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Authors

Caloyeras, John P
Kanter, Michael H
Ives, Nicole R
et al.

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Understanding Waste in Health Care: Perceptions of Frontline Physicians Regarding Time Use and Appropriateness of Care They and Others Provide

John P Caloyeras, PhD; Michael H Kanter, MD; Nicole R Ives, MHA; Chong Y Kim, PhD; Hemal K Kanzaria, MD, MSHPM; Sandra H Berry, MA; Robert H Brook, MD, ScD

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ABSTRACT

Background: Approximately 30% of total US health care spending is thought to be “wasted” on activities like unnecessary and inefficiently delivered services.

Objectives: To assess the perceptions of clinic-based physicians regarding their use of time and appropriateness of care provided.

Design: Cross-sectional online survey of all Southern California Permanente Medical Group partner and associate physicians (N = 1034) who were primarily providing clinic-based care in 1 of 4 geographically and operationally distinct Kaiser Permanente Southern California Medical Centers.

Main Outcome Measures: The proportion of time spent on direct patient care tasks perceived to require the respondent’s clinical/specialty training as a physician or another physician who has similar years of clinical training (vs physicians with fewer years of clinical training, nonphysicians, or automated or computerized systems), and the proportion of care provided by the respondent and by other physicians with whom they are familiar that is perceived to be appropriate (vs equivocal or inappropriate).

Results: More than 61% of respondents indicated that 15% of their time spent on direct patient care could be shifted to nonphysicians, and between 10% and 16% of care provided was equivocal or inappropriate.

Discussion: The low proportion of care perceived as equivocal or inappropriate indicates there is little room for reducing such care or that physicians have difficulty assessing care appropriateness. The latter suggests that attempts to reduce or to eliminate inappropriate care may be unsuccessful until physician beliefs, knowledge, or behaviors are better understood and addressed.

Conclusion: On the basis of these findings, it is apparent that within at least one health care system, the opportunity to increase value through task shifting and avoiding inappropriate care is more narrow than commonly perceived on a national level.

be addressed as an organizational change that reflects the way in which “business” (ie, providing care) is conducted.¹ Organizational change management^{7,8} and process improvement⁹ frameworks generally are conceived by formalizing and defining the change initiative, addressing tasks such as developing a business case for why change is needed, and defining the desired outcomes. The process ends when changes have been fully absorbed into the business. During this final phase, the full value of change is demonstrated as “proof” that transitions are complete.

When considering the current state of efforts to reduce unnecessary and inefficiently delivered services, a number of questions must be addressed. For example, have the frontline physicians been consulted? Their buy-in is fundamental to success. And how do they perceive the current status of the problem and regard options for moving toward a system with fewer nonvalue-added activities?

More often than not, frontline physicians do not have ample opportunity to voice their thoughts about changes affecting the health care system. As a result, their views remain largely unknown. If physicians are excluded from this process, it will be difficult to get their buy-in and trust down the road or to deploy the most effective policy levers, which limits likelihood for future success.

Against this backdrop, it is surprising how little is known about frontline

INTRODUCTION

Roughly 30% of total US health care spending—or \$530 billion yearly—is regarded as spending that may not improve patient health¹⁻³ and involves the provision of unnecessary and inefficiently delivered services.¹ Reviews of studies evaluating the appropriateness of care indicate that at least

30% of procedures, tests, and prescribed medications may be of questionable benefit.^{4,5} Nearly 75% of physicians in a 2014 survey said that unnecessary tests and procedures are a “very” or “somewhat serious” problem for the health care system.⁶

Reduction of unnecessary and inefficiently delivered health care services must

John P Caloyeras, PhD, was a Doctoral Fellow at the Pardee RAND Graduate School in Santa Monica, CA when this study was conducted. He is currently a Director of Global Health Economics for Amgen, Inc, in Thousand Oaks, CA. E-mail: jcaloyer@amgen.com.

Michael H Kanter, MD, is the Executive Vice President and Chief Quality Officer of The Permanente Federation in Oakland, CA. He is the Regional Medical Director of Quality and Clinical Analysis for the Southern California Permanente Medical Group in Pasadena. E-mail: michael.h.kanter@kp.org.

Nicole R Ives, MHA, is a Group Leader in the Southern California Permanente Medical Group in Pasadena. E-mail: nicole.r.ives@kp.org. **Chong Y Kim, PhD**, is a Practice Leader in the Southern California Permanente Medical Group in Pasadena. E-mail: chong.y.kim@kp.org.

Hemal K Kanzaria, MD, MSHPM, is an Assistant Professor of Clinical Emergency Medicine at the University of California, San Francisco. E-mail: hemal.kanzaria@ucsf.edu. **Sandra H Berry, MA**, is a Senior Behavioral Scientist at the RAND Corporation, where she is Chair of the Human Subjects Protection Committee, Senior Director of the Survey Research Group, and a Professor at the Pardee RAND Graduate School in Santa Monica, CA. E-mail: berry@rand.org. **Robert H Brook, MD, ScD**, is the Distinguished Chair in Health Care Services and a Senior Principal Physician Policy Researcher at the RAND Corporation and a Professor at the Pardee RAND Graduate School in Santa Monica. E-mail: brook@rand.org.

physicians' thoughts regarding health care value.¹⁰ This is particularly the case when discussing their use of time and appropriateness of care.¹⁰ For example, it is not known if frontline physicians believe they provide unnecessary services or if they can recognize inefficient delivery of care in their practice. If these problems exist, what is the magnitude of these nonvalue-added activities? What are the primary reasons behind potentially unnecessary activities, and how can these reasons be addressed most effectively? Without answers to such questions, it is difficult to know how to interpret results from studies quantifying low-value care that use claims data¹¹ or studies involving patients on the topic.¹²

We developed a survey to engage physicians along the two health care value domains that play a direct role on a day-to-day basis: The efficiency with which physicians use their time on direct patient care tasks and the appropriateness of care provided by themselves and other physicians with whom they are familiar. This study's goal was to add to the evidence required to develop a business case (including the preferred policy options offering the most opportunities for success) to improve health care value by making more efficient use of physician time and reducing unnecessary services.

METHODS

Study Design

We conducted a cross-sectional study of 1034 Southern California Permanente Medical Group (SCPMG) physicians from 4 Kaiser Permanente Southern California (KPSC) Medical Centers using an online survey focused on the ways in which physicians use their time and the appropriateness of care provided. The survey instrument was developed by authors at The RAND Corporation (RAND). Dissemination of the survey among SCPMG physicians, confidential presentation of results within SCPMG, and drafting of this manuscript were conducted as a partnership between RAND and SCPMG leadership. All analyses were performed by the authors at RAND with advice from SCPMG leadership. Approvals from the RAND institutional review board were obtained for all phases of work; approval

from the KPSC institutional review board also was obtained for survey dissemination and all subsequent activities.

Survey Development

The two survey concepts—the ways in which physicians use their time and the appropriateness of care they provide—were chosen as the study focus to reflect areas frontline physicians can immediately influence.¹³ The RAND research team developed draft items to explore these concepts, which were then incorporated into a focus group discussion guide. Multispecialty physicians from the Greater Los Angeles

area (no physician was part of SCPMG) who were engaged with clinic-based care were recruited for two focus groups. The first group was composed of nine specialists including an anesthesiologist, a neurologist, surgeons, an emergency physician, a radiologist, and internal medicine subspecialists, whereas the second group was made up of nine generalists including family physicians, pediatricians, general internists, and obstetrician/gynecologists. Qualitative analyses of focus group data were used to refine survey concept descriptions, items, and item responses so they best aligned with the perceptions and experiences of

Table 1. Characteristics of SCPMG physicians invited to complete a survey, stratified by response^a

Physician characteristic or response	Overall sample (N = 1034)	Respondents (n = 636)	Nonrespondents (n = 398)	p value
Sex, no. (%)				
Women	431 (41.7)	268 (42.1)	163 (41.0)	0.71
Men	603 (58.3)	368 (57.9)	235 (59.0)	—
Age (y)				
30-39, no. (%)	295 (28.5)	199 (31.3)	96 (24.1)	0.01
40-49, no. (%)	382 (36.9)	225 (35.4)	157 (39.4)	—
50-59, no. (%)	231 (22.3)	147 (23.1)	84 (21.1)	—
60-69, no. (%)	126 (12.2)	65 (10.2)	61 (15.3)	—
Age (y), mean (SD)	46.3 (9.2)	45.9 (9.2)	47.1 (9.2)	0.03
Medical school type, no. (%)				
Public	401 (38.8)	263 (41.4)	138 (34.7)	0.08
Private	465 (45.0)	270 (42.5)	195 (49.0)	—
International	168 (16.2)	103 (16.2)	65 (16.3)	—
Postmedical school experience				
Years since medical school, mean (SD)	19.0 (9.6)	18.5 (9.6)	19.9 (9.5)	0.02
Years of postgraduate training, mean (SD)		4.8 (2.2)		
Time spent at work				
Average total h/wk working as an SCPMG physician, mean (SD)		48.8 (10.4)		
Average h/wk for direct patient care, mean (SD)		43.5 (11.8)		
SCPMG partner status, no. (%)				
Associate	222 (21.5)	154 (24.2)	68 (17.1)	< 0.01
Partner	812 (78.5)	482 (75.8)	330 (82.9)	—
Kaiser Permanente Southern California site, no. (%)				
Site 1	248 (24.0)	149 (23.4)	99 (24.9)	0.16
Site 2	261 (25.2)	172 (27.0)	89 (22.4)	—
Site 3	246 (23.8)	139 (21.9)	107 (26.9)	—
Site 4	279 (27.0)	176 (27.7)	103 (25.9)	—

Source: Authors' analysis of SCPMG survey data.

^a Percentages may not sum to 100 because of rounding. P values were generated using t-tests for continuous variables and χ^2 tests for categorical variables.

SCPMG = Southern California Permanente Medical Group; SD = standard deviation.

practicing physicians. The final survey instrument implemented within SCPMG is available for download (and may be reused free of charge) from the RAND Health Surveys Web page.¹⁴

Survey Sample and Administration

Full-time SCPMG associate and partner physicians were invited to complete the survey. All clinic-based physicians from 4 geographically and operationally distinct KPSC Medical Centers (ranging in staff size from 248 to 279 physicians) were invited via e-mail in fall 2013 to complete the online survey. The sites represented a convenience sample selected by SCPMG regional leadership using internal metrics on back-office support. Two sites with below-average and 2 sites with above-average scores were selected for participation.

SCPMG regional staff and Medical Center leadership distributed a memorandum to eligible physicians to introduce the survey and the partnership with RAND. E-mail invitations included individualized links to the online survey. To maximize the response rate, as many as 4 rounds of reminder e-mails were sent. Physicians received a \$25 Amazon gift card for survey completion.

Study Measures and Variables

The first study concept, the perceived efficiency with which physicians use their time, was measured by asking respondents to estimate their percentage of direct patient care time spent on tasks that “require MY clinical/specialty training as a physician (or another physician who has similar years of clinical training),” “could be performed by physicians who have fewer years of clinical training,” “could be performed by nonphysicians,” and “could be performed primarily by an automated or computerized system.” A question regarding total time working and total time spent on direct patient care activities on average per week during the previous month was included to allow quantification of potential “freed-up” time if tasks could be shifted.

The second study concept, the appropriateness of care provided, was measured by asking physicians to estimate the proportion of care provided by others (physicians with whom they are familiar who have the same specialty, excluding themselves)

across eight clinical activity, test, or procedure categories that is perceived to be appropriate, equivocal, or inappropriate. After completing items about other physicians, respondents answered questions about the care they personally provide, skipping categories for which they reported not ordering, performing, or reviewing during the previous month. Respondents were given established definitions for the terms *appropriate* (potential health benefit is greater than potential health risk), *equivocal* (potential health benefit is equal to potential health risk), and *inappropriate* (potential health benefit is less than potential health risk).¹⁵ Physicians were instructed to make these judgments considering only the potential health benefits and risks to individual patients without assessment of cost.

Physicians who reported that at least 5% of their time was spent on tasks that could be performed by others were asked to indicate the type(s) of personnel or system that would be needed and the perceived reasons others do not perform these tasks currently. Physicians reporting any equivocal or inappropriate care were asked to evaluate potential reasons for such care; all respondents (regardless of whether they reported equivocal or inappropriate care) were asked to evaluate the helpfulness of strategies that can reduce levels of equivocal and inappropriate care.

Participant descriptors not available in the SCPMG administrative data were gathered from respondents; these included area of clinical practice (primary care, medical specialty, general surgery or surgical subspecialty, or other), years

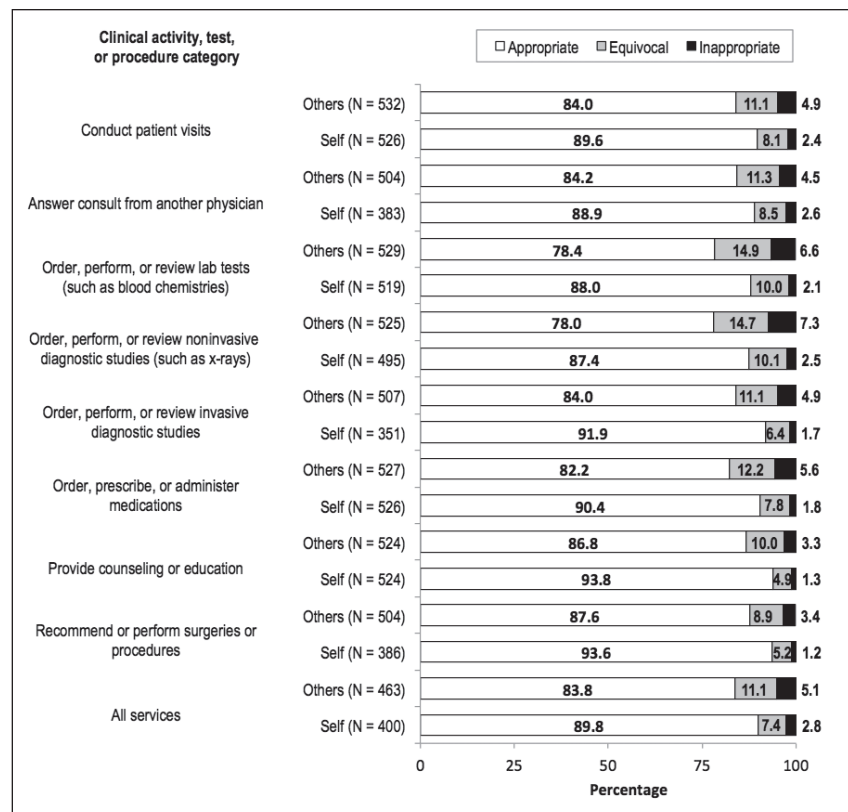


Figure 1. Perceived appropriateness of care provided for assessment of others and self by clinical activity, test, or procedure category.

Source: Authors' analysis of Southern California Permanente Medical Group survey data.

Notes: Appropriate = potential health benefit exceeds potential health risk; equivocal = potential health benefit is equal to potential health risk; inappropriate = potential health benefit is less than potential health risk. Others = a physician with whom the respondent is familiar who has same specialty, excluding the respondent. Self = perception of care personally provided by the respondent, restricted to only categories for which the respondent ordered, performed, or reviewed during the last month.

of postgraduate training, average hours worked per week as a KPSC physician, and average hours per week spent on direct patient care. The final survey featured 22 questions. The raw item count¹⁶ was 11 for the demographics module, 39 for the use-of-time module, and 107 for the appropriateness of care module.

Analytic Approach

Descriptive statistics (counts, means, standard deviations, and 95% confidence intervals) were used to summarize survey results. Potential differences between survey respondents and nonrespondents were explored using independent samples *t*-tests for numeric variables and Pearson χ^2 tests for categorical variables. Data management and statistical analyses were performed using SAS 9.4 (SAS Institute, Cary, NC).

RESULTS

Characteristics of the 1034 physicians invited to participate in the survey are

shown in Table 1, as are the characteristics of respondents (N = 636; 61.5% response rate) and nonrespondents (N = 398). Respondents (vs nonrespondents) were on average 1.2 years younger, had logged 1.4 fewer years since medical school, and were more likely to be SCPMG “associates” (ie, partner track) than SCPMG partners. Response rates were similar across the 4 participating KPSC sites; on average, the survey took 15 to 20 minutes to complete.

Use of Time

Physicians reported that 70.4% of their time spent on direct patient care tasks (standard deviation [SD] 22.0%) was devoted to tasks for which their clinical/specialty training as a physician (or another physician who has similar years of clinical training) was required, 14.2% (SD 16.5%) of time was spent on tasks that could be performed by physicians who have fewer years of clinical training, 11.6% (SD 9.6%) of time was spent on tasks that could be performed by

nonphysicians, and 3.8% (SD 5.2%) of time was spent on tasks that could be performed primarily by an automated or computerized system. The proportion of direct patient care time spent on tasks that necessitate a respondent’s clinical/specialty training as a physician was lowest among primary care physicians (PCPs) (65.8%, SD 23.4%), followed by general surgeons or surgical subspecialists (69.8%, SD 21.3%) and physicians working in an “other” discipline (73.5%, SD 19.6%) and highest among medical specialists (76.8%, SD 19.2%).

Nearly all physician respondents (86.2%) revealed that at least 5% of their direct patient care time was spent on tasks that could be performed by someone other than themselves or a physician like them with similar years of training. The staff types cited as needed by more than 50% of respondents were nurse practitioners (68.4%), physician assistants (67.7%), registered nurses (54.4%), and PCPs (52.7%) (PCP was offered as a choice only

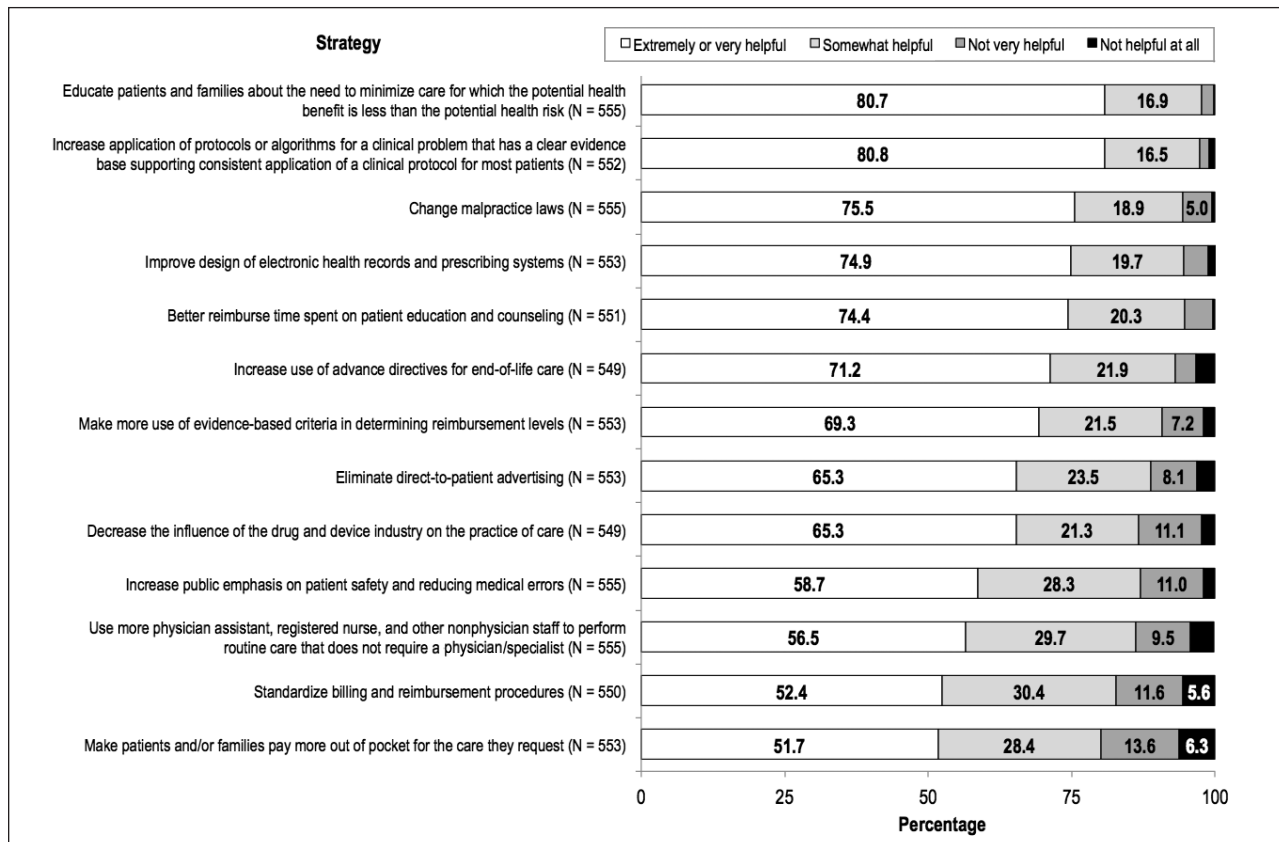


Figure 2. Perceived helpfulness of strategies to reduce overall level of equivocal or inappropriate care.

Source: Authors’ analysis of Southern California Permanente Medical Group survey data.

Note: The percentage is only provided in the figure if it is at least 5%.

to physicians not reporting their area of clinical practice as primary care).

Physicians had 2 types of reasons for not delegating direct patient care tasks to alternative providers (including nonclinical staff and automated or computerized systems): Organizational reasons such as “type of practice organization I’m in doesn’t include them” (35.2%) or “can’t find and/or retain qualified staff” (21.9%) and personal beliefs and preferences such as “patients prefer for me to do these tasks personally” (36.5%) and “don’t like to delegate, prefer to take care of patients myself” (15.3%).

The simple math is telling: Multiplying the 15.4% (11.6% + 3.8%) of time spent on direct patient care tasks perceived as doable for nonphysicians to perform by the mean hours spent by respondents per week on direct patient care tasks (43.5; Table 1) indicates that 6.7 hours per week could theoretically be repurposed for other activities.

APPROPRIATENESS OF CARE

Physicians reported that across all services provided by “others” (ie, physicians with whom they are familiar who have the same specialty, excluding themselves), 11.1% (SD 11.2%) of services are perceived as equivocal and 5.1% (SD 7.8%) as inappropriate (Figure 1). In contrast, physicians reported that across all services they personally provide, 7.4% (SD 7.8%) of services are perceived as equivocal and 2.8% (SD 8.1%) as inappropriate (Figure 1). The category with the highest perceived equivocal or inappropriate care was “order, perform, or review noninvasive diagnostic studies (such as x-rays)” for both the assessment of others (22%) and self (12.6%). “Recommend or perform surgeries or procedures” and “Provide counseling or education” solicited responses regarding the least equivocal and inappropriate care for the assessment of others (12.3%) and self (6.4%).

Two changes perceived by more than 80% of respondents as potentially “extremely or very helpful” for reducing the overall level of equivocal or inappropriate care were related to increased use of evidence-based clinical decision rules and patient or family education (Figure 2). “Change malpractice laws” was cited by 75.5% of physicians as potentially “extremely or very helpful.” Other strategies perceived as “extremely or

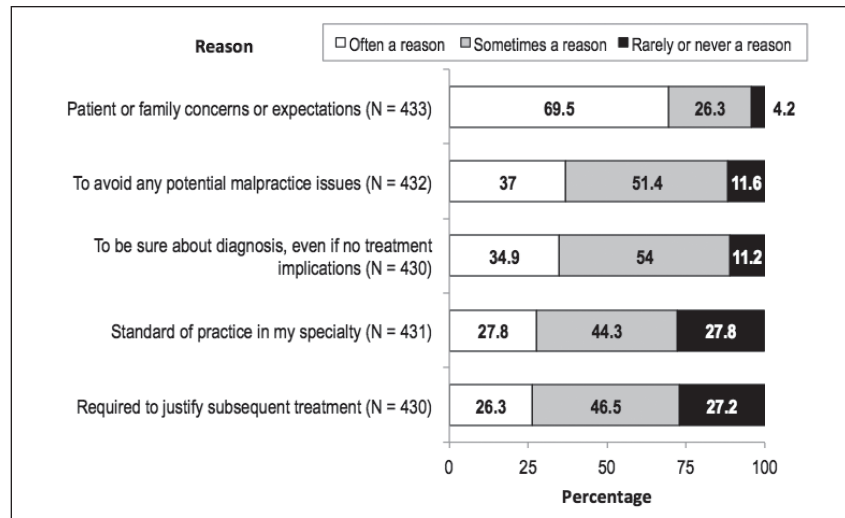


Figure 3. Perceived reasons for equivocal or inappropriate care, limited to reasons reported as “often a reason” by at least 25% of respondents.

Source: Authors’ analysis of Southern California Permanente Medical Group survey data.

very helpful” by more than 50% of physicians are shown in Figure 2.

Nearly 70% of physicians perceived “patient or family concerns or expectations” as “often a reason” for equivocal or inappropriate care—the highest of the 17 reasons on the survey. Other common reasons among at least 25% of respondents are featured in Figure 3.

Willingness to Improve Value

Most physicians indicated they were “very willing” or “somewhat willing” to work with administrators, staff, and colleagues to improve the amount of time they spend on direct patient care (67.5% and 22.7%, respectively). Reported willingness also was high regarding changing practice patterns to minimize equivocal or inappropriate care (66.8% and 24.6%, respectively).

DISCUSSION

We surveyed a sample of frontline physicians practicing within SCPMG to assess their perceptions regarding 2 domains of health care value: The use of time spent on direct patient care tasks and the appropriateness of care provided. The average perception was that 15% of respondents’ time (or 6.7 hours per week) spent on direct patient care could be shifted to nonphysicians or automated or computerized systems. Between 10% and 16% of care provided

was perceived as equivocal (7.4%–11.1%) or inappropriate (2.8%–5.1%).

These findings reveal that within SCPMG, physicians perceive the opportunity to increase health care value through shifting of tasks and avoidance of inappropriate care as small, with less room for improvement than common wisdom may suggest.^{1,4} We contend that to improve value along the two study domains, policy activities should focus broadly on providing physicians (and their patient care teams) with training and resources to discuss, to communicate, to identify, and to manage the preferences and expectations of patients and their families. It also may be useful to test physicians’ perceptions regarding patients’ preferences for who provides care.

Because many theoretically “shiftable” tasks likely occur at irregular or inconsistent time intervals, it may be neither feasible nor efficient for physicians to try to shift every possible task that could be performed by others. However, despite the relatively limited opportunity identified, SCPMG leadership is evaluating existing^{17,18} and new interventions focused on educating and communicating with patients about use of nonphysician staff to perform some tasks within their scope of practice. Interventions under consideration include ways to increase use of the online personal action plan, expand use of pharmacists and nurses in the management of chronic

conditions, and encourage health educators to take a more visible lead regarding weight management and diabetes education. Existing evidence may be referred to while evaluating these options; prior studies revealed ways to identify specific tasks appropriate for shifting,^{1,19} assess the feasibility of shifting a given task,^{1,19} and monitor outcomes (including patient satisfaction) after shifting a task.^{1,19-21}

We believe the disconnect between SCPMG physicians' perceived levels of inappropriate care and recent reviews^{4,5} that concluded more than 30% of all care provided may be of questionable benefit raises three issues. First, the level of inappropriate care may simply be overstated. If so, expectations for lowering costs through avoiding inappropriate care, such as through the Choosing Wisely Campaign,²² should be adjusted downward. This scenario seems unlikely considering the existing, high-quality evidence on overuse even though the problem is grossly understudied.⁵

A second possibility is that integrated, prepaid delivery systems such as KPSC may have already eliminated most inappropriate care. If this is the case, as other delivery systems become more integrated and begin adopting nonfee-for-service payment models, we may be able to expect declines in the provision of inappropriate care.

It is possible that this survey's respondents may be unable to recognize that some care they provide is inappropriate. In this scenario, it may be necessary to address the beliefs and behaviors of physicians regarding appropriate, equivocal, and inappropriate care. To accomplish this, leaders in medicine and decision makers at institutions must consider investments to improve the evidence base. Physician education can complement these activities so physicians can more effectively develop the skills needed to recognize in real time when expected risks of a given treatment option are equal to or less than the expected benefits and work with their patients to find the best path forward.

SCPMG leadership has taken a number of steps in response to the perception among more than 80% of physicians that patient and family education would be extremely or very helpful to minimize equivocal and inappropriate care. Physicians are being encouraged to more proactively

discuss treatment option risks and benefits with patients and their families. Physicians need education on ways to communicate with patients who may desire services that are not medically appropriate; a wait-and-see approach is one option. Physicians are being reminded of shared decision-making programs currently available, and leadership is examining the ways in which these programs may be refined or expanded to help address issues surrounding equivocal care. In this situation, it is particularly important to identify the course of action best aligned with a patient's values and preferences, including cost.

A common concern reported by SCPMG physicians was ensuring patient satisfaction when withholding desired medically inappropriate interventions. In a 2014 American Board of Internal Medicine survey, 23% of physicians viewed "wanting to keep patients happy" as a major reason for ordering unnecessary tests or procedures.⁶ This evidence suggests that physicians' perceptions of the patient care experience—which are based on quality of care in meeting health care needs and not on a desire to keep patients happy—would need to be addressed to implement substantial practice changes to reduce inappropriate care. Efforts are being undertaken within KPSC to assess the relationship between withholding of inappropriate care and patient-reported satisfaction. In the scenario of prescribing antibiotics for acute sinusitis, 79.5% vs 75.4% of patients who did and did not receive antibiotics were satisfied.²³ These findings suggest the potential boost to satisfaction scores (if any) associated with providing desired but medically inappropriate care likely is small, and when such care is not provided, the proportion of patients who are satisfied remains high.

Although it is not surprising that malpractice fears are a concern with respect to equivocal care,^{6,24,25} it is important to note the evidence points to changes in malpractice laws having little effect on intensity of practice measures such as imaging and hospital admission rates.²⁶ The literature clearly confirms that open and honest communication between physicians and patients has a protective effect against malpractice claims.²⁷⁻²⁹ Evidence is beginning to emerge in support of an inverse association between patient experience

scores and patient complaints³⁰ and malpractice costs,³¹ although findings are mixed and more research is needed.³² Studies show that malpractice fears can be a barrier to use of shared decision making^{33,34} (although the Patient Protection and Affordable Care Act may help in this regard),³⁵ but future research is warranted to determine the best ways (eg, development of better treatment protocols or algorithms) to reduce malpractice fears ignited by joint decisions between physicians and patients to not proceed with equivocal care or to withhold desired inappropriate care.

This study had limitations. There were four participation sites within a single integrated delivery system; repeating this study in fee-for-service settings or non-integrated delivery systems could help to determine the generalizability of these findings. However, we believe a strength of our study was that SCPMG physician perceptions may represent a lower-bound estimate on the opportunity to improve value through reducing equivocal and inappropriate care and increase the efficiency with which physicians use their time. This is because the characteristics of KPSC (an integrated, nonfee-for-service delivery system) are such that we expect appropriateness of care and efficient use of physician time to be higher than in traditional fee-for-service settings.

Recall bias and response bias are further limitations that could influence physician responses regarding their use of time and appropriateness of care provided. We attempted to explore response bias by asking physicians to first share their perceptions on appropriateness of care provided by others before asking them to share perceptions of care personally provided.

Lastly, we did not attempt to benchmark physician appropriateness of care because we do not know the degree to which physician respondents can correctly identify care that is equivocal or inappropriate. However, we were not concerned with whether physicians were correct in their assessment of appropriateness; we simply wanted to know their perceptions. Their assessment itself (whether correct or not) underlies their response regarding attempts to reduce or eliminate inappropriate care. For example, if physicians do not perceive "waste" as defined in our survey, they cannot be expected to eliminate it regardless of the policy lever

or level of effort invested. This area warrants future research, with one possible approach being to intersect results from our survey with surveys that use algorithms to identify less-than-appropriate care in a retrospective manner.¹¹

CONCLUSION

Physicians within SCPMG perceived the window of opportunity within which to increase value through shifting tasks and avoiding inappropriate care to be narrower than commonly believed. Policy activities identified as most helpful in increasing value were centered on providing physicians (and their teams) with training and resources for discussing, communicating, identifying, and managing the preferences and expectations of patients and their families. It is possible that actual levels of equivocal and inappropriate care are higher within SCPMG than levels perceived by SCPMG physicians. If this is the case, these findings reveal that policies to reduce suboptimal care may stall until physicians' beliefs or day-to-day practices regarding equivocal and inappropriate care can be addressed. ❖

Disclosure Statement

John P Caloyeras, PhD, is a shareholder in Amgen Inc, Thousand Oaks, CA, but was not at the time the study was conducted. Dr Kanter is a Southern California Permanente Medical Group (SCPMG) partner; Ms Ives and Dr Kim are SCPMG employees. Hemal K Kanzaria, MD, MSHPM, is an unpaid Clinical Advisory Board member for Collective Medical, and has received reimbursement for travel and accommodation-related expenses. He has also been a paid consultant for RAND Health and Castlight Health in the past 36 months. The author(s) have no other conflicts of interest to disclose.

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