developed over the last half of the twentieth century. From the 1950s through the 2000s, drug companies marketed—to physicians and consumers—conditions ranging from social phobia to erectile dysfunction and risk factors including hypertension and high cholesterol, in order to sell their treatments as widely as possible.<sup>24</sup> Merck’s application of this tactic to cervical cancer fits within this familiar pattern. The marketing of cervical cancer risk to sell Gardasil also has precedent in both corporate and state attempts to sell vaccines over the previous decades. It was a CDC officer who in 1970 urged his colleagues to work harder to make measles “a more important disease to the medical and public mind.”<sup>25</sup> In the 1970s and 1980s, the marketing of the complications and prevalence of mumps, chicken pox, and hepatitis B was often accomplished more by health officials than by drug companies in an era when pharmaceutical advertising options were more restrained than they became in the 2000s. In all of these instances, public purchase was dependent on a deliberately constructed awareness of the dangers of a disease the public once thought of as harmless, if they thought of it at all. In the case of Gardasil, Merck took an established historical pattern and accelerated it to the point of inverting it. The company began marketing cervical cancer prevalence and the risk of HPV infection before government health officials themselves decided it was important to

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<sup>24</sup> See for example David Healy, *The Antidepressant Era* (Cambridge: Harvard University Press, 1997); Jeremy Greene, *Prescribing by Numbers: Drugs and the Definitions of Diseases* (Baltimore: Johns Hopkins University Press, 2007); Ray Moynihan and Alan Cassels, *Selling Sickness: How the World's Biggest Pharmaceutical Companies Are Turning Us All into Patients* (New York: Nation Books, 2005).

<sup>25</sup> Letter to Dr. Frank Perkins. August 10, 1970. Folder: General Correspondence-Dr. Wallace, Box 338638, Record Group 442, Centers for Disease Control National Archives and Records Administration, Southeast Region.

do so—and of course well before the public displayed any broad-based concern over either one.

The reception of every vaccine mandated for children over the past fifty years has been determined by socio-cultural context, and Gardasil proved no exception. Between 2006 and 2008, the two-year span in which Gardasil garnered ongoing media attention, popular responses to the vaccine and its promotion were shaped by anti-corporate fervor, anti-pharmaceutical sentiment, growing vaccine resistance, and related debates over vaccine access and safety.

In the years just prior to Gardasil's introduction, the nation had grappled with the sticky issue of vaccinating adults against perceived bioterror threats. In the aftermath of the terrorist attacks of September 11, 2001, the prospect of broad bioterror assaults on the U.S. prompted new calculations on the risks versus benefits of vaccines against smallpox and anthrax, and new conversations about who should get the vaccines, when compulsory measures were warranted, and how such decisions should be reached—all of which yielded no easy answers. Even in the context of war, Americans were ambivalent about the vaccines and the policies suggested to govern them.

When letters containing anthrax spores were sent through the mail to media offices and politicians in 2001, government authorities grappled with whether to use the limited and inadequately tested anthrax vaccine to protect postal workers and health care workers.<sup>26</sup> Almost immediately, some members of the public began demanding access to the vaccine for anyone who wanted it. At the same time, some members of the military,

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<sup>26</sup> Christopher Snowbeck, "On Terror/the Anthrax Scare: No Anthrax Needed for Public, Surgeon General Says," *Pittsburgh Post-Gazette*, October 10, 2001, A10; Arthur Allen, "Who Should Get the Anthrax Vaccine?," *Salon*, November 2, 2001.



who were forced to take the vaccine, filed suit against the Department of Defense, ultimately winning an injunction against the department's compulsory vaccination plans.<sup>27</sup> The simultaneous threat of a bioterror attack drove the nation to begin testing and stockpiling smallpox vaccine. Again, when government officials announced that vaccine stocks would be reserved for health care workers and other first-responders to an attack, some members of the public insisted upon access for themselves and their families.<sup>28</sup> In turn, studies to test new batches of smallpox vaccine were overrun with volunteers, prompting the *New York Times* to run a photo, from 1947, of millions of New Yorkers eagerly awaiting smallpox shots during a post-World War II epidemic.<sup>29</sup> But the nation's ambivalence was again on display when President George W. Bush announced that half a million military personnel and over 400,000 health care workers would be vaccinated against smallpox. Most of those promised access to the vaccine made it clear they didn't want it. Citing concerns about side effects, illness, and unanswered questions about how they would be compensated if the shot made them sick, most health care workers declined the offer.<sup>30</sup>

The post-September 11 vaccination disputes were a reminder that compulsory vaccination efforts have never been readily accepted in a nation founded upon the

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<sup>27</sup> Robert Pear, "Judge Halts Military's Required Anthrax Shots," *New York Times*, December 23, 2003, A23.

<sup>28</sup> Amy Argetsinger, "Smallpox Vaccine Studies Swamped with Volunteers," *Washington Post*, October 27, 2001, B1; Sheryl Gay Stolberg, "A Nation Challenged: Immunization - Vast Uncertainty on Smallpox Vaccine," *New York Times*, October 19, 2001, B5.

<sup>29</sup> Stolberg, "A Nation Challenged: Immunization - Vast Uncertainty on Smallpox Vaccine."

<sup>30</sup> Vicki Kemper and Rosie Mestel, "Medical Groups Criticize Bush's Smallpox Vaccine Plan," *The Los Angeles Times*, December 20, 2002, A32; Reuters, "First U.S. Smallpox Shot Reactions Reported," *CNN Health*, February 27, 2003.

preservation of individual liberties. (And nor have rationing efforts sat well in a nation founded on free enterprise.) Resistance to compulsion often has as much to do with fears of harm as it does with adherence to ideological principles, as it did in the disagreements over vaccination against smallpox and anthrax. Notably, while some parents demanded access to the vaccines for their children, government policies in these cases targeted adults—and adults, including the six military members who sued the Defense Department, made it clear that they preferred to take the vaccine on their own terms, after determining for themselves how the risks weighed out against the benefits.

The debate over Gardasil reflected this very ambivalence. Although compulsory proposals were rejected, many parents were willing to seek out the shots for their daughters on their own terms. But in this case, worries about how to accurately assess the benefits against the risks of vaccinating were complicated by a growing loss of trust in the pharmaceutical industry, which was part of a larger backlash against transnational corporations. The anti-globalization movement of the early 2000s charged corporations with ignoring environmental, worker, and consumer safety in their quest for ever-larger profits.<sup>31</sup> Merck seemed to exemplify the trend when, in 2004, its widely prescribed arthritis drug, Vioxx, was found to increase the risk of heart attack and stroke after five years on the market.<sup>32</sup> The news about Vioxx also came on the tail of reports that hormone replacement therapy, used for decades to treat the symptoms of menopause in

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<sup>31</sup> On the rise of the anti-globalization movement, see Luke Martell, *The Sociology of Globalization* (Cambridge: Polity Press, 2010); Saskia Sassen, *Cities in a World Economy*, 3rd ed. (Thousand Oaks, Calif.: Pine Forge Press, 2006).

<sup>32</sup> Terrance Neilan, "Merck Pulls Vioxx Painkiller from Market, and Stock Plunges," *New York Times*, September 30, 2004; Marc Kaufman, "Merck Found Liable in Vioxx Case," *The Washington Post*, August 20, 2005, A1.

women, also increased the risk of heart attacks, strokes, and certain types of cancer. These scares inflamed popular cynicism toward the profit-hungry pharmaceutical industry, whose ethical transgressions were an increasingly popular theme in books, movies, and television dramas. Even the editor of the *New England Journal of Medicine* took on the industry in her 2004 book *The Truth About the Drug Companies: How They Deceive Us and What To Do About It*, one of a spate of much-discussed volumes on the same subject that began appearing in bookstores and on talk shows in the early years of the decade.<sup>33</sup>

Compounding resistance to mandatory HPV vaccination was the fact that such proposals also came in the midst of a decade in which vaccine skepticism had been steadily ramping up, attracting increasing publicity against a backdrop of skyrocketing autism rates. Autism affected 1 in 10,000 children in the late 1980s; by 2001, some studies estimated that autism affected as many as 1 in 500 children.<sup>34</sup> Andrew Wakefield's 1998 study suggesting a link between autism and MMR became the impetus for new activist groups; added government reports, hearings, and studies; and a cacophony of testimonies, discussion boards, support groups, and other vaccine-skeptical discourse on the internet in the early 2000s.<sup>35</sup> In due course, Wakefield himself became a

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<sup>33</sup> Marcia Angell, *The Truth About the Drug Companies: How They Deceive Us and What to Do About It*, 1st ed. (New York: Random House, 2004). See also Greg Critser, *Generation Rx: How Prescription Drugs Are Altering American Lives, Minds, and Bodies* (Boston: Houghton Mifflin, 2005); John Abramson, *Overdosed America: The Broken Promise of American Medicine*, 1st ed. (New York: HarperCollins, 2004); Moynihan and Cassels, *Selling Sickness: How the World's Biggest Pharmaceutical Companies Are Turning Us All into Patients*; John Le Carré, *The Constant Gardener* (New York: Scribner, 2001).

<sup>34</sup> Philip Hilts, "House Panel Asks for Study of a Vaccine," *New York Times*, April 7, 2000, A20.

<sup>35</sup> Examples of books that both documented and were symptomatic of this trend include David Kirby, *Evidence of Harm: Mercury in Vaccines and the Autism Epidemic - a Medical Controversy*, 1st ed. (New York: St. Martin's Press, 2005); Offit, *Autism's False Prophets: Bad Science, Risky Medicine, and the*

hero of the movement, appearing at rallies and meetings where he offered hope to despairing parents for whom scientists otherwise had no answers. So did actress Jenny McCarthy, who in 2006 took to the talk-show circuit to describe her struggle to find causes and treatments for her son Evan's autism.

In 2007, McCarthy released a book on the subject, *Louder than Words*, in which she detailed the research that led her to believe vaccines caused the immune-system damage that triggered Evan's autism.<sup>36</sup> As lawmakers continued to debate mandatory HPV vaccines for girls, *Louder than Words*, with its plea for more cautious government vaccine policies, shot to the top of the nation's bestseller lists.<sup>37</sup> McCarthy had no scientific training, and Wakefield was stripped of his medical license following charges of conflicts of interest and fabricated data. But both were important figures nonetheless for parents who were continuing to lose faith in the assurances of industry and government scientists. Wakefield and McCarthy were respected as unbiased outsiders and as parents, a source of expertise many vaccine critics held more dear than years of academic training or experience in labs or government offices. For many vaccine-skeptical parents, Wakefield's own rejection by the scientific community confirmed that community's unbending intolerance of radical views. McCarthy, meanwhile, was proof of what the readers of *Mothering* and the authors of *A Shot in the Dark* had argued three decades before. A mother—or father—shouldn't rely unquestioningly on the advice of

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*Search for a Cure*; Dan Olmsted and Mark Blaxill, *The Age of Autism: Mercury, Medicine, and a Man-Made Epidemic*, 1st ed. (New York: St. Martin's Press, 2010).

<sup>36</sup> Jenny McCarthy, *Louder Than Words: A Mother's Journey in Healing Autism* (New York: Dutton, 2007).

<sup>37</sup> Data taken from the *New York Times* Bestseller List Archive at <http://www.hawes.com/pastlist.htm>.

experts, but should instead become informed on her own to make the best health care decisions for herself and her family. The premise reflected the messages of the consumer and women's health movements, increasingly on display in popular debates over vaccines.

Gardasil's socio-cultural context posed significant challenges for a drug company and health officials trying to frame cervical cancer and HPV as risks demanding immediate attention. Instead, vaccine skeptics and other cynical members of the public highlighted every fissure they could identify in proposed mandates: the vaccine didn't address all causes of cervical cancer; it had been tested on women, not the young girls for whom it was being recommended; and, at any rate, "what about the boys?"<sup>38</sup> Expressions of discomfort with this gendered approach to vaccinating highlighted one of the many larger, unresolved questions that Gardasil and efforts to mandate it also brought forth: *who* are vaccines for? Over the previous decades, the nation had engaged in vaccinating every member of the populace at ever-younger ages in order to "catch" citizens before they engaged in behaviors or activities that would put the health of their future, adult selves at risk. The interests of health officials, pediatricians, and parents aligned to make such policies possible. Though rubella posed the greatest risk to a pregnant woman's fetus, its vaccine was required for all girls and boys. Though mumps posed the most dreaded risk to post-pubertal males, it too was required for all children. Ditto for hepatitis B—after

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<sup>38</sup> Ajantha Jayabarathan, "What About the Boys?," *Canadian Family Physician* 54, no. 10 (2008): 1375. For a discussion of consumer-led demands to bring attention to HPV's role in anal cancer, see Steven Epstein, "The Great Undiscussable: Anal Cancer, HPV, and Gay Men's Health," in *Three Shots at Prevention: The HPV Vaccine and the Politics of Medicine's Simple Solutions*, ed. Keith Wiloo et al. (Baltimore: Johns Hopkins University Press, 2010), 61-90.

countless efforts to target at-risk populations, health officials settled on the universal vaccination of infants.

Such policies, based on the principle of herd immunity, possessed a just and ethical logic. If everyone was vaccinated, everyone was safe, no matter their individual risk. But Merck marketed Gardasil to girls, and federal and state officials recommended it exclusively for the same. Furthermore, largely through Merck's marketing efforts, the vaccine was positioned as a drug for individual, not community, benefit.<sup>39</sup> Marketing and legislative efforts targeting young girls therefore embraced neither the altruistic principle of herd immunity nor the targeted vaccination of highest-risk populations, and for these reasons seemed to confirm public suspicions that the mandates were blatantly about corporate profit.<sup>40</sup> Indeed, in this respect proposed mandates did *not* follow inexorably from the progression of vaccine encouragement efforts over the previous five decades, which had emphasized the need for universal immunization with recommended vaccines in order to reach the epidemiological and economic goals of the state as a whole, and not its individual members.

The state mandates proposed in 2007 and 2008 also revived a separate but related question health officials and medical professionals themselves had asked back in the 1960s: *what* are vaccines for? As one mother put it, a disease that killed less than 4,000

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<sup>39</sup> Robert Aronowitz, "Gardasil: A Vaccine against Cancer and a Drug to Reduce Risk," in *Three Shots at Prevention: The HPV Vaccine and the Politics of Medicine's Simple Solutions*, ed. Keith Wailoo et al. (Baltimore: Johns Hopkins University Press, 2010), 21-38.

<sup>40</sup> For examples of such charges from outspoken critics, see Peter Sprigg, "Don't Mandate HPV Vaccine -- Trust Parents," Family Research Council. Available at <http://www.frc.org/get.cfm?i=PV07D03>, accessed December 2007; Laura Schlessinger, "Mandatory Testing for Cervical Cancer for Pre-Teen Girls? I Don't Think So!" The Dr. Laura Blog. Available at <http://www.dr.laura.com/blog>, accessed December 2007.

U.S. women a year didn't seem a big enough risk to warrant vaccinating millions of girls.<sup>41</sup> When California's proposed HPV mandate got held up in the state legislature, the bill's sponsor attributed the disagreement to the fact that no one could agree whether HPV or cervical cancer were health priorities: "If this was a vaccine to eliminate or reduce breast cancer," he said, "we would not be having this discussion."<sup>42</sup> "I'm not against vaccines, but...women are not dying in the streets of cervical cancer," a policy professor told the *New York Times*.<sup>43</sup>

The cynicism and doubt underlying such comments belonged to a tradition of prolonged deterioration of trust in the medical profession, broadly construed. The appearance of such cynicism at this moment also spoke to the specific deterioration of trust in the nation's vaccine enterprise as a cooperative project of drug companies and government officials. For even physicians themselves pointed out that medicine had a perfectly good cervical cancer preventive, but that, "unfortunately, there is no lobby for the Pap smear."<sup>44</sup> But such expressions of cynicism *also* highlighted the need for broader consensus on the question of what diseases should be prevented with vaccines, and how. For much of the two-hundred year history of vaccination, the endpoint of enforced immunization was protection from (and in the mid-twentieth century, eradication of)

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<sup>41</sup> MaryAnna Clemons, "So Why Does the State Want to Require HPV Vaccinations?," *San Francisco Chronicle*, March 12, 2007, 7. In truth, because the HPV strains against which Gardasil protects are linked to 70% of cervical cancer cases, mass immunization would have prevented a smaller number of cases, namely, just over 2,500.

<sup>42</sup> Steve Lawrence, "Vote Delayed on Bill Requiring Girls to Be Vaccinated against HPV," *San Francisco Chronicle*, March 13, 2007.

<sup>43</sup> Elizabeth Rosenthal, "Drug Maker's Push Leads to Cancer Vaccines' Rise," *New York Times*, August 20, 2008, 1.

<sup>44</sup> Deborah Kamali, "Requiring a Vaccine for Young Girls," *New York Times*, February 10, 2007, 14.

severe, epidemic diseases. The use of vaccines against measles, mumps, and rubella in the 1960s and 1970s and chicken pox and hepatitis B in the 1980s and 1990s expanded the category of diseases against which mass vaccination was deployed, to encompass infections considered mild or of a circumscribed threat to the population as a whole. But this expansion was neither immediate nor unquestioningly accepted, and in each case, it was driven by, and in many cases reliant upon, a unique convergence of political and economic goals, popular values, and socio-cultural concerns. In Gardasil's case in 2006 and 2007, these goals and values failed to align in favor of a mandatory approach to vaccination.

By targeting children, the floated HPV mandates did conform to longstanding expectations regarding the health citizenship responsibilities of youth in ensuring a healthy future populace. Pediatric care and school enrollment offered established means of implementing and enforcing vaccination requirements. School attendance also offered an obvious means of spreading communicable diseases through a community, and therefore an obvious justification for school-based vaccination laws. But because HPV is an exclusively sexually transmitted infection, proposed school entry laws lacked a transparent logic; they also evoked tensions historically common to debates over the proper role of the state in the management of sexually transmitted infections.<sup>45</sup> In terms of its likely communicability in the school setting, HPV was little different from hepatitis B, but that virus's vaccine benefited from a tight link to AIDS and attendant cultural anxieties. The HPV vaccine also protected against cancer, but cancer-prevention was

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<sup>45</sup> See for example, Brandt, *No Magic Bullet: A Social History of Venereal Disease in the United States since 1880*; Porter and Porter, "The Enforcement of Health: The British Debate."



(and is) neither an established component of pediatric care nor an accepted health responsibility of the nation's youngest citizens.<sup>46</sup>

The expanded health responsibilities of child citizens, in the form of a lengthening list of required vaccines, were concomitant with children's growing rights as citizens in the last half of the twentieth century.<sup>47</sup> But prior to the 2000s, many of the health responsibilities of children were laid on those too young or ill-equipped to question them. In 2007 and 2008, by contrast, the rise of the internet and social media gave adolescent targets of vaccine mandates endless forums for their views on the matter. Within a year of Gardasil's approval, the websites MySpace, Facebook, and YouTube boasted thousands of groups, videos, blogs, profiles, postings, and forums related to Gardasil and the HPV vaccine. On MySpace and Facebook, teens asked each other the same questions their parents and doctors grappled with: Is the vaccine safe? Is it necessary? And should it be mandated?

While some adolescents used the sites to urge their peers to learn the facts and get vaccinated, others—both male and female—decried HPV vaccine mandates as sexist, offensive, degrading, an imposition, unnecessary, and incompatible with their religious and moral views. Some pointed out the high price of the vaccine and Merck's corner on the HPV vaccine market; others cited the Vioxx scandal as evidence that Gardasil, too,

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<sup>46</sup> On the history of struggles to define blame for cancer prevalence in the U.S. population, see James T. Patterson, *The Dread Disease: Cancer and Modern American Culture* (Cambridge: Harvard University Press, 1987); Markowitz and Rosner, *Deceit and Denial: The Deadly Politics of Industrial Pollution*; Robert Proctor, *Cancer Wars: How Politics Shapes What We Know and Don't Know About Cancer* (New York: BasicBooks, 1995); Devra Lee Davis, *The Secret History of the War on Cancer* (New York: BasicBooks, 2007).

<sup>47</sup> Fass and Mason, *Childhood in America*, 5.

might someday be proven unsafe. Young women cited their own side effects as evidence of the vaccine's hazards and asserted their personal views on the balance of their rights and responsibilities as health citizens, saying, "required vaccination of gardasil shots is a violation of individual rights", "we are not guinea pigs", and "its my body I ll make the decision for what goes in it [sic]."<sup>48</sup> On YouTube, female youth spoofed Merck's ads. One parody replaced the hip youth in Merck's Gardasil commercial with a sullen housewife, a gang member, a stripper, and an underage drinker, subverting the implications of universal risk inherent not only in the ads, but in federal recommendations and proposed state laws as well.<sup>49</sup> The commentary of female youth also signaled an inheritance of the very tenets of health feminism revealed in the vaccination disputes depicted in *Mothering*, *Vaccine Roulette*, and *A Shot in the Dark* a quarter century before.

In a 2004 essay on contemporary anti-vaccination movements, Robert Johnston documented a shift in the vaccine debate in the 1980s, when skepticism about the claims of science increased on the parts of experts, and anti-vaccine groups increasingly adopted a pro-science posture. "With significant changes on both sides of the vaccine debate," predicted Johnston, "we are entering another historic era in which we may be witnessing

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<sup>48</sup> <http://www.myspace.com>, <http://www.facebook.com>. Search terms: gardasil, cervical cancer, HPV. Accessed December 2007; May – September 2009; January 2009.

<sup>49</sup> Mollysevilfather, "You Could Be One Less," <http://www.youtube.com/watch?v=Yj7aSivwgvM>. For other clever parodies, see wowTHATSFUNNY954, "A parody commercial for gardasil called shymali," <http://www.youtube.com/watch?v=fa6IEARWpiM>; logomojo529, "Guard Yourself Commercial," <http://www.youtube.com/watch?v=9YkAhd0xWzU>. All accessed September 2008.

the birth of a new possibility, that of genuine dialogue—and therefore of a truly democratic science.”<sup>50</sup> The debate over the HPV vaccine reflected this shift. Between 2006 and 2008, doctors and health experts questioned the HPV vaccine’s limits and the wisdom of requiring the shot for all girls. Mothers of apparently vaccine-injured girls asked to work with “appropriate professionals to find answers.”<sup>51</sup> What’s more, the debate’s outcome and its range of voices, from teenage girls to government officials, suggested arrival at a moment, if not an era, of “truly democratic” scientific decision making—at least when it came to enforced vaccination.<sup>52</sup> But the rejection of proposed HPV vaccine mandates was not an historic inevitability, as Johnston’s prediction might suggest. Popular reaction to the vaccine and laws to require it were shaped by the historical moment in which they became visible to the broader public.

The debates over HPV vaccination gave credence to a long-held, discriminating form of vaccine skepticism. For many of the parents, youth, and physicians who spoke out against proposed mandates in 2007 and 2008 were not opposed to vaccines generally, but rather to efforts to require that particular vaccine, at that particular moment. Their concerns—Gardasil’s forceful and rapid entry into the marketplace, its side effects, doubts about its necessity, and its exclusive use in girls—had deep roots in popular vaccine skepticism simmering since the dawn of the new era of vaccination, in which vaccines against an ever-growing list of diseases of varying severity were commonly

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<sup>50</sup> Johnston, "Contemporary Anti-Vaccination Movements in Historical Perspective," 271.

<sup>51</sup> Emily Tarsell, <http://www.gardasilandunexplaineddeaths.com>, accessed March 2009.

<sup>52</sup> In 2008, even a member of the ACIP began to speak out against proposed mandates to require HPV vaccination for all girls. See Rosenthal, "Drug Makers' Push Leads to Cancer Vaccines' Rise."

made requisite for all children. The public's reaction to HPV vaccine mandates also reflected the culmination of decades of growing circumspection with respect to government, industry, and indeed authority in general fostered by the rhetoric and approaches of the social movements of the last half of the twentieth century.

The object of this cynicism was not just vaccines themselves, but the logic and the reasoning behind the policies governing their administration. For even after four decades of mass, universal vaccination of children against a growing number of infections, the limits of this approach remained ill defined. As measures that require, in a country founded on personal freedoms, the infringement of personal liberty for the benefit of the commons, mandatory vaccination efforts will continue to be fraught with tension. Because the HPV vaccine protects against a sexually transmitted infection, efforts to require it for girls were complicated by compounded tensions about adolescent sexuality, which was the object of high profile ideological disputes in the early 2000s.<sup>53</sup> But the Gardasil debates were neither simply about HPV's sexual transmission, nor Merck's heavy-handed promotion of the vaccine.

Like other vaccines before it, Gardasil was framed by the cultural and political preoccupations of its time. Related policies spotlighted unresolved questions about how vaccines against "milder" diseases of limited communicability and debatable epidemic stature should be deployed. Neither the public, nor scientists, nor policy makers, nor pharmaceutical companies had arrived at a singular, agreed-upon answer to the questions

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<sup>53</sup> See Chapter 8 in Alexandra M. Lord, *Condom Nation: The U.S. Government's Sex Education Campaign from World War I to the Internet* (Baltimore: Johns Hopkins University Press, 2010); Kristin Luker, *When Sex Goes to School: Warring Views on Sex--and Sex Education--since the Sixties* (New York: W. W. Norton & Co., 2006).

of what and who vaccines are for, and who, ultimately, should determine the health citizenship responsibilities of the nation's youth. In the resulting void, the HPV vaccine became the latest object of a long-standing and increasingly urgent debate. After much heated back and forth, the nation settled on a set of compromises to answer these questions with respect to Gardasil. The vaccine, like the many that came before it, offered a cutting-edge preventive to a long-standing health threat for those who wished to avail themselves of it. But children, specifically girls, would not be forced to take it—at least not at this point in time. It should come as no surprise, however, that when faced with our next new vaccine, the country may be forced to revisit the increasingly familiar set of questions raised by each new vaccine introduced over the last half century.

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