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SYSTEMS FAILURES IN POLICING

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Systems Failures in Policing

Joanna C. Schwartz*

I. INTRODUCTION

Four years ago, Ferguson Police Officer Darren Wilson killed Michael Brown. Brown's death has been credited with changing the national conversation about police violence.[1] Yet, since Michael Brown's death, thousands of people have been killed by the police.[2] Hundreds of them were unarmed.[3] And the public response to each killing—at least each killing that receives public attention[4]—continues to follow a predictable pattern.

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1. *See, e.g.*, Matt Berman, *Obama Speaks on the Ferguson Decision*, NAT'L J. (Nov. 24, 2014), https://www.nationaljournal.com/s/34927? [https://perma.cc/9drc-vgku] (quoting Attorney General Eric Holder saying Michael Brown's death "sparked a national conversation about the need to ensure confidence between law enforcement and the communities they protect and serve"); Gene Demby, *The Butterfly Effects of Ferguson*, NPR (Aug. 11, 2016), https://www.npr.org/sections/codeswitch/2016/08/11/489494015/the-butterfly-effects-of-ferguson [https://perma.cc/8F3A-EBHT] (describing effect of Brown's shooting on media and policing); Josh Hafner, *How Michael Brown's Death, Two Years Ago, Pushed #BlackLivesMatter into a Movement*, USA TODAY (Aug. 8, 2016), https://www.usatoday.com/story/news/nation-now/2016/08/08/how-michael-browns-death-two-years-ago-pushed-blacklivesmatter-into-movement/88424366/ [https://perma.cc/YQV3-ETBY] (crediting driving force behind Black Lives Matter to Brown's shooting). As one metric of the impact of Michael Brown's killing on discussions of police violence, a Westlaw search in June 2018 revealed more than 1,100 law review articles invoking Michael Brown's name.

2. *See, e.g.*, *The Counted: People Killed by Police in the US*, GUARDIAN, https://www.theguardian.com/us-news/ng-interactive/2015/jun/01/the-counted-police-killings-us-database [https://perma.cc/NK66-M6XS]; *Fatal Force 2017*, WASH. POST, https://www.washingtonpost.com/graphics/national/police-shootings-2017 [https://perma.cc/5UQ8-556J]. *The Guardian* and the *Washington Post* each use publicly available sources to track the number of police killings. *The Guardian* reports that 1,146 people were killed by police in 2015, and 1,093 people in 2016. *See The Counted: People Killed by Police in the US*, *supra*. The *Washington Post* reports that 995 people were killed by the police in 2015, 963 people in 2016, and 987 people in 2017. *See 2015 Washington Post Database of Police Shootings*, WASH. POST, https://www.washingtonpost.com/graphics/national/police-shootings/ [https://perma.cc/HF6L-DY39]; *Fatal Force 2016*, WASH. POST, https://www.washingtonpost.com/graphics/national/police-shootings-2016/ [https://perma.cc/2WZ3-HY92]; *Fatal Force 2017*, *supra*.

3. *See Fatal Force 2017*, *supra* note 2 (reporting 94 unarmed people killed by police in 2015, 51 in 2016, and 68 in 2017); *see also The Counted: People Killed in the US*, *supra* note 2 (reporting 235 unarmed people killed by police in 2015, and 170 in 2016).

4. *See Say Her Name*, AFR. AM. POL'Y F., http://www.aapf.org/sayhernamewebinar/ [https://perma.cc/VUH9-RBGB] (describing lack of attention Black female victims of police violence receive); *see also Why Some Police Shootings Get Media Attention While Others Don't*, NPR (July 25, 2016), https://www.npr.org/2016/07/25

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Police department officials, union leaders, plaintiffs' attorneys, activists, family members, and witnesses make competing claims about whether the force was justified—generally framed as whether the officer thought he saw a weapon or otherwise was in fear for his life.[5] Cell phone and body camera footage is scrutinized for evidence of the reasonableness of the officer's fear.[6] News stories explore an officer's past—particularly if he was previously accused of excessive force or other misconduct—and whether the police department that employs the officer properly hired, trained, and supervised him.[7] The family files a civil lawsuit, and a local or federal prosecutor considers indicting the officer. The success of the civil suit and the prosecution turns on whether the officer's use of force seemed reasonable in the moment.[8] The lawsuit likely settles, with no

/487303066/why-some-police-shootings-get-media-attention-while-others-dont [https://perma.cc/5UC7-3SRB] (describing why some police violence victims receive more media attention than others).

5. *See* Richard Fausset et al., *Alton Sterling Shooting in Baton Rouge Prompts Justice Dept. Investigation*, N.Y. TIMES (July 6, 2016), https://www.nytimes.com/2016/07/06/us/alton-sterling-baton-rouge-shooting.html [https://perma.cc/H7UL-LEKF] (describing statements from Louisiana's governor, Baton Rouge's police chief, police officers, and activists following shooting of Alton Sterling); Richard Pérez-Peña, *University of Cincinnati Officer Indicted in Shooting Death of Samuel Dubose*, N.Y. TIMES (July 29, 2015), https://www.nytimes.com/2015/07/30/us/university-of-cincinnati-officer-indicted-in-shooting-death-of-motorist.html?_r=0 [https://perma.cc/DAT2-XQBK] (describing statements, following Officer Ray Tensing's indictment, made by county prosecutor's office, Samuel Dubose's family members, Cincinnati's police chief, and various police practices experts); Michael S. Schmidt et al., *Police Officer in Ferguson is Said to Recount a Struggle*, N.Y. TIMES (Oct. 17, 2014), https://www.nytimes.com/2014/10/18/us/ferguson-case-officer-is-said-to-cite-struggle.html [https://perma.cc/9JTD-DL5S] (describing statements by Police Officer Darren Wilson and other witnesses regarding shooting of Michael Brown); Mitch Smith, *Philando Castile's Last Night: Tacos and Laughs, Then a Drive*, N.Y. TIMES (July 12, 2016), https://www.nytimes.com/2016/07/13/us/philando-castile-minnesota-police-shooting.html [https://perma.cc/46N2-YLDR] (describing statements by Philando Castile's family members and attorney, and Officer Jeronimo Yanez' attorney).

6. *See* Sarah Almukhtar et al., *Black Lives Upended by Policing: The Raw Videos that Have Sparked Outrage*, N.Y. TIMES (Apr. 19, 2018), https://www.nytimes.com/interactive/2017/08/19/us/police-videos-race.html [https://perma.cc/8PXS-6SYA]; Jeremy Gorner et al., *Top Police Brass Defended Laquan McDonald Shooting After Seeing Video, Records Show*, CHI. TRIB. (Dec. 23, 2016), http://www.chicagotribune.com/news/laquanmcdonald/ct-laquan-mcdonald-shooting-inspector-general-report-met-20161222-story.html [https://perma.cc/FCF2-NGQV]; Mark Guarino, *Video of Tamir Rice Shooting Shows Moment Police Kill 'Peace-Loving' Boy*, GUARDIAN (Nov. 26, 2014), https://www.theguardian.com/us-news/2014/nov/26/video-tamir-rice-shooting-police-peace-loving-boy [https://perma.cc/KZ9Q-37EF].

7. *See, e.g.*, Carol D. Leonnig et al., *Darren Wilson's First Job Was on a Troubled Police Force Disbanded by Authorities*, WASH. POST (Aug. 23, 2014), https://www.washingtonpost.com/national/darren-wilsons-first-job-was-on-a-troubled-police-force-disbanded-by-authorities/2014/08/23/1ac796f0-2a45-11e4-8593-da634b334390_story.html?noredirect=on&utm_term=.33c7da2b4b56 [https://perma.cc/7xwq-llx8] (describing Darren Wilson's background, police training, and employment at troubled, later-disbanded police department); Christine Mai-Duc, *Cleveland Officer Who Killed Tamir Rice Had Been Deemed Unfit for Duty*, L.A. TIMES (Dec. 3, 2014), http://www.latimes.com/nation/nationnow/la-na-nn-cleveland-tamir-rice-timothy-loehmann-20141203-story.html [https://perma.cc/PH82-4GMZ] (reporting Cleveland Officer Timothy Loehmann had resigned while in process of being fired from Independence Police Department, but Cleveland had not requested Loehmann's personnel file from Independence before hiring him).

8. *See infra* notes 96-98 and accompanying text (describing civil and criminal standards for liability).

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admission of guilt by the officer or department.[9] And the officer may be suspended, disciplined, or fired,[10] but is rarely indicted or convicted.[11]

In this all too familiar narrative, blame is often placed on "bad apple" officers who intentionally engage in misconduct fueled by racism, authoritarianism, and other pathologies.[12] Blame is also often directed to "bad barrels"—departments that perpetuate a culture of violence, promulgate policies that allow too much discretion, and inadequately train, supervise, and discipline their officers.[13] And

9. *See* Marc Fisher & Derek Hawkins, *Uneven Justice*, WASH. POST (Nov. 3, 2015), https://www.washingtonpost.com/sf/investigative/2015/11/03/uneven-justice/?utm_term=.07cc370849c3 [https://perma.cc/6VKX-ZLJ] (describing wide variation of amounts paid to settle lawsuits involving fatal shootings by police); Jasmine C. Lee & Haeyoun Park, *In 15 High-Profile Cases Involving Deaths of Blacks, One Officer Faces Prison Time*, N.Y. TIMES (Dec. 7, 2017), https://www.nytimes.com/interactive/2017/05/17/us/black-deaths-police.html [https://perma.cc/4F5J-G9KW] (describing fifteen high-profile killings of Black men and women, many of which led to seven-figure civil settlements, but few led to criminal charges or convictions).

10. *See* Jacey Fortin & Jonah Engel Bromwich, *Cleveland Police Officer Who Shot Tamir Rice is Fired*, N.Y. TIMES (May 30, 2017), https://www.nytimes.com/2017/05/30/us/cleveland-police-tamir-rice.html [https://perma.cc/D4YK-XCA9] (reporting termination of officer who shot Tamir Rice, and suspension of his partner); Nick Valencia & Steve Almasy, *Baton Rouge Police Officer Who Shot Alton Sterling Fired; Videos Released*, CNN (Mar. 31, 2018), https://www.cnn.com/2018/03/30/us/alton-sterling-investigation-police-hearing/index.html [https://perma.cc/JUC7-6ADU] (reporting termination of officer who shot Alton Serling for violating use of force policies).

11. *See* Marisol Bello et al., *Grand Jury Charges Are Easy, Except Against Police*, USA TODAY (Nov. 25, 2014), https://www.usatoday.com/story/news/nation/2014/11/25/ferguson-grand-jury/70098616/ [https://perma.cc/5ADF-M43J] (describing grand jury's decision not to indict Ferguson police officer Darren Wilson); Kimberly Kindy & Kimbriell Kelly, *Thousands Dead, Few Prosecuted*, WASH. POST (Apr. 11, 2015), https://www.washingtonpost.com/sf/investigative/2015/04/11/thousands-dead-few-prosecuted/?utm_term=.3b1bcf3bf36f [https://perma.cc/Z48B-XVM6] (reporting thousands of fatal police shootings over past ten years, but just fifty-four prosecutions); Lee & Park, *supra* note 9 (discussing infrequent prosecutions in fatal police shootings); Gail Sullivan, *Why It's So Difficult to Charge Police Officers Who Kill*, WASH. POST (Dec. 4, 2014), https://www.washingtonpost.com/news/morning-mix/wp/2014/12/04/why-its-so-difficult-to-charge-police-officers-who-kill/?utm_term=.87dbb0977454 [https://perma.cc/Y2NY-HRP6] (explaining officer will not be criminally charged or convicted if he demonstrates circumstantially "reasonable" conduct).

12. *See, e.g.*, Barbara E. Armacost, *Organizational Culture and Police Misconduct*, 72 GEO. WASH. L. REV. 453, 457-58 (2004) (describing police officials' statements blaming high-profile incidents of violence and misconduct on "bad apples" or rogue officers); Myriam E. Gilles, *Breaking the Code of Silence: Rediscovering "Custom" in Section 1983 Municipal Liability*, 80 B.U. L. REV. 17, 31-32 (2000) (observing municipalities often attribute police misconduct to actions by "bad apples"); John Fritze, *Jeff Sessions Voices Concern About Use of Consent Decrees For Police*, BALT. SUN (Jan. 10, 2017), http://www.baltimoresun.com/news/maryland/politics/blog/bal-jeff-sessions-voices-concern-about-use-of-consent-decrees-for-police-20170110-story.html [https://perma.cc/LB2J-YPVG] (reporting Attorney General Jeff Sessions said, "I think there is concern that good police officers and good departments can be sued by the Department of Justice when you just have individuals within a department that have done wrong"); Rachel Weiner, *Baltimore Detectives Convicted in Shocking Corruption Trial*, WASH. POST (Feb. 12, 2018), https://www.washingtonpost.com/local/public-safety/former-baltimore-detectives-convicted-in-corruption-trial-with-shocking-details/2018/02/12/961995a6-0a98-11e8-8890-372e2047c935_story.html?noredirect=on&utm_term=.1863387 [https://perma.cc/3QET-4S5D] (reporting Baltimore police chief blamed "few bad apples for giving the force a bad name"); *see also* Stephanie Cornish, *Rough Handling of Jason Goolsby Not Rare, D.C. Activists Say*, AFRO-AM. (Dec. 2, 2015), https://www.afro.com/rough-handling-of-jason-goolsby-not-rare-d-c-activists-say/ [https://perma.cc/2X66-3UCS] (reporting chairman of D.C. Police Union said, "[t]here are some bad apples in all police departments but the vast majority . . . are professional").

13. *See* Armacost, *supra* note 12, at 476 (proposing entire "barrel" responsible for individual "bad apple['s]" violent acts); Gilles, *supra* note 12, at 31 (advocating for focus on institutional failures and weaknesses

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blame is sometimes levelled more broadly at the criminal and civil justice systems for only anemically punishing and deterring wrongdoers.[14] Each account appears to understand police violence as the product of officers' willful, malicious, or reckless conduct that is abetted by their departments and ignored by the law. And each appears to expect that officers' behavior will improve if they are better trained and supervised, and threatened with internal discipline, civil suits, and criminal prosecution if they misbehave.

I agree that "bad apples" and "bad barrels" can lead to police violence and overreach. I also agree that departments need to do a better job of hiring, training, supervising, and disciplining officers, and that civil and criminal sanctions are not currently functioning as effective punishments or deterrents.[15] But if the goal is to reduce the frequency of police killings (and other acts of violence and overreach), improved officer training, supervision, internal discipline, and legal sanctions are not enough. In addition, we need to view—and respond to—these events as *systems failures*.

Researchers who study error in aviation, medicine, and other complex organizations agree that errors are the product of human failings and poorly designed systems.[16] When tragedies occur, human error almost always plays a role—people misperceive information, process it incorrectly, make careless mistakes, and sometimes act recklessly or maliciously. But faulty systems also play a role—technologies can be confusing, rigorous schedules can fatigue workers, organizational culture can stifle productive communication, and policies can put workers in situations where they have to make difficult decisions under high-stress conditions. A key insight of this body of research is that it is impossible to cure limitations of human perception, cognition, and decision making. Instead of focusing on training people to change their behavior—and threatening them with criminal, civil, or departmental sanctions if they fail to do so—a systems approach adjusts equipment, schedules, protocols, and policies in ways that can make it harder for people to err and can reduce the impact of error when it inevitably occurs.

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instead of "bad apples"); Conor Friedersdorf, *When Police Brutality Goes Beyond a 'Bad Apple' Cop*, ATLANTIC (Apr. 14, 2015), https://www.theatlantic.com/national/archive/2015/04/when-police-brutality-goes-beyond-a-bad-apple/390303/ [https://perma.cc/GGP3-LBH9] (arguing video evidence of police violence by multiple San Bernardino Sheriff's Deputies undermines isolated "bad apple" theory).

14. *See supra* notes 9-11.

15. For my prior work in these areas, see generally Ingrid V. Eagly & Joanna C. Schwartz, *Lexipol: The Privatization of Police Policymaking*, 96 TEX. L. REV. 891, 925-27 (2018) (criticizing company's use of force policy for giving officers too much discretion); Joanna C. Schwartz, *Police Indemnification*, 89 N.Y.U.L. REV. 885, 890 (2014) [hereinafter *Police Indemnification*] (finding law enforcement officers almost never contribute to settlements and judgments entered against them, dampening deterrent effect of civil damages actions); Joanna C. Schwartz, *Who Can Police the Police?*, 2016 CHI. L. F. 437, 441-42 (describing strengths and limitations of various police reformers, including civil plaintiffs and criminal prosecutors).

16. *See, e.g.*, CHARLES PERROW, NORMAL ACCIDENTS: LIVING WITH HIGH RISK TECHNOLOGIES (1984); JAMES REASON, HUMAN ERROR (1990) [hereinafter HUMAN ERROR]; JAMES REASON, MANAGING THE RISKS OF ORGANIZATIONAL ACCIDENTS (1997).

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A focus on systems contributors to error has been used for decades to improve the safety of aviation, nuclear power, and other complex industries.[17] Over the past thirty or so years, medicine has adopted some of aviation's strategies.[18] It is time for law enforcement to embrace a systems approach. When a person is shot by the police, we must still examine whether the shooting was justified, and officers should continue to be disciplined, sued, and prosecuted when they violate department policy or the law. But then, the conversation must turn to whether the shooting was preventable, and the ways in which technology, schedules, protocols, and policies could be adjusted to prevent another shooting in the future. These same questions should be asked when a person is wrongfully stopped, searched, arrested, convicted, or subjected to non-lethal force. And these same questions should be asked of all stakeholders—including but not limited to schools, hospitals, and mental health providers—that might be able to play a productive role in these conversations. This shift in perspective will likely be harder in policing than it has been in medicine or aviation, but is necessary if we want to make policing safer.

In this Article, I describe the origins of the systems approach and the way it has been used to improve safety in aviation and medicine.[19] Then, I show how the systems approach could be used to improve safety in policing.[20] Finally, I offer some tentative thoughts about why the systems approach has not gained significant traction in police reform efforts, and suggest some paths forward.[21]

II. THE SYSTEMS APPROACH

On January 26, 1986, the Space Shuttle *Challenger* exploded upon takeoff. O-rings, designed to seal a gap in the *Challenger*'s rocket boosters, were compromised by the cold air on the morning of the launch, allowing pressurized burning gas to enter the boosters. A presidential commission fixed the blame on NASA managers, who knew of—but did not disclose—problems with the O-rings so that the launch might stay on schedule.[22] A congressional investigation blamed the personnel responsible for designing the O-rings.[23] Both reports, along with accounts by journalists, contended that NASA managers succumbed

17. *See infra* notes 35-37 and accompanying text (describing safety innovations in aviation).

18. *See infra* notes 43-55 and accompanying text (describing safety innovations in medicine).

19. *See infra* Part II.

20. *See infra* Part III.

21. *See infra* Part IV.

22. *See* PRESIDENTIAL COMM'N ON THE SPACE SHUTTLE CHALLENGER ACCIDENT, REPORT TO THE PRESIDENT 105 (1986) (concluding explosion was caused by "what appears to be a propensity of management . . . to contain potentially serious problems" about the boosters' joint seals, and management's decision to launch "contrary to the views of its engineers in order to accommodate a major customer").

23. *See* COMM. ON SCI. AND TECH., INVESTIGATION OF THE CHALLENGER ACCIDENT, H.R. REP. NO. 99-1016, 4-5 (1986) (concluding "technical managers failed to understand or fully accept the seriousness of the problem" with O-rings).

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to financial, political, and media pressures to launch the *Challenger* despite known problems.[24]

Diane Vaughn, in her in-depth analysis of the *Challenger* disaster, resisted the prevailing inclination to fix blame on "schedule-oriented, amorally calculating managers who violated safety rules in response to production pressure," and instead offered a nuanced account of NASA's "incremental descent into poor judgment" in which information about technical problems was normalized and under-estimated over several years.[25] As Vaughan explained:

> No extraordinary actions by individuals explain what happened: no intentional managerial wrongdoing, no rule violations, no conspiracy. The cause of disaster was a mistake embedded in the banality of organizational life and facilitated by an environment of scarcity and competition, an unprecedented, uncertain technology, incrementalism, patterns of information, routinization, organizational and interorganizational structures, and a complex culture.[26]

According to Vaughn, blame for the launch decision should not have been focused solely on individuals directly involved with the decision to go forward with the launch. The launch decision was also the byproduct of longstanding weaknesses in technology, culture, organization, and information.

Studies of other catastrophic events have similarly concluded that errors are the product of a combination of human and systems factors. An examination of the radiation leak on Three Mile Island in 1979 found that the partial meltdown was attributable not only to the errant workers cutting pipes at the nuclear power plant, but also to the plant's malfunctioning pressure gauges, confusing control panel display, and faulty back-up system.[27] A study of the 1989 *Exxon Valdez* oil spill revealed the error was caused not only by the mistakes made by the drunken tanker operator, but also by failures in safety measures by the Coast Guard, tanker owners, and the consortium responsible for addressing tanker spills.[28] Review of the 2010 *Deepwater Horizon* oil spill showed that the spill was caused not by "rogue industry or government officials" but by "systemic" failures, including a series of cost-cutting measures by BP and its partners.[29] Although blame is often quickly fixed on those most directly involved, researchers examining these tragedies invariably find that human failures are just

24. *See* DIANE VAUGHAN, THE CHALLENGER LAUNCH DECISION 11 (1996).

25. *See id.* at xiii.

26. *See id.* at xiv.

27. *See* PERROW, *supra* note 16, at 19-21.

28. *See* Bradley C. Bobertz, *Legitimizing Pollution Through Pollution Control Laws: Reflections on Scapegoating Theory*, 73 TEX. L. REV. 711, 725-29 (1995).

29. *See* NAT'L COMM'N ON THE BP DEEPWATER HORIZON OIL SPILL AND OFFSHORE DRILLING, DEEP WATER: THE GULF OIL DISASTER AND THE FUTURE OF OFFSHORE DRILLING 122 (2011).

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"the final garnish to a lethal brew whose ingredients have already been long in the cooking."[30]

A key insight of this research is that it is more productive to address systems contributors to error than it is to address human contributors to error. Human error is impossible to avoid.[31] People can make mistakes even when performing tasks that are straightforward and second nature.[32] The more complex the cognitive demands associated with a task, the more ways there are to fail. Systems factors—including "time pressure, understaffing, inadequate equipment, fatigue, and inexperience"—can make it easier for people to make mistakes.[33] But adjustments to these systems—including changes to technology, scheduling, and standardized practices—can reduce the pressure on human cognition and thereby reduce the frequency of error and the severity of error when it occurs.[34]

Aviation has long adopted a systems approach to safety that recognizes and accommodates human fallibility.[35] Through checklists, crew briefings, communication protocols, and redundant technologies, aviation has dramatically reduced the frequency of crashes.[36] And when a crash occurs, the National Transportation Safety Board investigates the causes for the accident and makes safety recommendations to reduce the likelihood of a similar accident in the future.[37]

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30. HUMAN ERROR, *supra* note 16, at 173.

31. *See id.* at 148. "Errors are, as we have seen, the inevitable and usually acceptable price human begins have to pay for their remarkable ability to cope with very difficult informational tasks quickly and, more often than not, effectively." *Id.*

32. *See* James Reason, *Human Error: Models and Management*, 320 BRIT. MED. J. 768, 768 (2000).

33. *Id.* at 769.

34. *See id.*

35. *See* Robert L. Helmreich et al., *The Evolution of Crew Resource Management Training in Commercial Aviation*, 9 INT'L J. AVIATION PSYCHOL. 19, 19 (1999); Paul O'Connor et al., *Techniques Used to Evaluate the Effectiveness of CRM Training: A Literature Review*, 2 J. HUM. FACTORS & AEROSPACE SAFETY 217, 217 (2002). *See generally* SCOTT A. SHAPPELL & DOUGLAS WIEGMANN, U.S. DEP'T OF TRANSP., THE HUMAN FACTORS ANALYSIS AND CLASSIFICATION SYSTEM–HFACS (2000).

36. *See, e.g.*, Greg Griffin, *Human Error Is the Biggest Obstacle to 100 Percent Flight Safety*, DENVER POST (Feb. 13, 2010), https://www.denverpost.com/2010/02/13/human-error-is-biggest-obstacle-to-100-percent-flight-safety/ [https://perma.cc/2VWY-2AWC] (noting marked increase in flight safety due to technological advances); Kate Murphy, *What Pilots Can Teach Hospitals About Patient Safety*, N.Y. TIMES (Oct. 31, 2006), https://www.nytimes.com/2006/10/31/health/31safe.html [https://perma.cc/3KAV-9KGB] (describing incorporation of safety techniques from aviation into medical field); Michael Otieno, *Redundant Aircraft Systems Enhance Safety in Flying*, SADIM SOLS., http://sadimsolutions.com/redundant-aircraft-systems-enhance-safety-in-flying/ [https://perma.cc/MW2T-TVLQ] (noting "quantum leap" in safety processes and procedures over last fifty years); Svilen Petrov, *Technological Advancements Continue to Make Flying Safer and More Efficient*, WINGS J. (Apr. 5, 2018), https://www.wingsjournal.com/technological-advancements-continue-make-flying-safer-efficient-interesting-new-technologies-will-advance-aviation-industry-even-2018 [https://perma.cc/87TF-TNQS] (describing various technological advances contributing to increased airline safety).

37. *See The Investigative Process*, NAT'L TRANSP. SAFETY BD., https://www.ntsb.gov/investigations/process/Pages/default.aspx [https://perma.cc/6yef-anw7].

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Medicine has more recently, and more reticently, embraced these types of safety initiatives.[38] The regulation of medical care was long guided by what has been called the "perfectibility model"—the notion that physicians and nurses will not make mistakes if they are properly trained and motivated by the threat of discipline or lawsuits.[39] Apart from training medical personnel in appropriate standards of care and sanctioning them when they fell short, health care had few institutional safety initiatives. Accident investigations were superficial, "near misses" were not examined, and incident reports were infrequently filed.[40]

A seismic shift in medicine's approach to error can be traced to a report published by the Institute of Medicine (IOM) in 1999. In this report, *To Err Is Human*, the IOM drew on several studies to estimate that 44,000–98,000 people died every year as the result of medical error; explained that medical errors are often caused by system-wide weaknesses in policy, organization, equipment, and technology; and concluded that gathering and analyzing information about error was key to addressing these systemic weaknesses.[41] Although patient safety experts had long advocated for an alternative vision of medical errors—as the product of both human failures and system-wide weaknesses—the IOM's report has been credited with shifting the public's and policymakers' perspectives about the frequency of medical error, the causes of medical error, and the importance of designing systems to make error less likely.[42]

Even before the IOM's report, and certainly in the two decades since, medicine has adopted some of aviation's strategies to reduce error. For example, patient safety advocates have embraced checklists to improve patient safety. Checklists were first used in aviation over seventy years ago; as planes became more complicated, pilots began using checklists to ensure that everything was in order before takeoff.[43] In 2001, Peter Pronovost decided to create a checklist to reduce line infections at John Hopkins Hospital. The checklist included a series

38. *See* Robert L. Helmreich, *On Error Management: Lessons from Aviation*, 320 BRIT. MED. J. 781, 783 (2000) (describing how medical field can learn from aviation's crew resource management approach); Narinder Kapur et al., *Aviation and Healthcare: A Comparative Review with Implications for Patient Safety*, J. ROYAL SOC'Y MED. OPEN, Jan. 2016, at 1, 1 (observing how medicine adopted aviation's safety approaches, while noting differences in two industries); Rachel Wilf-Miron et al., *From Aviation to Medicine: Applying Concepts of Aviation Safety to Risk Management in Ambulatory Care*, 12 QUALITY & SAFETY HEALTH CARE 35, 36-37 (2003) (describing how aviation's safety approach applies to large ambulatory healthcare organization).

39. Lucian L. Leape, *Error in Medicine*, 272 JAMA 1851, 1852 (1994).

40. *Id.* at 1856.

41. *See* COMM. ON QUALITY OF HEALTH CARE IN AM., INST. OF MED., TO ERR IS HUMAN: BUILDING A SAFER HEALTH SYSTEM 1-15 (Linda T. Kohn et al. eds., 2000) (summarizing IOM's findings and recommendations).

42. *See* Eric J. Alper & Robert M. Wachter, *Medical Malpractice and Patient Safety: Tear Down That Wall!*, 86 ACAD. MED. 282, 282-83 (2011) (describing transformative effects of IOM's report); H. Thomas Stelfox et al., *The "To Err is Human" Report and the Patient Safety Literature*, 15 QUALITY & SAFETY HEALTH CARE 174, 174 (2006) (observing IOM's report "stimulated research and discussion about patient safety issues").

43. *See* Atul Gawande, *The Checklist*, NEW YORKER (Dec. 10, 2007), https://www.newyorker.com/magazine/2007/12/10/the-checklist [https://perma.cc/E7RY-EKJK] (describing Boeing's B-17 and development of aviation checklists).

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of common-sense steps—the doctor should wash her hands, clean the patient's skin, put sterile drapes on the patient, wear a sterile mask and gown, and put a sterile dressing over the catheter site.[44] A properly trained doctor would know to do each of these things, but Pronovost found that doctors regularly skipped at least one of these steps. Having the checklist meant that doctors did not have to remember what to do in a stressful situation, and also gave nurses license to remind doctors that they had not followed the checklist protocol. After a year using the checklist, the rate of line infections in the hospital dropped from eleven percent to zero.[45] In recent years, checklists have been used to improve processes for surgeries, hospital discharges, and services in intensive care and trauma units.[46]

Medical providers have also adjusted equipment to reduce the frequency of error. Anesthesiology was long considered the riskiest medical discipline, and human error was understood to be the cause of the vast majority of anesthesia-related deaths.[47] Researchers adopted strategies from aviation to understand the systems contributors to these errors.[48] These studies revealed a design flaw in anesthesia delivery machines that presented an obvious risk to patients: Some machines' flow control knobs turned in a clockwise direction while others turned counter-clockwise.[49] Some hospitals had both types of anesthesia machines. In a time-sensitive, high-pressure surgery, it was easy for an anesthesiologist to turn the knobs the wrong way. Since the 1970s, anesthesia machines have been redesigned and standardized, and these types of errors have become far less frequent.[50]

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44. *See id.*

45. *See id.*

46. *See, e.g.*, Matthew C. Byrnes et al., *Implementation of a Mandatory Checklist of Protocols and Objectives Improves Compliance with a Wide Range of Evidence-based Intensive Care Unit Practices*, 37 CRITICAL CARE MED. 2775, 2778 (2009) (observing improvements resulting from use of checklists in intensive care units); Ken R. Catchpole et al., *Patient Handover from Surgery to Intensive Care: Using Formula 1 Pit-stop and Aviation Models to Improve Safety and Quality*, 17 PEDIATRIC ANESTHESIA 470, 475-76 (2007) (observing improvements resulting from use of checklists in transfer of patients from surgery to intensive care); Joseph J. DuBose et al., *Measurable Outcomes of Quality Improvement in the Trauma Intensive Care Unit: The Impact of a Daily Quality Rounding Checklist*, 64 J. TRAUMA 22, 26 (2008) (observing improvements resulting from use of checklists in trauma intensive care units); Lakshmi K. Halasyamani et al., *Transition of Care for Hospitalized Elderly Patients—Development of a Discharge Checklist for Hospitalists*, 1 J. HOSP. MED. 354, 359 (2006) (describing development of a model checklist for hospital discharges).

47. *See* Jeffrey B. Cooper et al., *Preventable Anesthesia Mishaps: A Study of Human Factors*, 49 ANESTHESIOLOGY 399, 401-02 (1978) (reporting results of study examining human errors made in anesthetic practice).

48. *See id.*; *see also* David M. Gaba, *Anesthesiology As a Model for Patient Safety in Health Care*, 320 BRIT. MED. J. 785, 785 (2000) (explaining anesthesiology "found models for safety in anesthesia in other hazardous technological pursuits, including aviation").

49. *See* Jeffrey B. Cooper & Ronald Newbower, *The Anesthesia Machine: An Accident Waiting to Happen*, *in* HUMAN FACTORS IN HEALTH CARE (Ronald M. Pickett & Thomas J. Triggs eds., 1976).

50. *See* ASA COMM. ON EQUIP. AND FACILITIES, AM. SOC'Y OF ANESTHESIOLOGISTS, GUIDELINES FOR DETERMINING ANESTHESIA MACHINE OBSOLESCENCE (2004) (reporting "[a]ll vaporizers manufactured in recent years are designed to deliver increased vapor concentration when the dial is turned counterclockwise" and that

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A systems approach has also been used to change protocols to reduce the frequency of medication errors. Patients receive the wrong medication over one and a half million times every year in health care facilities across the country.[51] A hospital focusing on human error might require an errant nurse to receive additional training on the importance of double checking the proper medication or discipline the nurse in the hope that he or she will be more careful in the future. A systems approach examines how the hospital's medication delivery system may have contributed to the confusion.[52] Hospitals taking a systems approach have pre-dosed medications, separated medications with similar names and appearance, and used bar codes, like those used in supermarkets, to ensure that the correct patient is receiving the correct medication at the correct time.[53]

Each of these strategies have reduced medical errors not because health care providers got any better at their jobs, but because technologies, checklists, and protocols made it more difficult for them to make mistakes. This is not to suggest that medicine has unqualifiedly embraced a systems approach to reducing error. Indeed, it has been difficult to encourage the type of disclosure and transparency believed necessary to identify systems reforms, to spread innovations to hospitals and health care settings around the country, and to get medical staff to comply with these adjustments when they are in place.[54] But over the past thirty years, the medical profession has made a critically important conceptual shift. It has accepted the notion that medical error is frequent; that error is inevitable in high-stress, complex settings; and that by improving systems—including policies,

machines with dials that turn clockwise should be discarded); *see also* Jonas Shultz et al., *Standardizing Anesthesia Medication Drawers Using Human Factors and Quality Assurance Methods*, 57 CAN. J. ANESTHESIA 490, 490 (2010) (finding the standardization of anesthesia drawers decreased the risk of medication errors).

51. *See* Beth Partin, *Preventing Medication Errors: An IOM Report*, NURSE PRAC., Dec. 2006, at 8, 8.

52. *See* Theresa M. Pape, *Applying Airline Safety Practices to Medication Administration*, 12 MEDSURG NURSING 77, 92 (2003) (applying systems approach to reduce medication error).

53. *See* David W. Bates & Atul A. Gawande, *Improving Safety with Information Technology*, 348 NEW ENG. J. MED. 2526, 2528 (2003) (discussing measures taken by hospitals to reduce medication errors).

54. *See* Charles L. Bosk et al., *Reality Check for Checklists*, 374 LANCET 444, 444 (2009) (arguing that the effectiveness of checklists is limited by social and cultural factors in medicine); Eric G. Campbell et al., *Professionalism in Medicine: Results of a National Survey of Physicians*, 147 ANNALS INTERNAL MED. 795, 795 (2007) (finding ninety-six percent of surveyed doctors believe they should report impaired or incompetent colleagues, but forty-five percent had failed to do so); Carolyn M. Clancy, *Patient Safety: One Decade After* To Err is Human, 24 AM. J. MED. QUALITY 525 (2009) (applauding safety advances and arguing for "a continuation of the work currently underway, continued production and dissemination of evidence-based tools and solutions that make it easier for frontline healthcare workers to provide care in a coordinated and safe manner, and creation of incentives to help ensure that the right care is delivered at the right time—every time"); Robert M. Wachter, *Patient Safety at Ten: Unmistakable Progress, Troubling Gaps*, 29 HEALTH AFF. 165, 166 ex.1 (2010) (grading safety efforts "B-" ten years after *To Err Is Human* published, improvement from "C+" grade five years after publication); *see also* NAT'L PATIENT SAFETY FOUND., FREE FROM HARM: ACCELERATING PATIENT SAFETY IMPROVEMENT FIFTEEN YEARS AFTER *TO ERR IS HUMAN* 35 (2015) (recommending further action to improve patient safety advances and implementation).

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organization, protocols, and technologies—hospitals can make it more difficult for human error to occur.[55]

III. THE POTENTIAL OF A SYSTEMS APPROACH IN POLICING

At first glance, police officers, doctors, and airplane pilots may seem to have little in common. Although at a very general level each strives to keep people safe, they accomplish this goal in strikingly different ways. Police officers investigate crimes and arrest suspects; doctors diagnose and treat patients; and pilots guide airplanes onto runways. The differences become even starker when one imagines a day in the life of a SWAT team officer (breaking down a suspect's door with his firearm drawn), a scrubs-clad surgeon (placing a stent in a patient's weakened aorta), and a pilot (communicating with air traffic controllers about weather conditions and runway status while sitting in front of a complex computer display).

But police officers, health care professionals, and pilots share one critical workplace imperative: All three must make split-second, life or death decisions under conditions of uncertainty. In those split seconds, each must process a dizzying amount of information. They must perceive available facts about the emergent situation. They must recall what rules of behavior should apply. They must weigh the risks and benefits of available alternatives. And they must coordinate with others on their team. Cognitive psychologists have shown that people are particularly likely to err when making these types of complex, high-speed, high-stress, high-stakes decisions.[56]

Over the past several decades, aviation and medicine have adjusted protocols, policies, and technologies to reduce the incidence and severity of error. There is every reason to believe that police could improve their protocols, policies, and technologies in similar ways.[57] A variety of systems interventions come to mind

55. *See* NAT'L PATIENT SAFETY FOUND., *supra* note 54; Lucian L. Leape & Donald M. Berwick, *Five Years After* To Err Is Human: *What Have We Learned?*, 293 JAMA 2384, 2384 (2005) (describing effects of *To Err is Human* on perceptions and policies regarding medical errors).

56. *See supra* notes 31-34 and accompanying text (describing error research).

57. I am far from the first to observe that police can learn from safety efforts in aviation and medicine. For others who have made this same connection, see generally James M. Doyle, *Learning from Error in American Criminal Justice*, 100 J. CRIM. L. & CRIMINOLOGY 109 (2010) [hereinafter *Learning from Error in American Criminal Justice*]; Lawrence W. Sherman, *Reducing Fatal Police Shootings as System Crashes: Research, Theory, and Practice*, 1 ANN. REV. CRIMINOLOGY 421 (2018); Douglas Starr, *A New Way to Reform the Judicial System*, NEW YORKER (Mar. 31, 2015), https://www.newyorker.com/news/news-desk/the-root-of-the-problem [https://perma.cc/9QQ3-E3W5]. For similar observations regarding the potential of a systems approach for prosecutors, defense counsel, jails and prisons, fire safety, and community corrections, see James M. Doyle, *Essay: A 'Safety Model' Perspective Can Aid Diagnosis, Prevention, and Restoration After Criminal Justice Harms*, SANTA CLARA L. REV. (forthcoming 2018). I, and others, have also observed that police can learn other types of lessons from medicine. *See generally* Joanna C. Schwartz, *Introspection Through Litigation*, 90 NOTRE DAME L. REV. 1055 (2015) (arguing police departments should learn from medicine's efforts to gather and analyze information from lawsuits brought against them); Douglas Starr, *What Hospitals Can Teach Police*, N.Y.

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that could lessen the frequency with which officers are placed in complex, high-speed, high-stress, high-stakes situations, and improve officers' decision making in such situations when they occur.

One approach would be to limit, when possible, the high-stress circumstances in which officers and civilians interact. For example, police could limit their use of traffic stops.[58] One-third of police–civilian contacts in our country happen through traffic stops.[59] Eleven percent of police killings nationwide in 2015 occurred following traffic stops,[60] and people killed following traffic stops are disproportionately likely to be unarmed.[61] Black people are more likely than white people to be stopped, searched, and subjected to physical violence.[62] These sobering statistics can be understood as the product of systemic racism and a proclivity for intentional or reckless violence by law enforcement.[63] But these

TIMES (Apr. 21, 2018), https://www.nytimes.com/2018/04/21/opinion/sunday/hospitals-police-violence.html [https://perma.cc/8J76-PKHP] (arguing police should learn de-escalation approaches from medicine).

58. Although I focus here on limiting traffic stops, ending broken windows policing, the criminalization of minor offenses, and revenue generation through fines and fees would similarly reduce preventable harms by reducing the frequency with which police interactions occur. *See, e.g.*, Jamelle Bouie, *Broken Windows Policing Kills People*, SLATE (Aug. 5, 2014), http://www.slate.com/articles/news_and_politics/politics/2014/08/broken_windows_policing_deaths_racism_in_chokeholds_arrests_and_convictions.html [https://perma.cc/65FV-65MH] (describing how broken windows policing leads to police violence against Black and Latino New Yorkers); *End Broken Windows Policing*, CAMPAIGN ZERO, https://www.joincampaignzero.org/brokenwindows/ [https://perma.cc/JVM3-Z8BG] (proposing policy solutions to end broken windows policing); Eric Markowitz, *The Link Between Money and Aggressive Policing*, NEW YORKER (Aug. 11, 2016), https://www.newyorker.com/news/news-desk/the-link-between-money-and-aggressive-policing [https://perma.cc/J5S9-DNSA] (describing aggressive policing as a means of generating municipal revenue through fines). For a masterful description of the way in which these policies—and other factors—expose African-Americans to repeated front-end contact with the police, and thereby increase the possibility of police violence, see generally Devon W. Carbado, *Blue-on-Black Violence: A Provisional Model of Some of the Causes*, 104 GEO. L.J. 1479 (2016).

59. *See* LYNN LANGTON & MATTHEW DUROSE, DEP'T OF JUSTICE, POLICE BEHAVIOR DURING TRAFFIC AND STREET STOPS, 2011, at 2 fig.1 (2013), https://www.bjs.gov/content/pub/pdf/pbtss11.pdf [https://perma.cc/L69S-VY67].

60. *See* Wesley Lowery, *A Disproportionate Number of Black Victims in Fatal Traffic Stops*, WASH. POST (Dec. 24, 2015), https://www.washingtonpost.com/national/a-disproportionate-number-of-black-victims-in-fatal-traffic-stops/2015/12/24/c29717e2-a344-11e5-9c4e-be37f66848bb_story.html?utm_term=.3f206bbfebd2 [https://perma.cc/8BCQ-AJUA] (reporting more than 100 people were shot and killed by police after traffic stops in 2015, and one in three were Black).

61. Ben Montgomery et al., *Why Cops Shoot*, TAMPA BAY TIMES (Apr. 5, 2017), http://www.tampabay.com/projects/2017/investigations/florida-police-shootings/why-cops-shoot/ [https://perma.cc/Z77H-Vkkk] ("Of the 827 shootings [in Florida], about [ten] percent started with a traffic stop and ended in bloodshed. And almost [seventy] percent of people shot during traffic stops weren't armed with a gun.").

62. *See* LANGTON & DUROSE, *supra* note 59 (reporting police stop statistics). The report's finding reveals that thirteen percent of Black respondents reported that their most recent contact with police was when they were pulled over, compared to ten percent of white respondents; that Black drivers were more likely to believe that the police did not stop them for a legitimate reason; that six percent of Black respondents and two percent of white drivers were searched after they were stopped; and that police are more likely to use force against Black people after stopping them. *See id.*

63. *See, e.g.*, German Lopez, *How Systemic Racism Entangles All Police Officers—Even Black Cops*, VOX (Aug. 5, 2016), https://www.vox.com/2015/5/7/8562077/police-racism-implicit-bias [https://perma.cc/Q2M3-2GJ6] (describing how systemic racism and policing tactics cause officers to act "in ways that are deeply racially skewed and, potentially, racist"); *The Systemic Racism in Baltimore's Police Force*, WASH. POST (Aug. 10, 2016), https://www.washingtonpost.com/opinions/the-systemic-racism-in-baltimores-police-force/2016/08

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statistics can also be understood as evidence of a system designed to fail. As Jordan Blair Woods has explained, the "dominant narrative" in policing is that "routine traffic stops are fraught with grave and unpredictable danger to the police."[64]

> Police academies regularly show officer trainees videos of the most extreme cases of violence against officers during routine traffic stops in order to stress that mundane police work can quickly turn into a deadly situation if they become complacent on the scene or hesitate to use force. With technological advances, these violent examples are also included as scenarios in virtual simulation programs that train officers in how to protect themselves during routine traffic stops. Video clips and simulations make these extreme cases of violence all the more real for officers and define how they come to perceive the dangers of the routine traffic stops that they eventually conduct.[65]

Woods has also shown that officers are very rarely injured or killed following routine traffic stops.[66] But, given their training, it should be no surprise that police officers find traffic stops to be highly stressful events.[67] Officers usually know nothing about the person they have stopped. As an officer is walking up to the car window, he is likely to be primed for the possibility that the person he has stopped is armed and dangerous, and that he may need to make a split-second decision about whether to use force. The officer will, therefore, be under the

/10/86ce448a-5f3f-11e6-9d2f-b1a3564181a1_story.html?utm_term=.1cf5170 [https://perma.cc/V5AY-HAZR] (reporting Department of Justice's report about Baltimore Police Department shows "Baltimore has long had two enforcement regimes: one for African Americans, which is often unlawful and unconstitutional, and another for everyone else.").

64. Jordan Blair Woods, *Policing, Danger Narratives, and Routine Traffic Stops*, 117 MICH. L. REV. (forthcoming Feb. 2019) (manuscript at 2) (on file with author).

65. *Id.* (manuscript at 3).

66. *See id.* (manuscript at 4).

67. *See* JAMES BOYCE, CRIMINAL JUSTICE INST., UNIV. OF ARK. SYS. SCH. OF LAW ENF'T, POLICE OFFICERS UNDER STRESS 5 (2006) (describing officer stress caused by traffic stops); *see also* Jason Hoschouer, *5 Basic Principles for Conducting a Safe Traffic Stop*, POLICEONE.COM (June 30, 2014), https://www.policeone.com/police-products/traffic-enforcement/articles/7336680-5-basic-principles-for-conducting-a-safe-traffic-stop/ [https://perma.cc/E8E2-25K9] (describing unpredictability and uncertainty surrounding traffic stops); Amaury Murgado, *How to Approach Traffic Stops*, POLICE (Nov. 26, 2012), http://www.policemag.com/channel/careers-training/articles/2012/11/traffic-stops.aspx [https://perma.cc/5FVD-DFRP] (asserting traffic stops have two threat levels: "at risk or at high risk"); Dave Werner, *Traffic Stops Stressful for Cops*, ADIRONDACK DAILY ENTER. (Mar. 7, 2016), http://www.adirondackdailyenterprise.com/opinion/columns/safety-on-the-roads-by-dave-werner/2016/03/traffic-stops-stressful-for-cops/ [https://perma.cc/9QNZ-A4JB] (describing any traffic stop being "stressful for a police officer" unaware of whether drivers are armed); John Wills, *Routine Traffic Stops*, OFFICER.COM (June 3, 2013), https://www.officer.com/on-the-street/body-armor-protection/article/10952972/routine-traffic-stops [https://perma.cc/4R4W-3UTU] (reporting "there are ***no*** routine traffic stops" and asserting "[o]fficers need to be vigilant every moment" in anticipating assaults during traffic stops).

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very type of cognitive strain that heightens implicit biases and makes error more likely.[68]

Investigations of shootings following traffic stops focus on whether the officer reasonably thought the person in the car was a threat.[69] But what if departments limited the number of interactions that officers have with the people they stop?[70] Limiting traffic stops would do nothing to better prepare officers for the types of split-second decisions they need to make when approaching a driver's window. And it would do nothing to address the underlying reasons force is so regularly used in traffic stops. Instead, this policy change would make it less common for officers to interact with drivers, and would thereby reduce the frequency with which officers are in one type of high-pressure situation that requires split-second decision making. Samuel Dubose, Sandra Bland, Walter Scott, Philando Castile, and untold others might be alive today if this policy had been adopted nationwide in 2015.

Changes in technology might also reduce the frequency of preventable shootings. There have been repeated instances of what is called "Taser confusion"—where an officer reports that they attempted to tase someone but mistakenly shot them with a gun instead. The officer who shot and killed Oscar Grant at the Fruitvale BART Station in Oakland said he thought he was tasing him.[71] A reserve deputy in Tulsa, Oklahoma shot and killed Eric Harris after a foot chase, and claimed he thought that he was deploying his Taser.[72] In Baldwin County, Georgia, Jamel Jackson was shot in the arm by Deputy Charles Gillis

68. *See* Jillian K. Swencionis & Phillip Atiba Goff, *The Psychological Science of Racial Bias and Policing*, 23 PSYCH., PUB. POL'Y & L. 398 (2017) (describing studies showing cognitive demand increases the risk of racial bias in policing); Melissa Healy, *How Your Racial Biases Can Change in a Heartbeat*, L.A. TIMES (Jan. 17, 2017), http://www.latimes.com/science/sciencenow/la-sci-sn-racial-bias-heartbeats-20170117-story.html [https://perma.cc/N74N-B88K] (describing studies showing people under stress more prone to implicit bias, particularly when under threat of danger).

69. *See supra* notes 5-6 (describing civil and criminal assessments of police force).

70. For other suggestions in this vein, see Conor Friedersdorf, *End Needless Interactions With Police Officers During Traffic Stops*, ATLANTIC (Jul. 8, 2016), https://www.theatlantic.com/politics/archive/2016/07/end-needless-interaction-with-cops-during-traffic-stops/490412/ [https://perma.cc/V89N-585A] (suggesting "[a] police officer who sees a car with a broken taillight, or a malfunctioning blinker, should pull it over, park behind it, photograph the license plate, and issue a 'fix it' ticket to the registered owner of the vehicle without ever approaching a window or interacting with anyone on the roadside"); Christopher Kutz, *For a Safer America, Curtail Traffic Stops*, L.A. TIMES (Aug. 13, 2015), http://www.latimes.com/opinion/op-ed/la-oe-0813-kutz-traffic-stops-20150812-story.html [https://perma.cc/UX48-SSN2] (arguing traffic stops result in risks to officers and citizens with no proven benefit to public safety).

71. *See* Jack Leonard, *Former BART Officer Convicted of Involuntary Manslaughter*, L.A. TIMES (Jul. 8, 2010), http://articles.latimes.com/2010/jul/08/local/la-me-bart-verdict-20100709 [https://perma.cc/RCA4-TKQK]; *see also* Greg Meyer, *The BART Shooting Tragedy: Lessons to Be Learned*, POLICEONE.COM (Jul. 12, 2010), https://www.policeone.com/less-lethal/articles/2095072-The-BART-shooting-tragedy-Lessons-to-be-learned/ [https://perma.cc/89M7-D9AE].

72. *See* Matt Pearce, *Oklahoma Reserve Deputy Grabs Gun Instead of Taser, Kills Suspect*, L.A. TIMES (Apr. 12, 2015), http://www.latimes.com/nation/la-na-tulsa-shooting-20150412-story.html [https://perma.cc/B75J-973K].

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after a deputy called for a Taser.[73] There is a vigorous debate about whether Taser confusion actually exists, and whether a Taser and gun can reasonably be confused.[74] But it is undeniable that Tasers are shaped like handguns, have sighting and trigger systems similar to handguns, and are carried in holsters, as are handguns.[75] What if Tasers were shaped differently? What if they had a button instead of a trigger? What if they were not kept in holsters?[76] And when a group of officers are called to a scene—as they were to the Fruitvale BART Station the night Oscar Grant was killed—what if just one officer was given a Taser to deploy if necessary, and he was not also carrying a gun, to limit the possibility of confusion in a chaotic scene?

Police could also limit officers' overtime and secondary employment to reduce violence and error that result from officer fatigue. It is well established that sleep deprivation and exhaustion lead to error: Physicians-in-training who work too long are more likely to injure their patients; transportation accidents have been linked to pilots and drivers who have worked too many hours; and miners' long hours and working conditions create safety hazards underground.[77]

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73. *See* Crimesider Staff, *Video: Deputy Who Meant to Pull Out Taser Shoots Teen*, CBS NEWS (Oct. 23, 2017), https://www.cbsnews.com/news/video-deputy-who-meant-to-pull-out-taser-shoots-teen/ [https:perma.cc/UJD5-L3NE].

74. *See, e.g.*, Force Sci. Inst., *Force Science Explains "Slips-and-Capture Errors"*, POLICEONE.COM (July 22, 2010), https://www.policeone.com/police-products/firearms/training/articles/2144171-Force-Science-explains-slips-and-capture-errors/ [https://perma.cc/KCR3-LTWC] (describing expert testimony in a criminal trial that Taser confusion is psychological phenomenon called "slip-and-capture error"); Dave Smith, *BART Shooting Raises Issue of TASER Confusion*, POLICEONE.COM (Jan. 6, 2009), https://www.policeone.com/officer-shootings/articles/1772254-BART-shooting-raises-issue-of-TASER-confusion/ [https://perma.cc/NE3J-ZNSN] (recommending training and policy changes to reduce likelihood of Taser confusion); Holly Yan, *How Easy is it To Confuse a Gun For a Taser*, CNN (May 31, 2016), https://www.cnn.com/2015/04/14/us/taser-gun-confusion/index.html [https://perma.cc/HCN3-RWUL] (noting similarities and differences between guns and Tasers); *see also* Greg Meyer, *TASER Guidelines Updated for First Time Since 2005*, POLICEONE.COM (Apr. 22, 2011), https://www.policeone.com/police-products/less-lethal/TASER/articles/3590368-TASER-guidelines-updated-for-first-time-since-2005/ [https://perma.cc/A39U-AUS9] (advocating for "weak-side holsters and weak-hand draws" to reduce weapons confusion).

75. *See* Jeffrey A. Martin, *Applied Human Error Theory: A Police Taser-Confusion Shooting Case Study*, 60 PROC. HUM. FACTORS & ERGONOMICS SOC'Y ANN. MEETING 475, 475 (2016) (describing how "TASERs manufactured by TASER International, Inc. are configured with pistol-style grips, and are drawn, aimed and discharged similarly to handguns"); *see also TASER Pulse Subcompact Shooting Stun Gun w/ Laser*, THE HOME SEC. SUPERSTORE, https://www.thehomesecuritysuperstore.com/self-defense-stun-guns-mini-stun-guns-taser-pulse-stun-gun-with-laser-39061-p=5700 [https://perma.cc/34BT-7NKH] (advertising Taser "shaped like a handgun").

76. At the time BART Officer Johannes Mehserle shot Oscar Grant, BART had a "communal Taser policy"—meaning that each officer did not have their own Taser. Instead, the Department kept its Tasers in a drawer at police headquarters. Some holsters were left-handed, and others were right-handed. Officers could change the position of their holster, but doing so required removing some screws with an Allen wrench and others with a Phillips-head screwdriver. *See* Demian Bulwa, *Position of Mehserle's Taser Holster May Be Key*, SFGATE (Feb. 14, 2010), https://www.sfgate.com/crime/article/Position-of-Mehserle-s-Taser-holster-may-be-key-3200231.php [https://perma.cc/W5KJ-RAN9]. Such technology seems as prone to error as anesthesiology machines that turn in different directions. *See supra* notes 49-50 and accompanying text.

77. For studies examining the effects of fatigue on these types of work, see, for example, Marcin Butlewski et al., *Fatigue of Miners as a Key Factor in the Work Safety System*, 3 PROCEDIA MANUFACTURING 4732, 4732

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Unsurprisingly, fatigued law enforcement officers are also more likely to err.[78] Studies have found that fatigued officers "were significantly more likely to associate African-Americans with weapons," received more complaints, were more likely to be involved in use of force incidents, and were more likely to commit ethics violations.[79] Rules limit the amount of time pilots and medical residents can work as a way of reducing error.[80] Why not limit the number of hours police officers can work, and limit their ability to take on secondary employment?

Checklists, like those used before pilots take flight or doctors begin a surgery, could also be used by law enforcement agencies to reduce errors in high pressure situations.[81] Officers could use checklists before searching cars to ensure that they are following the Constitution. Special Weapons and Tactics (SWAT) teams could use checklists before beginning a raid to ensure that they have targeted the correct house and have the correct equipment.[82] Police departments could use checklists to quickly identify people who are mentally ill,[83] and follow

(2015); John K. Lauber & Phyllis J. Kayten, *Sleepiness, Circadian Dysrhythmia, and Fatigue in Transportation System Accidents*, 11 SLEEP 503, 503-04 (1988); Steven W. Lockley et al., *Effects of Healthcare Provider Work Hours and Sleep Deprivation on Safety and Performance*, 33 JOINT COMM'N J. ON QUALITY & PATIENT SAFETY 7, 11 (Nov. Supp. 2007).

78. *See* KAREN L. AMENDOLA ET AL., POLICE FOUND., THE SHIFT LENGTH EXPERIMENT: WHAT WE KNOW ABOUT 8-, 10-, AND 12-HOUR SHIFTS IN POLICING 35-36 (2011), (reporting 12-hour shifts cause officers to be less attentive and more fatigued); Seth W. Stoughton, *Moonlighting: The Private Employment of Off-Duty Officers*, 2017 U. ILL. L. REV. 1847, 1882-83 (2017) (describing ways fatigue can affect officer judgment and behavior); Bryan Vila, *Sleep Deprivation: What Does it Mean For Public Safety Officers?*, NAT'L INST. JUST. J., Mar. 2009, at 26, 29 (recommending departments give officers adequate rest time to reduce risk to themselves and others).

79. Mike Maciag, *The Alarming Consequences of Police Working Overtime*, GOVERNING (Oct. 2017), http://www.governing.com/topics/public-justice-safety/gov-police-officers-overworked-cops.html [https://perma.cc/LC7V-JxQx]; *see* U.S. DEP'T OF JUST., INVESTIGATION OF THE NEW ORLEANS POLICE DEPARTMENT 72 (2011) (finding New Orleans Police Department's paid detail system, whereby officers could accept secondary employment, "facilitates a system in which officers are so fatigued that it compromises their own safety, impacts their long term well-being, and impacts the quality of their work").

80. *See Fact Sheet—Pilot Fatigue Rule Comparison*, FED. AVIATION ADMIN. (Dec. 21, 2011), https://www.faa.gov/news/fact_sheets/news_story.cfm?newsKey=12445 [https://perma.cc/SDC8-AQJA] (describing pilot duty-hour limits); Melody Peterson, *Young Doctors Can Work 28 Hours Straight Under New Rules*, L.A. TIMES (Mar. 10, 2017), http://www.latimes.com/business/la-fi-medical-resident-hours-20170310-story.html [https://perma.cc/Z9JE-WS7C] (describing work limit rules on medical residents, including recent changes loosening prior restrictions).

81. Indeed, *Miranda* warnings can be understood as a sort of checklist, created by the Supreme Court, to systematize the manner in which officers protect suspects' constitutional rights during interrogations. For discussions of how *Miranda* changed due process analyses of interrogations, see Davon W. Carbado, *From Stop and Frisk to Shoot and Kill:* Terry v. Ohio*'s Pathway to Police Violence*, 64 UCLA L. REV. 1508, 1536-37 (2017); Kenji Yoshino, Miranda*'s Fall*, 98 MICH. L. REV. 1399, 1408-15 (2000). This is not to say that *Miranda* is an effective checklist. For a discussion on examples of *Miranda*'s failure to protect suspects' constitutional rights, see Charles D. Weisselberg, *Mourning* Miranda, 96 CAL. L. REV. 1519 (2008).

82. *See* OFFICE OF THE ATTORNEY GEN., CAL. DEP'T OF JUSTICE, COMM'N ON SPECIAL WEAPONS & TACTICS (S.W.A.T.), FINAL REPORT 7 (2002) (recommending development of "[a] generic checklist to be worked through prior to initiating a tactical action," and appending sample checklists from San Diego Sheriff's Department for high risk entries and use of a SWAT team).

83. *See* Force Science Inst., *New Checklist Being Tested to Help Cops Respond to People with Mental Illness*, POLICE ONE.COM (Dec. 1, 2011), https://www.policeone.com/emotionally-disturbed-persons-edp/articles

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guidelines specifically designed for interactions with people suffering from mental illness.[84] To be sure, checklists are ill-suited to simplify decision making in some situations in aviation and medicine, and would similarly be ill-suited to simplify decision making in some situations in policing.[85] But checklists that are short, simple, easy to read, and set out a clear procedure would reduce officers' cognitive strain in any number of stressful circumstances.[86]

Thus far, I have focused on systems interventions in police departments. But a systems approach can and should have an even broader lens.[87] For example, although a checklist can help police officers identify people who are mentally ill and guide officers' interactions with people suffering from mental illness, violent interactions between the mentally ill and law enforcement might also be reduced through changes to standards for involuntary commitments, hospital discharges, and outpatient services,[88] and the provision of more comprehensive mental health services.[89] Given the significant percentage of people involved in the

/4777754-New-checklist-being-tested-to-help-cops-respond-to-people-with-mental-illness/ [https://perma.cc/2FHK-R6G5] (describing checklist with approximately twenty indicators of behavior associated with mental illness to help police identify those with mental illness).

84. *See* Christian Mason et al., *Responding to Persons with Mental Illness*, FBI L. ENF'T BULL. (Feb. 4, 2014), https://leb.fbi.gov/articles/featured-articles/responding-to-persons-with-mental-illness-can-screening-checklists-aid-law-enforcement [https://perma.cc/W3FE-XMEY] (proposing law enforcement personnel dealing with potentially mentally ill persons use checklist in conjunction with strategies on how to engage individuals based on their responses to checklist); *see also* Gary Howell, *The Dark Frontier: The Violent and Often Tragic Point of Contact Between Law Enforcement and the Mentally Ill*, 17 SCHOLAR 343, 367 (2015) (describing "urgent need for a coherent, federal policy" to "standardize[]" and "measure[] . . . law enforcement interaction with the mentally ill").

85. *See, e.g.*, Robyn Clay-William & Lacey Colligan, *Back to Basics: Checklists in Aviation and Healthcare*, 24 BRIT. MED. J. QUALITY & SAFETY 428, 430 (2015) (arguing medicine should "reserve [checklists] for processes that are simple, easy to follow, standardized and (perhaps) time critical").

86. For a description of the components of an effective checklist, see ATUL GAWANDE, THE CHECKLIST MANIFESTO: HOW TO GET THINGS RIGHT (2009).

87. For a similar observation in another context, see generally Jennifer E. Laurin, *Remapping the Path Forward: Toward a Systemic View of Forensic Science Reform and Oversight*, 91 TEX. L. REV. 1051 (2013) (arguing that the integrity of forensic science in criminal justice depends in part on "upstream users or forensic science," including police and prosecutors).

88. *See* ORANGE CTY. GRAND JURY, THE MENTAL ILLNESS REVOLVING DOOR: A PROBLEM FOR POLICE, HOSPITALS, AND THE HEALTH CARE AGENCY 31 (2015), https://www.calhospital.org/sites/main/files/file-attachments/grand_jury_mental_illness_website_0.pdf [https://perma.cc/476B-SS4B] (describing how long patients in Orange County may be held, and asserting premature release of some mentally ill patients can have "deadly consequences"); *see also* James R. Roberts, *InFocus: The Risks of Discharging Psych Patients AMA*, EMERGENCY MED. NEWS, July 2016, at 14, 14, https://journals.lww.com/em-news/Fulltext/2016/07000/InFocus__The_Risks_of_Discharging_Psych_Patients.8.aspx [https://perma.cc/4EYD-3F8S] (suggesting "[t]he controlled environment . . . of a hospital setting" is extremely important to psychiatric patients because "[o]utpatient services and support for the psychiatric patient are difficult to orchestrate effectively").

89. *See, e.g.*, Haley Sweetland Edwards, *Should Mentally Ill People Be Forced Into Treatment?*, TIME (Feb. 20, 2015), http://time.com/3716426/mental-illness-treatment-cost/ [https://perma.cc/K7G5-JRJ8] (advocating for the use of Assisted Outpatient Treatment programs to "stabilize people with serious mental illnesses, and to keep them from ending up in a hospital, homeless or incarcerated"); Jeneen Interlandi, *How Can We Treat the Seriously Mentally Ill Before Tragedy Occurs, Instead of After?*, PAC. STANDARD (Jan. 4, 2016), https://psmag.com/social-justice/how-can-we-treat-the-seriously-mentally-ill-before-tragedy-occurs-instead-of-after [https://perma.cc/LJ58-3Y3Z] (suggesting two institutional changes to help mentally ill get treatment before

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criminal justice system who have also used emergency medical and psychiatric services, these types of upstream interventions are critically important to explore.[90]

These are just a few examples of possible systems reforms. They are meant to be illustrative rather than prescriptive. In other fields, including medicine and aviation, systems reforms are the product of significant research into the root causes of past errors. Similar research should be used to identify the root causes of errors in law enforcement, and design reforms.[91] My goal with these examples is to show how attention to systems contributors to error might broaden the focus of reform efforts. Training, supervision, and punishment remain critically important aspects of police oversight and reform, particularly when officers have acted intentionally or recklessly. But a systems approach recognizes that not all harms are the result of intentional or reckless behavior, and looks for changes to policies, scheduling, and protocols that would make police officers' split-second, high-pressure, high-intensity decision making less frequent, and thereby make errors less likely to occur.

IV. CHALLENGES OF THE SYSTEMS APPROACH IN POLICING

Although a systems approach in policing holds great promise, that promise is largely unrealized. In 2006, one hospital official said that the world of medicine was "where the airline industry was 30 years ago" in terms of safety.[92] Today, in 2018, the world of policing is where medicine was thirty years ago—if we are lucky.

Most policies and laws governing the police are structured in a manner fundamentally hostile to a systems approach. While human error researchers

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it's too late: a "community-based system" providing support at early signs of illness, and "laws that enable[] judges and doctors to force [patients] to accept that support *before* [they] reach[] the point of hospitalization").

90. *See* Kimberly Kindy & Kennedy Elliott, *2015 Police Shootings Investigation*, WASH. POST (Dec. 26, 2015), https://www.washingtonpost.com/graphics/national/police-shootings-year-end/ [https://perma.cc/K6VR-TK7E] (reporting one-quarter of people killed in 2015 were mentally ill or experiencing a mental health crisis); *see also* ANNE MILGRAM ET AL., HARV. KENNEDY SCH., EXEC. SESSION ON CMTY. CORR., INTEGRATED HEALTH CARE AND CRIMINAL JUSTICE DATA—VIEWING THE INTERSECTION OF PUBLIC SAFETY, PUBLIC HEALTH, AND PUBLIC POLICY THROUGH A NEW LENS: LESSONS FROM CAMDEN, NEW JERSEY 1 (2018) (finding "a small number of Camden residents have an enormous and disproportionate impact on the health care and criminal justice sectors"); *Fatal Force 2016*, *supra* note 2 (finding mental illness played role in twenty-five percent of police killings); *Fatal Force 2017*, *supra* note 2 (finding mental illness played a part in twenty-four percent of police killings); The Spotlight Team, *Families Failed by a Broken Mental Health System Often Have No One to Call But Police*, BOS. GLOBE (July 6, 2016), http://apps.bostonglobe.com/spotlight/the-desperate-and-the-dead/series/police-confrontations/?p1=Spotlight_MI_Overview_Read [https://perma.cc/E9G9-9KAS] (noting one-third of all police shootings in Massachusetts between 2005 and 2015 "involved an apparent mental health crisis" and "[n]early half of people killed by Massachusetts police over the last 11 years were suicidal, mentally ill, or showed clear signs of crisis").

91. *See infra* Part IV (discussing challenges associated with crafting and implementing systems reforms in law enforcement).

92. Kate Murphy, *What Pilots Can Teach Hospitals About Patient Safety*, N.Y. TIMES (Oct. 31, 2006), http://www.nytimes.com/2006/10/31/health/31safe.html [https://perma.cc/2n5z-JUC8].

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recognize the inevitability of human error in high-stress conditions, and emphasize the importance of designing systems that make error less likely to occur, policies and practices in most police departments only heighten the pressure on officers to make split-second decisions with incomplete information. Police officers are expected to comply with policy manuals that are hundreds of pages long and cover everything from vehicle pursuits, to the proper use of canines and Tasers, to protocols for domestic violence investigations.[93] One use of force policy, adopted by thousands of law enforcement agencies across the country, instructs officers to consider seventeen different factors when deciding whether force is reasonable.[94] People are particularly likely to make errors in

93. *See, e.g.*, CITY OF SAN JOSE POLICE DEP'T, DUTY MANUAL (2018), http://www.sjpd.org/Records/Duty Manual.asp [https://perma.cc/H2U8-VPAC]; CLEVELAND DIV. OF POLICE, GENERAL POLICE ORDERS (2015), http://www.city.cleveland.oh.us/sites/default/files/forms_publications/GPO_Book11-24-15.pdf [https://perma.cc/M9GJ-6YVN]; NEW ORLEANS POLICE DEP'T, POLICY MANUAL (2017), http://nola.gov/nopd/publications/documents/new-orleans-police-department-policy-manual-2014-1/ [perma.cc/3AN4-6BH7]; PHX. POLICE DEP'T, PPD INFO CENTER OPERATIONS ORDERS (2018), https://www.phoenix.gov/policesite/Documents/operations_orders.pdf [perma.cc/GZY3-R9ZE]; SALT LAKE CITY POLICE DEP'T, SLCPD POLICY MANUAL (2018), http://www.slcdocs.com/police/ppm.pdf [https://perma.cc/Q7HC-YFAN].

94. *See, e.g.*, PALO ALTO POLICE DEP'T, POLICY MANUAL (2013), https://www.cityofpaloalto.org/civicax/filebank/documents/38381 [https://perma.cc/GX78-5SS5]. This policy, crafted by Lexipol LLC, instructs officers to consider:

> (a) Immediacy and severity of the threat to officers or others.
> (b) The conduct of the individual being confronted, as reasonably perceived by the officer at the time.
> (c) Officer/subject factors (age, size, relative strength, skill level, injuries sustained, level of exhaustion or fatigue, the number of officers available vs. subjects).
> (d) The effects of drugs or alcohol.
> (e) Subject's mental state or capacity.
> (f) Proximity of weapons or dangerous improvised devices.
> (g) The degree to which the subject has been effectively restrained and his/her ability to resist despite being restrained.
> (h) The availability of other options and their possible effectiveness.
> (i) Seriousness of the suspected offense or reason for contact with the individual.
> (j) Training and experience of the officer.
> (k) Potential for injury to officers, suspects, and others.
> (l) Whether the person appears to be resisting, attempting to evade arrest by flight or is attacking the officer.
> (m) The risk and reasonably foreseeable consequences of escape.
> (n) The apparent need for immediate control of the subject or a prompt resolution of the situation.
> (o) Whether the conduct of the individual being confronted no longer reasonably appears to pose an imminent threat to the officer or others.
> (p) Prior contacts with the subject or awareness of any propensity for violence.
> (q) Any other exigent circumstances.

Id. at 49-50. For examples of other department manuals that include this policy language, see PASADENA POLICE DEP'T, POLICY MANUAL: POLICY 300–USE OF FORCE 2, 3 (2018), https://ww5.cityofpasadena.net/police/wp-content/uploads/sites/57/2017/02/Policy-300-Use-of-Force.pdf [perma.cc/YTW4-FFXL]; RIVERSIDE POLICE DEP'T, RIVERSIDE PD POLICY MANUAL 58-59 (2018), https://riversideca.gov/rpd/ChiefOfc/manual.pdf [perma.cc/GK2J-ZHCG]; LEXIPOL, CALIFORNIA STATE MASTER POLICE DEPARTMENT: POLICY MANUAL (on file with author). For a discussion of Lexipol LLC and its role in police policymaking, see generally Eagly & Schwartz, *supra* note 15.

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high-speed, high-stress situations—which presumably includes situations in which deadly force might be necessary—and lengthy, ambiguous police policies only increase the complexity of these decisions and the pressure on officers when making them.

Then, when tragedy strikes—when, for example, an unarmed person is shot by a police officer—police policies and the law forgive officers if they err in high-pressure circumstances. *Graham v. Connor*,[95] the decision by the United States Supreme Court that set standards guiding the constitutionality of uses of force, provides that:

> The "reasonableness" of a particular use of force must be judged from the perspective of a reasonable officer on the scene, rather than with the 20/20 vision of hindsight . . . . The calculus of reasonableness must embody allowance for the fact that police officers are often forced to make split-second judgments—in circumstances that are tense, uncertain, and rapidly evolving—about the amount of force that is necessary in a particular situation.[96]

In other words, if an officer is in a tense, uncertain, and rapidly evolving situation, it is reasonable for the officer to use deadly force against someone he believes is armed, even if it turns out that the person was not in fact carrying a weapon.[97] Similarly, the officer can escape guilt in a criminal trial if a reasonable officer in his situation would have feared for his life.[98] Police policies generally

95. 490 U.S. 386 (1989).

96. *See id.* at 396-97 (1989).

97. *See* Quiles v. City of Tampa Police Dep't, 596 F. App'x 816, 820 (11th Cir. 2015) (finding no constitutional violation after unarmed man was shot during a traffic stop); Lamont v. New Jersey, 637 F.3d 177, 184 (3d Cir. 2011) (finding state trooper's use of force was reasonable because he reasonably but mistakenly believed suspect was drawing a gun from his waistband); Penley v. Eslinger, 605 F.3d 843, 856 (11th Cir. 2010) (finding police officer who fatally shot 15-year old student holding a toy gun acted in objectively reasonable manner); Billingsley v. City of Omaha, 277 F.3d 990, 995 (8th Cir. 2002) (finding jury could properly conclude it was objectively reasonable for officer to shoot an unarmed suspect because suspect's arm and shoulder position made him seem armed); Reese v. Anderson, 926 F.2d 494, 501 (5th Cir. 1991) (reversing district court's denial of summary judgment because it was reasonable for officer to believe suspect was unarmed and, therefore, reasonable and not excessive to shoot him).

98. *See, e.g.*, Jamelle Bouie, *The Cloak of "Fear"*, SLATE (June 23, 2017), http://www.slate.com/articles/news_and_politics/politics/2017/06/why_fear_was_a_viable_defense_for_killing_philando_castile.html [https://perma.cc/3AA5-X4QP] (describing how officer's fear can be a defense against criminal charges); Joseph Goldstein, *Is a Police Shooting a Crime? It Depends on the Officer's Point of View*, N.Y. TIMES (July 28, 2016), https://www.nytimes.com/2016/07/29/nyregion/is-a-police-shooting-a-crime-it-depends-on-the-officers-point-of-view.html [https://perma.cc/BS95-NTJ3] (reporting standard for prosecutions of officers often turns on "the perspective of the officer, with an officer's sense of danger given significant weight," and describing several instances in which officers were not indicted because of subjective fears); David A. Graham, *The Laws and Rules That Protect Police Who Kill*, ATLANTIC (Dec. 29, 2015), https://www.theatlantic.com/politics/archive/2015/12/tamir-rice-no-indictment-reform/422079/ [https://perma.cc/3DKV-39AM] (describing officer protections against criminal indictment, prosecution, and conviction); German Lopez, *Police Shootings and Brutality in the U.S.: 9 Things You Should Know*, VOX (May 6, 2017), https://www.vox.com/cards/police-brutality-shootings-us/us-police-shootings [https://perma.cc/BJ8Z-VRDN] (explaining officers can use deadly force if they "perceive a

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adopt *Graham*'s framework, instructing officers that the reasonableness of force used will be determined based upon "the facts and circumstances perceived by the officer at the time of the event," regardless of whether those perceptions were accurate.[99]

Laws and policies offer little in the way of incentives for officers and police departments to take measures that would make force less likely. In many jurisdictions, a police officer can justifiably use force even if his tactical decisions made the use of force inevitable.[100] So, if an officer decides to confront a suspect instead of calling for backup, and ends up shooting the suspect, that shooting will be considered justified even if there were steps that the officer could have taken that would have made force unnecessary. Many departments' policies and trainings are consistent with this approach—although police experts recommend that officers be trained in de-escalation strategies, most states do not mandate that their officers complete this type of training.[101] The law guiding municipal liability for policing harms has been similarly inattentive to systems factors. Local governments can be found civilly liable if their police departments fail to train their officers to make split-second decisions regarding the use of deadly force.[102] But courts have not required jurisdictions to find ways to reduce the frequency with which officers must make these split-second decisions.[103]

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threat"); PBS NewsHour, *Why Do So Few Deadly Police Shootings End in Police Convictions?*, PBS (June 22, 2017), https://www.pbs.org/newshour/show/deadly-police-shootings-end-police-convictions [https://perma.cc/SU2F-JJ54] (discussing impact of "reasonable officer" standard on criminal prosecutions).

99. *See* PALO ALTO POLICE DEP'T, *supra* note 94, at 48; *see also supra* note 94 and accompanying text.

100. *See, e.g.*, Terebsi v. Torreso, 764 F.3d 217, 234 n.16 (2d Cir. 2014) ("[C]ourts in this Circuit and others have discarded evidence of prior negligence or procedural violations, focusing instead on 'the split-second decision to employ deadly force.'"); Schulz v. Long, 44 F.3d 643, 649 (8th Cir. 1995) ("Alternative measures which 20/20 hindsight reveal to be less intrusive (or more prudent), such as waiting for a supervisor or the SWAT team, are simply not relevant to the reasonableness inquiry."). The Supreme Court has also suggested that unreasonable pre-seizure conduct is irrelevant to the Fourth Amendment analysis. *See* County of L.A. v. Mendez, 137 S. Ct. 1539, 1549 (2017) (rejecting Ninth Circuit's "provocation rule," which allowed an excessive force claim "where an officer intentionally or recklessly provoke[d] a violent confrontation, if the provocation is an independent Fourth Amendment violation"); City and County of S.F. v. Sheehan, 135 S. Ct. 1765, 1777 (2015) (explaining plaintiff cannot "establish a Fourth Amendment violation based merely on bad tactics that result in a deadly confrontation that could have been avoided"). For discussions of these and other cases, see Cynthia Lee, *Reforming the Law on Police Use of Deadly Force: De-Escalation, Preseizure Conduct, and Imperfect Self-Defense*, 2018 U. ILL. L. REV. 629, 671-74; Cara McClellan, *Dismantling the Trap: Untangling the Chain of Events in Excessive Force Claims*, 8 COLUM. J. RACE & L. 1 (2017).

101. *See* Curtis Gilbert, *Not Trained To Kill*, AM. PUB. MEDIA REP. (May 5, 2017), https://www.apmreports.org/story/2017/05/05/police-de-escalation-training [https://perma.cc/85ZH-UC7L] (reporting thirty-four states do not require de-escalation training for officers).

102. *See* Connick v. Thompson, 563 U.S. 51, 64 (2011) ("Armed police must sometimes make split-second decisions with life-or-death consequences. . . . [I]n the absence of training, there is no way for novice officers to obtain the legal knowledge they require. Under those circumstances there is an obvious need for some form of training."); City of Canton v. Harris, 489 U.S. 378, 390 n.10 (1989) (explaining "the need to train officers in the constitutional limitations on the use of deadly force . . . can be said to be 'so obvious,' that failure to do so could properly be characterized as 'deliberate indifference' to constitutional rights").

103. *See, e.g.*, Young v. City of Providence, 404 F.3d 4, 27 (1st Cir. 2005) ("A training program must be quite deficient in order for the deliberate indifference standard to be met: [T]he fact that training is imperfect or

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Human factors researchers and safety experts might applaud police policy manuals and the Supreme Court's decision in *Graham* to the extent that both recognize officers are likely to err in tense, fast-moving situations. But human factors researchers and safety experts would be appalled by police policies' and the law's inattention to systems factors. If law and policy recognize that police are "often forced to make split-second judgments—in circumstances that are tense, uncertain, and rapidly evolving,"[104] and are likely to err under such circumstances, a top priority should be seeking out interventions that make these types of split-second judgments less frequent, and improve officers' decision making when these types of judgments are required.

Although the law and many police departments' policies resist a systems approach, there are growing efforts to promote what can be understood as systems interventions to improve policing. Almost twenty years ago, Barry Scheck and Peter Neufeld called for commissions to investigate the underlying causes of wrongful convictions modeled on investigations of airplane crashes.[105] More recently, scholars have called for law enforcement agencies to conduct in-depth reviews—inspired by root cause analyses performed in aviation and medicine—after sentinel events and near misses.[106] In 2011, the National Institute of Justice created a Sentinel Events Initiative to encourage all-stakeholder reviews of police shootings, wrongful convictions, and other bad outcomes and "near misses," and to provide grants to researchers willing to conduct these types of reviews.[107]

Some police departments are experimenting with policy, scheduling, and equipment changes that aim to make violence less likely to occur. For example, the New York City Police Department has long prohibited its officers from

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not in the precise form a plaintiff would prefer is insufficient to make such a showing."); Palmquist v. Selvik, 111 F.3d 1332, 1345 (7th Cir. 1997) (finding a municipal training program not deficient for failing to provide training beyond "basic" police training, "in handling abnormally behaving persons"). *But see* Thomas v. Cumberland County, 749 F.3d 217, 227 (3d Cir. 2014) (finding failure to implement sufficient de-escalation training could be basis for failure-to-train claim under *Monell*).

104. Graham v. Connor, 490 U.S. 386, 396-97 (1989).

105. Barry C. Scheck & Peter J. Neufeld, *Toward the Formation of "Innocence Commissions" in America*, 86 JUDICATURE 98, 99 (2002).

106. For examples of scholarship making this recommendation, see MEGHAN QUATTLEBAUM ET AL., THE JUSTICE COLLABORATORY AT YALE LAW SCH., PRINCIPLES OF PROCEDURALLY JUST POLICING 18 (2018); BOAZ SANGERO, SAFETY FROM FALSE CONVICTIONS (2016); JON SHANE, LEARNING FROM ERROR IN POLICING: A CASE STUDY IN ORGANIZATIONAL ACCIDENT THEORY (2013); John Holloway et al., *Root Cause Analysis: A Tool to Promote Officer Safety and Reduce Officer Involved Shootings Over Time*, 62 VILL. L. REV. 883, 884 (2017); Richard A. Leo, *The Criminology of Wrongful Conviction: A Decade Later*, 33 J. CONTEMP. CRIM. JUST. 82, 100 (2017). This same recommendation was made by President Obama's Task Force on 22st Century Policing. *See* THE PRESIDENT'S TASK FORCE ON 21ST CENTURY POLICING, OFFICE OF CMTY. ORIENTED POLICING, FINAL REPORT OF THE PRESIDENT'S TASK FORCE ON 21ST CENTURY POLICING 22 (2015), http://elearning-courses.net/iacp/html/webinarResources/170926/FinalReport21stCenturyPolicing.pdf [https://perma.cc/UX5E-5NDV].

107. *See* NAT'L INST. OF JUST., U.S. DEP'T OF JUST., MENDING JUSTICE: SENTINEL EVENT REVIEWS 2 (2014), https://www.ncjrs.gov/pdffiles1/nij/247141.pdf [https://perma.cc/8ZMG-4UMF]; *see also Learning from Error in American Criminal Justice*, *supra* note 57, at 111.

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shooting at moving vehicles.[108] The Las Vegas Metropolitan Police Department has a policy that, when possible, the officers directly involved in a pursuit are not the arresting officers, to reduce the likelihood that the pursuing officer's adrenaline is translated into extra punches and kicks of the arrestee.[109] After the shooting death of Stephon Clark following a foot pursuit, the Sacramento Police Department adopted a policy to limit foot pursuits.[110] The Charlotte-Mecklenberg Police Department is researching trends in uses of force by its officers that it can use to adjust its staffing and protocols.[111] Although none of these interventions have been described as a systems intervention, or analogized to safety changes in medicine or aviation, each adopts a similar approach. Each aims to improve outcomes not through additional training or the threat of punishment, but through changes that make split-second, high-pressure, high-intensity decision making less frequent.

These efforts have shown real promise. The New York City Police Department's (NYPD) policy not to shoot at moving cars is credited with dramatically reducing the number of police-involved shootings in New York City.[112] Las Vegas's policy that an officer directly involved in a pursuit should not be the arresting officer has reportedly led to "a [twenty-three] percent reduction in total use of force and an [eleven] percent reduction in officer injury over several years, on top of reducing racial disparities."[113] Yet experiments with a systems approach in policing are, thus far, sporadic and isolated. Why are lessons that have proven so beneficial in aviation and medicine so difficult to learn in law enforcement?[114] This is an important question, and one that deserves deeper exploration than I can offer here. But I do have some preliminary

108. *See* German Lopez, *Police Have Known for 45 Years They Shouldn't Shoot at Moving Cars. But They Still Do It*, VOX (May 8, 2017), https://www.vox.com/policy-and-politics/2017/5/8/15533536/police-shooting-moving-cars-jordan-edwards [https://perma.cc/UT42-EVEW].

109. *See id.* For further description of Las Vegas's foot pursuit policy and its effectiveness, see Phillip Atiba Goff, *Identity Traps: How to Think About Race & Policing*, 2 BEH. SCI. & POL'Y, no. 2, 2016, at 10.

110. *See* Don Thompson, *Sacramento P.D. Changes Foot Chase Policy After Stephon Clark Shooting*, FOX KTVU (Aug. 13, 2018), http://www.ktvu.com/news/sacramento-pd-changes-foot-chase-policy-after-stephon-clark-shooting [https://perma.cc/9K44-KM2F] (describing new policy).

111. *See* Jaeah Lee, *How Science Could Help Prevent Police Shootings*, MOTHER JONES (May/June 2016), https://www.motherjones.com/politics/2016/07/data-prediction-police-misconduct-shootings/ [https://perma.cc/S6S2-TMP8] (describing data analysis from Charlotte-Mecklenburg Police Department showing officers were less likely to use force in response to a domestic violence incident if three or more officers reported to the scene, and that officers "subjected to concentrated bouts of on-the-job stress—handling multiple domestic-violence or suicide calls, or cases involving young children in danger, for example—were much more likely to have complaints lodged against them by community members").

112. *See* Lopez, *supra* note 108 (describing decline in police killings following NYPD's adoption of this policy, and failure of other jurisdictions to adopt similar policies).

113. *See id.*; *see also* Goff, *supra* note 109.

114. For other lessons that police should learn from medicine, aviation, and other industries, see Schwartz, *supra* note 57 (arguing police should learn from lawsuits brought against them, and should adopt approaches in medicine to do so).

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thoughts, which I share with the hope that they prompt further discussion and consideration.

One challenge is that we do not have good data about the frequency, nature, or causes of policing error. As James Reason has described, "[w]ithout a detailed analysis of mishaps, incidents, near misses, and 'free lessons,' we have no way of uncovering recurrent error traps or of knowing where the 'edge' is until we fall over it."[115] Collecting and analyzing information about errors and near misses is a key component of safety efforts in aviation and medicine. Airlines must report accidents, near misses, and other unexpected events to the National Transportation Safety Board, which then conducts in-depth reviews after a crash.[116] Federal laws, state laws, and requirements imposed by the Joint Commission—which accredits hospitals—force hospitals to gather information about errors when they occur, conduct in-depth analyses of those errors, and adopt proven systems interventions.[117]

In contrast, the federal government and most states do not require law enforcement agencies to collect data about uses of force, stops, or other interactions with the public.[118] There is a law enforcement accreditation body, but accreditation is voluntary and does not mandate much in the way of data collection and analysis.[119] As a result, there is no official count of the number of people killed by police each year.[120] Reliable data about less-than-lethal force and other police interactions is even harder to come by in most jurisdictions.[121]

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115. *See* Reason, *supra* note 32; *see also, e.g.*, David C. Classen et al., *'Global Trigger Tool' Shows that Adverse Events in Hospitals May Be Ten Times Greater than Previously Measured*, 30 HEALTH AFF. 581, 587 (2011) ("Sound measurement helps establish priorities, generate ideas for improvement, and evaluate whether improvement efforts work."); Lucian L. Leape, *Reporting of Adverse Events*, 347 NEW ENG. J. MED. 1633, 1638 (2002) ("If reporting is safe and provides reporters with useful information from expert analysis, it can measurably improve safety.").

116. *See* Schwartz, *supra* note 57, at 1063 (describing federal reporting requirements as well as airlines' internal systems to gather and analyze information about errors).

117. *See id.* at 1088 (describing mandated data collected by hospitals).

118. For discussions of reasons state and federal governments do not mandate collection of these data, see Rachel Harmon, *Why Do We (Still) Lack Data on Policing?*, 96 MARQ. L. REV. 1119 (2013); *see also* Trymaine Lee & Safia Samee Ali, *Why Doesn't the Government Track Nationwide Police Use of Force?*, NBC NEWS (Nov. 14, 2016), https://www.nbcnews.com/news/us-news/why-doesn-t-government-track-nationwide-police-use-force-n682626 [https://perma.cc/G9FD-YJVK] (describing lack of data collection about policing); *Law Enforcement Overview*, NAT'L CONF. ST. LEGIS. (June 19, 2018), http://www.ncsl.org/research/civil-and-criminal-justice/law-enforcement.aspx [https://perma.cc/D22D-X5SD] (describing some state laws mandating data collection).

119. *See The Commission*, CALEA, http://www.calea.org/content/commission [https://perma.cc/24S4-8L9Y] (describing Commission on Accreditation for Law Enforcement Agencies). In contrast, hospitals' accreditation by the Joint Commission is a requirement in most states for Medicare and Medicaid reimbursement. *See Facts About Federal Deemed Status and State Recognition*, JOINT COMMISSION (Oct. 18, 2017), https://www.jointcommission.org/facts_about_federal_deemed_status_and_state_recognition/ [https://perma.cc/JER8-ZR69].

120. *See* Lopez, *supra* note 98.

121. *See* Matt Apuzzo & Sarah Cohen, *Data on Use of Force by Police Across U.S. Proves Almost Useless*, N.Y. TIMES (Aug. 11, 2015), https://www.nytimes.com/2015/08/12/us/data-on-use-of-force-by-police-across-us-proves-almost-useless.html [https://perma.cc/X8QB-8EP8].

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Departments are not obligated to conduct root cause analyses when tragedies occur, or gather all relevant stakeholders to review sentinel events.[122] There are some departments, like Charlotte-Mecklenberg, that voluntarily gather and analyze data about their officers' behavior, and their insights can benefit other agencies.[123] But without more widespread data collection and analysis, police cannot make evidence-based decisions about how best to adjust their policies, technologies, and protocols.

Another challenge is that there is no regulatory, legal, or other pressure for police departments to adopt proven systems interventions. In medicine, the Joint Commission or state or federal law can require hospitals to adopt safe practices.[124] But existing laws and accreditation requirements do not require law enforcement agencies to adopt well-established systems reforms.[125] The NYPD has prohibited shooting at vehicles for forty years, and available evidence suggests that this policy has dramatically reduced officer involved shootings.[126] But police kill scores of people each year inside moving vehicles.[127] There are approximately 18,000 law enforcement agencies across the country, and there is no governmental body that can require these departments to follow the NYPD's lead.

A third challenge is that at least some law enforcement officers and policymakers resist systems interventions. One would think that law enforcement would embrace a systems approach because it focuses on investigating and addressing weaknesses in staffing, policy, and technology—instead of blaming individual officers. One would also assume that law enforcement would applaud policies and protocols that reduced their need to make high-stakes, high-stress, split-second decisions. But doctors have resisted checklists for a variety of reasons, including a belief that they do not need checklists to guide their behavior, concerns that checklists may not be supported by evidence, and certainty that they do not have the time to fill out another piece of paperwork.[128] Police may resist systems interventions for these same types of reasons. Indeed, law enforcement spokespeople have criticized policies that

122. *See* Pagan Kennedy, *Why are Police Officers More Dangerous than Airplanes?*, N.Y. TIMES (Aug. 11 2017), https://www.nytimes.com/2017/08/11/opinion/sunday/traffic-stop-police-accident.html [https://perma.cc/N7N2-J2DT].

123. *See supra* note 111.

124. *See, e.g.*, Lucian L. Leape et al., *Developing and Implementing New Safe Practices: Voluntary Adoption Through Statewide Collaboratives*, 15 QUALITY SAFETY HEALTH CARE 289, 289 (2006) (describing thirty safety practices developed by the National Quality Forum and subsequently mandated by the Joint Commission); Christopher W. Seymour et. al, *Time to Treatment and Mortality during Mandated Emergency Care for Sepsis*, 376 NEW ENG. J. MED. 2235, 2236 (2017) (describing New York law requiring hospitals follow protocols to identify and treat sepsis, and showing protocols reduced mortality rates).

125. *See supra* notes 103, 119 and accompanying text (describing *Monell* liability standards and accreditation requirements).

126. *See* Lopez, *supra* note 108.

127. *See id.*

128. *See generally* Gawande, *supra* note 43.

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limit officers' abilities to shoot into cars or engage in vehicle pursuits precisely because these policies are considered unnecessary and are believed to put officers and the public in danger.[129]

Although doctors have also resisted systems interventions, it may be especially difficult to craft safety initiatives that law enforcement accepts. It is hard to argue against checklists before surgery, or against the redesign of anesthesiology machines so that the knobs of every machine turn in the same direction. But it is more challenging to balance the costs and benefits associated with limiting traffic stops. Limiting traffic stops would reduce one type of police-civilian interaction in which police violence often occurs.[130] Limiting traffic stops would also discourage interactions found to be more harmful in multiple ways to people of color.[131] But law enforcement might argue that limiting traffic stops would prevent officers from using those stops to search cars for evidence of crimes, find people with outstanding warrants, or seize assets.[132] Quantifying the effects of proposed policy changes is always challenging.[133] In law enforcement, there is the additional challenge of engaging with more fundamental questions about the scope of police authority and the relative importance of competing law enforcement values.

A fourth challenge concerns balancing a systems approach with the need to discipline individual officers who have engaged in misconduct. Patient safety experts have struggled with this same balance.[134] On the one hand, safety advocates believe that reducing medical error requires embracing a culture of transparency, and fear that the threat of punishment will cause healthcare professionals not to report and learn from errors.[135] On the other hand, a "no blame" approach seems inapt for "errors committed by incompetent, intoxicated, or habitually careless clinicians, or by those unwilling to follow reasonable safety

129. *See, e.g.*, Jon Adler, *Policy Won't Stop Vehicle Attacks*, POLICE MAG. (July 10, 2017), http://www.policemag.com/channel/patrol/articles/2017/07/policy-won-t-stop-vehicle-attacks.aspx [https://perma.cc/3NYU-NF3E] (arguing prohibiting officers from shooting into moving cars as an "unrealistic polic[y]"); Thomas Frank, *High-Speed Police Chases Have Killed Thousands of Innocent Bystanders*, USA TODAY (July 30, 2015), https://www.usatoday.com/story/news/2015/07/30/police-pursuits-fatal-injuries/30187827/ [https://perma.cc/23J2-L3S4] (describing resistance to policies limiting pursuits in Dallas and Milwaukee).

130. *See supra* note 60 and accompanying text.

131. *See supra* note 61 and accompanying text; *see also* Kennedy, *supra* note 122.

132. *See* Michael Sallah et al., *Stop and Seize*, WASH. POST (Sept. 6, 2014), https://www.washingtonpost.com/sf/investigative/2014/09/06/stop-and-seize/?utm_term=.4662fd [https://perma.cc/S7TN-2Y8P] (describing police department asset forfeiture used to fund cash-strapped municipalities and departments).

133. For an example of the type of analysis that might be done to assess the effects of limiting traffic stops or other systems interventions, see John MacDonald et. al, *The Effects of Local Police Surges on Crime and Arrests in New York City*, PLOS ONE (June 16, 2016), https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0157223 [https://perma.cc/JC52-W4ZV].

134. *See* Jeanne L. Steiner, *Managing Risk: Systems Approach Versus Personal Responsibility for Hospital Incidents*, 34 J. AM. ACAD. PSYCHIATRY & L. 96, 97 (2006).

135. *See, e.g.*, Michelle M. Mello et al., *"Health Courts" and Accountability for Patient Safety*, 84 MILBANK Q. 459, 472 (2006).

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rules and standards."[136] In medicine, the concept of a "just culture" is being used to balance interests in transparency and blamelessness with accountability for wrongdoers.[137] A "just culture" encourages medical providers to openly and honestly report errors and near misses when they occur, and does not hold providers accountable for "mistakes made in a system they cannot control," but does punish intentional or reckless behavior.[138]

Just as doctors can be disciplined, sued, or prosecuted for reckless behavior, police departments should continue to discipline their officers, and judicial sanctions should remain in place. Indeed, individual sanctions may be more important in policing than in medicine, as police appear more likely to intentionally or recklessly cause harm. But it will be a challenge, as it has been in medicine, to create a "just culture" in policing that encourages transparency about errors, while still punishing those who have engaged in wrongdoing. Medicine has experimented with a few different approaches to balance these competing interests. One approach is to punish individual providers if they do not follow a well-established safety practice.[139] Another is to sanction hospitals—instead of individual doctors—when errors occur.[140] A third is to shield information from peer reviews of adverse events, morbidity and mortality conferences, and root cause analyses from legal discovery.[141] Police safety advocates can experiment with these approaches, and others, to strike the right balance.

Each of these challenges is formidable. But each can be overcome. There are plenty of dramatic changes that could promote progress, such as new federal and state laws requiring data collection and the adoption of proven safety measures, or changes to the standards set by the Supreme Court for reasonable force in *Graham* and municipal liability in *Monell*. But more modest measures could have a significant impact as well. Municipal liability insurers could require that their members track data about their performance, conduct sentinel event reviews after errors and near-misses, and adopt proven systems interventions as

136. Robert M. Wachter, *Personal Accountability in Healthcare: Searching for the Right Balance*, BRIT. MED. J. QUALITY & SAFETY, Jan 2013, at 1, 1, http://www.ajustnhs.com/wp-content/uploads/2012/06/accountability-and-patient-safety-2012.pdf [https://perma.cc/7T5Y-RX2Q].

137. *See generally* SIDNEY DEKKER, JUST CULTURE: BALANCING SAFETY AND ACCOUNTABILITY 98-102 (2007). For descriptions and discussions of what it means to be a "just culture," see Philip G. Boysen II, *Just Culture: A Foundation for Balanced Accountability*, 13 OCHSNER J. 400, 405 (2013); Robert M. Wachter & Peter J. Pronovost, *Balancing "No Blame" with Accountability in Patient Safety*, 361 NEW ENG. J. MED. 1401, 1401 (2009).

138. Boysen, *supra* note 137, at 405.

139. *See* Wachter & Pronovost, *supra* note 137, at 1403-04.

140. *See* Sylvia M. Burwell, *Setting Value-Based Payment Goals—HHS Efforts to Improve U.S. Health Care*, 372 NEW ENG. J. MED. 897 (2015); Robert M. Wachter et al., *Medicare's Decision to Withhold Payment for Hospital Errors: The Devil Is in the Details*, 34 JOINT COMMISSION J. QUALITY PATIENT SAFETY 116 (2008).

141. For a discussion of these protections in medicine, see Joanna C. Schwartz, *A Dose of Reality for Medical Malpractice Reform*, at 88 N.Y.U. L. REV. 1224, 1243-43 (2013).

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conditions of continued coverage.[142] Municipal liability insurers could conduct the types of closed claims reviews that medical malpractice insurers have undertaken to make anesthesiology safer. State police officer standards and training (POST) organizations, which already set minimum standards for police officer training around the country, could condition certification of officers on the adoption of safety principles.[143] Police officers could be required to report errors and near misses and participate in sentinel event reviews as a condition of representation and indemnification by their employers.[144] The National Institute of Justice can continue to support jurisdictions willing to engage in all-stakeholder sentinel event reviews. Police departments can continue to experiment with systems reforms informed by research about their practices. The systems approach in medicine has been the product of both top-down and bottom-up efforts,[145] and both are likely needed to make significant change in law enforcement perspectives and practices. But something is better than nothing, and even incremental successes can build on each other.

V. CONCLUSION

Systems interventions have reduced hospital infections, anesthesia errors, and airplane crashes. There is every reason to believe that systems interventions will improve policing as well. But current experiments with a systems approach are isolated and nascent. Medicine has struggled over the past three decades to embrace a systems approach, and the challenges associated with a systems approach in law enforcement appear even more daunting. Law enforcement does not have medicine's network of regulations that can force data collection about error or reforms geared to reduce those errors. And adopting a systems approach in policing will require rethinking the relationship between safety and crime

142. For other ways in which municipal liability insurers already press their subscribers to adopt reforms, see generally John Rappaport, *How Private Insurers Regulate Public Police*, 130 HARV. L. REV. 1539, 1600 (2017); Joanna C. Schwartz, *How Governments Pay: Lawsuits, Budgets, and Police Reform*, 63 UCLA L. REV. 1144, 1150 (2016).

143. As one example, the Texas Commission on Law Enforcement has implemented mandatory de-escalation training for officers in Texas, required by the Sandra Bland Act. *See* Emily Lomax & Julie Anderson, *Senate Bill 1849 Breaking Down the Sandra Bland Act–85th Legislature*, TEX. COUNTY PROGRESS (June 13, 2017), https://countyprogress.com/senate-bill-1849-breaking-down-the-sandra-bland-act-85th-legislature/ [https://perma.cc/54PR-RDUU] (recognizing Texas law now requires de-escalation training for officers). For description of the Act, see Jonathan Silver, *Texas Gov. Abbott Signs "Sandra Bland Act" into Law*, TEX. TRIB. (June 15, 2017), https://www.texastribune.org/2017/06/15/texas-gov-greg-abbott-signs-sandra-bland-act-law/ [https://perma.cc/7NN9-DRRA]. For a description of the training, see TEX. COMM'N ON L. ENF'T, DE-ESCALATION TECHNIQUES: LIMITING THE USE OF FORCE IN PUBLIC INTERACTION 2-9 (2017), http://www.tcole.texas.gov/content/de-escalation-techniques-limiting-use-force-public-interaction [https://perma.cc/V928-M6GG].

144. *See Police Indemnification*, *supra* note 15, at 912-17 (discussing prevalence of police indemnification).

145. *See* Michelle M. Mello et al., *Fostering Rational Regulation of Patient Safety*, 30 J. HEALTH POL. POL'Y & L. 375, 381 (2005) (describing health care regulation as "pluralistic," in which "top-down forms of regulation such as statutes and agency oversight are supplemented with private and quasi-private, bottom-up approaches including tort law and the market").

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control, and between individual sanctions and systems interventions. Police reformers should continue to look for top-down and bottom-up approaches to advance safety in policing. And all should recognize that this will be a long—but important—road to travel.

What we may need most of all as we are taking these first steps toward safety in policing is a shift in public discourse. Intrepid researchers and health care providers pushed for a systems approach in medicine for years in relative obscurity. Then came the IOM's 1999 report, *To Err is Human*, which brought national attention to the magnitude of medical error, the role of faulty systems in those errors, and the importance of designing systems to make it more difficult to err.[146] We know that *To Err is Human* was just the first step in a long process to change perspectives about error in medicine, develop systems interventions, promulgate those interventions, and get providers to follow new protocols and policies. But *To Err is Human* has played a critically important role in this process—it shifted the national conversation about medical error in a way that made the next steps easier to take.[147]

Policing has not yet had the watershed moment medicine had in 1999, when *To Err is Human* was published.[148] Although the killing of Michael Brown started a national conversation about policing, that conversation has focused largely on bad apples and bad barrels, instead of focusing on faulty systems. It is time to change the message. Since Michael Brown's death in August 2014, thousands of people have been killed by the police and hundreds of those people were unarmed.[149] Each year, more than half a million people are subjected to excessive force by police.[150] Another almost four million people annually report police act improperly in interactions that did not involve force.[151] Instead of focusing only on whether killings and other acts of police violence and overreach were justified as a matter of law, we should ask whether they were preventable, and work to figure out ways to prevent them in the future.

146. *See supra* note 41 and accompanying text.

147. *See supra* note 41-42 and accompanying text.

148. *See supra* note 41 and accompanying text (describing *To Err is Human* and its impact).

149. *See supra* notes 1-2 and accompanying text.

150. *See* Joanna C. Schwartz, *What Police Learn from Lawsuits*, 33 CARDOZO L. REV. 841, 863 (2012) (describing Bureau of Justice statistics data).

151. *See id.*

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