Envisioning a Better U.S. Health Care System for All: Health Care Delivery and Payment System Reforms

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The American College of Physicians (ACP) has long advocated for universal access to high-quality health care in the United States. Yet, it is essential that the U.S. health system goes beyond ensuring coverage, efficient delivery systems, and affordability. Fundamental restructuring of payment policies and delivery systems is required to achieve a health care system that puts patients' interests first and supports physicians and their care teams to deliver high-value, patient- and family-centered care. The ACP calls for reform of U.S. payment, delivery, and information technology systems to achieve this vision. The ACP's recommendations include increased investment in primary care; alignment of financial incentives to achieve better patient outcomes, lower costs, reduce inequities in health care, and facilitate team-based care; freeing patients and physicians of inefficient administrative and billing tasks and documentation requirements; and development of health information technologies that enhance the patient–physician relationship.

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In this position paper, the American College of Physicians (ACP) proposes strategies for health care delivery and payment system reform to achieve a better U.S. health care system. The ACP's vision, outlined in an accompanying call to action (1), includes 10 vision statements, 6 of which are particularly relevant to the policies discussed in this paper (**Figure**). The companion position papers address coverage and cost of care (2) and social determinants of health and reducing barriers to care (3). Together, these papers provide a policy framework to achieve ACP's vision for a better U.S. health care system.

The United States spends more on health care than other industrialized countries but has lower rates of insurance coverage and produces variable and uneven health outcomes (4). The fee-for-service (FFS) payment system bases reimbursement for physicians and other clinicians on the number of appointments, tests, or procedures rendered rather than the quality or appropriateness of those services, contributing to suboptimal outcomes (5–7). An Institute of Medicine report (8) estimated that approximately 30% of the $2.5 trillion the United States spent on health care in 2009 (or $765 billion) was waste, with unnecessary services accounting for approximately $210 billion (27%). A 2017 American Medical Association (AMA) survey estimated that over 20% of medical care was unnecessary (9). Moreover, 7 in 10 respondents believed that physicians are more likely to perform unnecessary procedures when they profit from them, and the majority believed that deemphasizing FFS physician compensation would reduce health care utilization and costs (9). Beyond being wasteful, unnecessary services can harm the patient (10, 11).

Value-based payment (VBP) and delivery system interventions were developed with the goal of shifting payments based on quantity of services to payments that incentivize high-quality, cost-effective care (12). Today, one quarter of all payments are tied to FFS, with some link to quality and value (13). Alternative payment models (APMs) are a form of VBP that reward physicians and other clinicians for delivering high-quality, cost-effective care, but they tend to depart further from an underlying FFS structure by offering a financial bonus or penalty for meeting or not meeting quality and spending targets for a given patient population. Some APMs set payment rates in advance, so that clinicians are up to 100% responsible for keeping the savings or absorbing the additional costs they generate.

The ACP supports the goal of payments aligned to promote high-value, patient- and family-centered care, yet VBP as currently implemented has mostly failed to achieve better outcomes at lower cost to patients. This is largely because transformation to VBP has taken a fragmented approach by layering dozens of reporting programs and VBP reform models, each with their own flawed and misaligned metrics, on top of an FFS foundation that often is at odds with goals to reward quality and efficiency.

The ACP believes that fundamental restructuring of payment policies and delivery systems is required to achieve our vision of a health care system where payment and delivery systems put the interests of patients first and supports physicians and their care teams to

The American College of Physicians envisions a health care system where payment and delivery systems put the interests of patients first, by supporting physicians and their care teams in delivering high-value and patient-centered care.

The American College of Physicians envisions a health care system where primary care is supported with a greater investment of resources; where payment levels between complex cognitive care and procedural care are equitable; and where payment systems support the value that internal medicine specialists offer to patients in the diagnosis, treatment, and management of team-based care, from preventive health to complex illness.

The American College of Physicians envisions a health care system where financial incentives are aligned to achieve better patient outcomes, lower costs, and reduce inequities in health care.

The American College of Physicians envisions a health care system where patients and physicians are freed of inefficient administrative and billing tasks, documentation requirements are simplified, payments and charges are more transparent and predictable, and delivery systems are redesigned to make it easier for patients to navigate and receive needed care conveniently and effectively.

The American College of Physicians envisions a health care system where value-based payment programs incentivize collaboration among clinical care team–based members and use only appropriately attributed, evidence-based, and patient-centered measures.

The American College of Physicians envisions a health care system where health information technologies enhance the patient–physician relationship, facilitate communication across the care continuum, and support improvements in patient care.

deliver high-value, patient-centered care. Payment reform must be accompanied by health care delivery redesigned around patients' needs and supported by health information technology (IT) systems that enhance the patient–physician relationship, facilitate communication across the care continuum, and support improvements in patient care. This paper describes ACP's recommendations to achieve this vision.

METHODS

The ACP Medical Practice and Quality Committee drafted these recommendations. The Committee's charge is to address national, state, or local policies related to improving access, payment, coverage, coding, documentation, and medical review, as well as developing programs to support the quality, safety, and affordability of patient care. The authors reviewed available studies, reports, and surveys on barriers to health care from medical journals, academic institutions, industry nonprofits, national and international health care research organizations, and other reputable sources related to the success and limitations of value-based system reform efforts to date. Recommendations were based on reviewed literature and input from ACP's Board of Governors, Board of Regents, Council of Early Career Physicians, Council of Resident/Fellow Members, Council of Student Members, and Council of Subspecialty Societies. The policy paper and related recommendations were reviewed and approved by the ACP Board of Regents on 2 November 2019. Financial support for the development of this position paper comes exclusively from the ACP operating budget.

Defining Value and Quality

To create a system that will successfully deliver high-value health care, there must first be consensus on the definitions of *value* and *quality*. In this context, *value* refers to worth rather than other uses of the term, such as individuals' or society's values. Value has been defined as health care outcomes achieved per dollar spent (14). Yet, how does one appropriately define and compare outcomes across health care settings and patients with different conditions, socioeconomic backgrounds, and preferences?

The ACP believes that value must be defined around the patient, including the processes of care they receive, their clinical outcomes, their own health and health care goals, their safety, and their experience and engagement with their care. As described in ACP's position paper outlining principles for patient and family partnership in care (15), patient and family engagement in quality improvement, outcomes research, performance measures, clinical guideline development, and other related activities offers an opportunity to define value around their needs. The ACP Ethics Manual (16) states that physicians are duty-bound to provide care that is not only effective, but also comports with patient preferences. Value should extend beyond individual physicians to interprofessional care teams, payers, and others engaged in health care.

To define *value*, we must first define *quality*, which can mean different things to different stakeholders. *Quality* is often used interchangeably with *performance*, despite the 2 terms having important distinctions. Many current quality measures aim to determine the performance of the physician, practice, system, or payer, rather than measuring the true quality of care

the patient receives. The term *quality* is complicated by the measurement approach, the entity doing the measuring, and the intent of the measurement. For instance, programs intended to engage in quality improvement are typically driven by the practice, hospital, insurance company, or health system itself in order to take direct action to address the specific needs of their patient population. Public reporting programs and VBP initiatives that tie performance metrics to payment incentives often are driven by a payer or governmental body, with the intent of rewarding or penalizing physicians, other clinicians, or practices on the basis of their relative performance. Although it is important to have standardized metrics to facilitate meaningful comparisons across settings and systems, quality measurement should take into account the unique circumstances and preferences of the target patient population.

Defining and measuring cost is also complex, because any assessment of the costs of an intervention should include not only the cost of the intervention itself, but also any downstream costs or savings that may occur as a result. Investing in more patient-centered comprehensive care can mean more costs in the short term but end up generating savings down the road in the form of reduced hospitalizations or services in acute care settings (17). These savings can take time to realize and may not be easily traced back to prior enhanced care management. The rapidly increasing prices of individual services influence total costs but are separate from this discussion of value, because prices are not currently transparent to patients or their physicians (18) and are often not within the clinician's ability to influence (19).

ACP POLICY POSITIONS AND RECOMMENDATIONS

Putting Patients First

1. The American College of Physicians recommends that value must always be defined with patients and families at the center, fully empowered to be active partners in all aspects of their care.

Patient- and family-centered care can help to improve outcomes, promote patient safety, and lower costs (20). Effectively partnering with patients and their families is critical to achieving the "quadruple aim" of health care: enhancing the patient experience, improving health outcomes, lowering costs, and improving physician satisfaction (21, 22). A 2001 Institute of Medicine report (5) counted patient-centered care among 1 of its 6 core aims for improvement, elaborating that "providing care that is respectful of and responsive to individual preferences, needs, and values and ensuring that patient values guide all clinical decisions" is critical to improving our health care delivery and finance system. Nineteen years later, the United States falls far short of achieving this aim.

Every patient has a unique blend of genetic, lifestyle, socioeconomic, and other factors that can affect the appropriateness of his or her care, risk levels, and effectiveness of treatment options. Beyond this, pa-

tients have a range of values and personal health goals that may ultimately influence which treatment option is best tailored to their individual needs. Discussing care options with patients and their families can also lead to less aggressive treatment that improves patient experience and reduces costs (23). Furthermore, evidence suggests that patients who actively participate in their care tend to report decreased anxiety, quicker recovery, and increased adherence to treatment options (24), which all contribute to better clinical outcomes.

The ACP position paper "Principles for Patient and Family Partnership in Care" (15) identified strategies for clinicians to partner with patients, such as providing patients with access to their electronic medical records. Studies show the patients who have access to their medical records feel more in control of their care and better prepared for visits (25), thus increasing satisfaction, engendering trust in their clinical care team, and improving safety (26). Using decision aids for preference-sensitive conditions; promoting patient self-management of chronic conditions; setting care goals together; conducting motivational interviewing; and providing educational materials, such as after-visit summaries, are all common methods for physicians and their teams to better partner with patients and families.

Creating Transparency to Inform Shared Decision Making

2. The American College of Physicians recommends that all patients, families, and caregivers and their clinical care teams be provided with transparent, understandable, actionable, and evidence-based quality, cost, and price information to meaningfully compare medical services, facilities, and products.

The present U.S. system forces patients to navigate a maze of insurers, plan options, physician, and hospital networks, making it challenging, if not impossible, for patients to get accurate, upfront cost and price estimates. This lack of information makes it difficult for patients to be the center of their own care. To attain maximum system efficiency and patient satisfaction, major treatment decisions should involve shared decision making between the physician and patient based on the clinical evidence, patient preferences, and cost (15, 27, 28). The system must provide patients with the information they need to make educated decisions about which services, physicians, care teams, and treatments are right for them, in a way that a wide range of patients with varying cultural and educational backgrounds can understand. Patients require pricing information that relates to them, including which individual physician and other clinician services are covered and expected out-of-pocket costs. Pricing data should always be provided in the context of important quality metrics (29, 30).

The ACP position paper "Improving Health Care Efficacy and Efficiency Through Increased Transparency" (29) offers recommendations to leverage increased transparency to improve patient experience and quality of care while bringing down costs. Databases that provide accurate information on the prices

and out-of-pocket costs for services in addition to quality information could help to optimize the potential benefits of price transparency.

Building the Bridge to More Complete Value-Based Transformation

3. The American College of Physicians recommends that health care delivery and payment be redesigned to support physician-led, team-based care delivery models in providing effective, patient- and family-centered care.

In 2013, ACP published a set of principles for supporting dynamic clinical care teams (31) that reaffirmed the importance of patients having access to a personal physician who is trained in the care of the "whole person" and has leadership responsibilities for a team of health professionals (32). A unique strength of multidisciplinary teams is that clinicians from different disciplines and specialties bring distinct training, skills, knowledge bases, competencies, and patient care experiences to the team, enabling the team to better respond to the needs of each patient and the population it serves. Payment systems should encourage and support the organization of clinical care teams, both within a practice and across the medical neighborhood (33).

4. The American College of Physicians believes there is not a one-size-fits-all approach to reforming delivery and payment systems to increase value, and a variety of approaches should be considered, evaluated, and expanded.

Physicians and their clinical care teams should have a variety of voluntary VBP models to choose from to help them deliver high-value care that meets the needs of a diverse patient population. Value-based initiatives differ in design, with varying strengths and weaknesses. Model developers and policymakers should harness the strengths of each model to construct a robust network of value-based innovations that can be layered to meet a wide range of unique patient types and needs while being cognizant of the potential for adverse consequences on patient access or quality of care, particularly for underserved populations. Having more choices of value-based programs and models allows physicians and their practices to select value-based solutions that meet their individualized needs on the basis of their specialty, patients, and other considerations.

Of note, models should have varying levels of risk and reward to appeal to a wide range of practices with differing abilities to take on financial risk. Smaller, independent practices can struggle to make the upfront investment necessary to successfully participate in APMs, absorb financial risk, and manage the changing APM landscape (34). Model developers and policymakers should keep these important considerations in mind to attract small, independent, and rural practices to APMs.

Models should reward improvement, as well as consistent high value (35, 36). A key criticism of the Medicare Shared Savings Program has been that accountable care organizations (ACOs) that already provide high-quality, low-cost care have a difficult time continuously improving their performance, which could make it difficult to beat their benchmarks and earn shared savings (37, 38). Value-based models and programs should undergo regular, independent evaluation to ensure accurate measurement of their impact on cost, quality outcomes, and patient satisfaction. Assessment should also consider how well they support the quadruple aim of improving outcomes, enhancing patient satisfaction, lowering costs, and improving physician satisfaction (22). Evaluations should be used to improve the accuracy of individual performance metrics and make design improvements to increase a model's ability to effectively drive and capture quality or efficiency enhancements, as well as to recognize when it is time to sunset a particular program or model. Payers should be encouraged to test and implement new models. Quality improvement or delivery efficiency may take years to develop (39, 40), and lessons learned can inform future value-based models and programs. Capitation, patient-centered medical homes (PCMHs), and direct primary care (DPC) models are gaining momentum from policymakers and physicians.

Capitation

Capitation is the advanced payment of a fixed amount of money per patient, per unit of time, in exchange for future delivery of health care services. Models can be 100% capitation or a hybrid approach in which certain services are capitated and others are FFS. Capitation can manifest in many ways, including salaries, direct contracting, and other variations that are deployed via compensation packages throughout the medical community. However, full capitation may not be a sustainable end goal for all practice types, particularly those that are in rural areas or treating at-risk patient populations. The capitation fee must be predictable and sufficient to cover the costs and practice expenses being incurred and appropriately adjusted for patients' health status and social determinants of health. In addition to the base capitation fee, financial incentives tied to value by using valid, appropriate measures must be sufficient to drive the desired change in care delivery and related investment in infrastructure, which existing research estimates to be 10% to 15% of physician compensation (41). Physicians should be separately reimbursed for providing additional value-added services that exceed the scope of the capitated arrangement, such as performing social determinants of health assessments, behavioral health service assessments, and connecting patients with appropriate services and counseling.

Capitation has the potential to improve physician professional satisfaction and the viability of small and rural practices by drastically reducing, if not eliminating altogether, administrative billing hurdles from third-party payers. However, this approach raises several important questions in terms of access and patient safety, including a potential lack of transparency regarding the safe delivery and appropriateness of care being delivered. Another concern raised regarding capitation

models relates to compliance with clinical best practices (42, 43). Accordingly, patient safety and satisfaction of care must be strictly and closely monitored.

Patient-Centered Medical Homes

These have been implemented across public and private payers, typically tied to a hybrid capitated payment approach. Payment approaches vary, but typically include a prospective per patient, per month fee; ongoing FFS payments; and retrospective payment adjustments based on performance. In some cases, the PCMH model's generated savings struggle to exceed model payments, particularly in initial years of implementation, as was the case with Medicare's Comprehensive Primary Care Initiative and its successor, the Comprehensive Primary Care Plus program (44). Yet, there is some evidence that the PCMH model is associated with meaningful improvements in chronic disease management and can be a critical component of other care models, such as ACOs (45, 46). The PCMH model also demonstrates promise in improving patient outcomes and physician satisfaction, reducing disparities, and recognizing the value of primary care services. For these reasons, ACP supports expansion of the PCMH model.

Direct Primary Care

This is another capitated model that is being increasingly adopted, particularly by small and independent practices. Direct primary care eliminates the role of a third-party payer because the practice directly contracts with the patient to pay an agreed out-of-pocket price for defined services (47). The number of primary care practices engaging in some sort of direct contracting model increased from 125 in 2014 to 620 in 2017, and those practices now serve more than 173 000 patients (48). This growth can be attributed in part to physician frustration with billing hurdles and patient frustrations with high-deductible plans, narrowing physician networks, and inadequate coverage.

The strength of the DPC model lies in its ability to leverage price transparency, improve timely access, and make participating clinicians fully accountable for cost. An advantage of the model is its degree of autonomy, flexibility, and direct relationship between the physician and patient, which allows the practice to scale out-of-pocket costs according to a patient's ability to pay. Yet, there are important patient access implications to consider related to affordability to patients and downsizing patient panels. Many DPC practices have modest monthly capitation fees, particularly for low-income patients. Of note, concierge practices, which tend to be associated with high fees (49), are distinct from DPC models. Another ACP policy paper explores in detail models that contract directly with patients (47).

5. *The American College of Physicians recommends that payers prioritize inclusion of underserved patient populations in all value-based payment models.*

Value-based payment models and other value-based interventions present an opportunity to address health inequities by offering expanded services and increasing patient access to community services and support. As new models are developed and implemented, there is an opportunity to test different approaches to address social determinants of health or specific health disparities in targeted patient populations on a smaller scale to learn which models are most effective and warrant expansion on a larger scale (50). Multiple states are increasingly looking to incorporate behavioral health clinicians and safety net supports into state Medicaid APMs (51). Addressing social determinants can improve patient outcomes in vulnerable populations while producing savings from reduced acute incidents through more effective care management and support. The ACP strongly supports further research about care models that address the needs of underserved populations affected by social determinants of health (52) and considers VBP reform models a critical vehicle for doing so.

Yet, poorly designed VBP models have the potential to exacerbate health inequities, particularly models that feature patient cost-sharing or those that are available only in certain, typically more urban, geographic regions. Practices and health systems that care for vulnerable patient populations must be supported rather than penalized. Risk-adjustment methodologies must be refined and risk-adjusted populations appropriately stratified so as not to unduly penalize practices treating vulnerable patient populations who are battling social inequities by imposing harsh payment penalties, which would directly and negatively affect access to quality care for those patients. Payers should make every effort to reduce the burden of collecting data on social determinants of health, including building data collection into existing clinical workflows, automating data reporting by electronic health records (EHRs) and other technologies, maintaining demographic information in the patient's file, and working with other community-based data sources to leverage available data.

Supporting Primary and Comprehensive Care and the Role of Internal Medicine Specialists

6. *The American College of Physicians recommends that all payment systems substantially increase relative and absolute payments for primary care commensurate with its value in achieving better outcomes and lower costs. Inappropriate disparities in payment levels between complex cognitive care and preventive services, relative to procedurally oriented services, should be eliminated.*

The ACP believes that it is essential that payment policies recognize the value of primary care and that payment is sufficient to reverse the primary care physician shortage. Access to primary care has consistently been associated with higher quality of care (53–55), lower mortality rates (56), higher patient satisfaction (57), and lower total system costs (58–62). Compared with other developed countries, the United States ranked lowest in primary care functions as well as health outcomes, yet highest in health spending (63–65). Moreover, health outcomes have been shown to be better in states with higher ratios of primary care physicians to population

than in those with lower ratios (26, 29, 66). Increasing 1 primary care physician per 10 000 people in 1 state was associated with a rise in that state's quality rank by more than 10 places and a reduction in overall spending by $684 per Medicare beneficiary (61). Adding 1 primary care physician per 10 000 people in the United States resulted in a 6% decrease in all-cause mortality, which amounts to approximately 114 520 fewer people dying in the United States each year (67). Another study estimated that increasing the primary care physician workforce by this amount would reduce inpatient admissions by 5.5%, outpatient visits by 5%, and emergency department visits by 10.9% (59). Hospitalization rates and expenditures for ambulatory care–sensitive conditions also tend to be higher in areas with limited access to primary care (68). With an estimated 5 million admissions to U.S. hospitals, costing approximately $26.5 billion, which are probably preventable with high-quality primary and preventive care treatment (69), substantial savings are possible with a robust primary care workforce. The ACP further reviewed the positive impact that preventive care from internal medicine specialists and other primary care physicians can have on patient health outcomes and containing costs in its white paper, "How Is the Shortage of Primary Care Physicians Affecting the Quality and Cost of Medical Care?" (70).

Despite the value that internal medicine specialists and other primary care physicians bring to the health care system, the U.S. system has systematically undervalued comprehensive primary care (71, 72). This has contributed to physician burnout and a declining interest of U.S. medical students to choose primary care careers (73). From 1961 to 2015, the percentage of U.S. physicians practicing primary care decreased from 50% to 33% (74). By 2015, only 12% of U.S. internal medicine residents pursued general internal medicine instead of a subspecialty, compared with about 29% in the 34 Organization for Economic Co-operation and Development nations (74). The primary reason cited is higher subspecialty salaries (75) in the setting of rising student debt (76). The United States expects a shortfall of up to 49 300 primary care physicians by 2030 (77) and up to 52 000 primary care physicians by 2025 (73). One third of all currently active doctors will be older than 65 years in the next decade (77), exacerbating this issue as those in primary care retire.

General internal medicine physicians play a critical role in primary care. They are responsible for the prevention, diagnosis, management, and treatment of a wide array of conditions and assume principal responsibility for coordinating and managing patients' overall care, particularly for those with multiple complex chronic conditions (31). This role should be supported with adequate payment. The typical primary care physician coordinates with 229 other physicians in 117 different practices in the course of 1 year (78). Six in 10 American adults have at least 1 chronic disease and 4 in 10 have 2 or more, and at $3.3 trillion in annual health costs, chronic disease is responsible for 75% of aggregate national health care spending and is the largest cause of disability and death (79, 80). The in-

creasing health care needs of an aging and increasingly complex population (81), coupled with the transition to care models focused on prevention and value, makes internal medicine specialists well positioned to be the cornerstone of a health system for adults with complex medical needs.

Inappropriate payment disparities for complex cognitive and preventive services, relative to procedure-oriented services, should be eliminated. The current Medicare Resource-Based Relative Value Scale system assigns every medical service a relative value unit and adjusts that for geographic variances in pricing (82). However, the pricing structure does not account for long-term effects on patient health outcomes, mortality rates, total system costs, or patient satisfaction, inherently undervaluing preventive and other cognitive services (83, 84). Moreover, because the annually adjusted Medicare Physician Fee Schedule is budget-neutral by design, the rising prices of procedural services, such as imaging and testing, have resulted in further cuts to cognitive services (85). Most private payers base their payments on this fee schedule by applying a scaling factor, so this discrepancy is magnified (86). Without a mechanism to account for the positive impact that preventive and cognitive services have on outcomes and costs, these problems will persist. Furthermore, the chronic undervaluing of evaluation and management services has damaging consequences for value-based reimbursement because these codes are typically the basis on which APM payments are built and for high-value, patient-centered care management services that are essential for effective care coordination across clinicians and settings in a value-based environment.

Reducing Administrative Complexity and Burden

7. The American College of Physicians recommends the immediate elimination of unnecessary, inefficient, and ineffective billing and reporting requirements for all health care services, as well as reducing administrative barriers to appropriately paying for and valuing non–face-to-face–based care, such as care management.

Complex requirements for billing, documentation, quality reporting, and other administrative tasks implemented by payers and policymakers have made the U.S. health care system one of the most administratively burdensome in the world. Administrative burdens result in less time spent with patients, billions of dollars in unnecessary administrative costs, and unprecedented levels of physician burnout (87, 88). For every hour that a physician spends with the patient, they spend an additional 2 hours on EHR and other desk work (89). Another study estimated that doctors spend on average 8.7 hours per week on administrative tasks (90). The 2018 *Medical Economics* Physician Report (91) and a 2017 AMA survey (92) ranked administrative burden as physicians' top challenge to practice (92). Burdensome administrative processes also generate unnecessary high costs to the health care system.

Despite enhancing patient access and outcomes, some services, including telehealth and non–face-to-face care management services, face regulatory and billing hurdles (93, 94); even when reimbursable, physicians often face administrative hurdles to bill for them. Less burdensome, appropriate reimbursement for these services would be an important step toward a patient-centered, value-based system with improved access.

The ACP's Patients Before Paperwork initiative recognizes the many benefits to simplifying billing and reporting requirements (95). The Centers for Medicare & Medicaid Services' (CMS') own Patients Over Paperwork initiative followed ACP's in late 2017 (96). The ACP continues to advocate for the reduction of billing and reporting burdens across the health system (97).

8. The American College of Physicians believes that value-based payment reform initiatives should increase flexibility and freedom from billing, reporting, and other administrative burdens in exchange for holding physicians and clinical care teams accountable for quality and cost outcomes.

The increasing prevalence of performance-based incentive programs and VBP models that hold physicians and other clinicians accountable for quality and cost outcomes makes measures intended to curb utilization on the front end, such as appropriate use criteria and prior authorization, redundant and should be revoked to avoid unnecessary delays or impediments to patient care. Similarly, the Anti-Kickback Statute and the Stark Law are duplicative in a system that holds physicians accountable for cost and quality outcomes, and can even be a barrier to the goals of these models. The ACP supports efforts to lift some of these restrictions, which would also serve as a valuable added incentive to drive participation in VBP reform models and other value-based efforts (98, 99).

Improving Quality Measurement Accuracy and Effectiveness

9. The American College of Physicians recommends that performance measures and measurement methodologies, when tied to public reporting and payment, be aligned across payers, models, and programs whenever possible.

The many required metrics used for current "value-based" reporting and payment programs are a strong contributor to care team burden and monopolize limited practice resources. Our current approach to measuring quality is focused on measuring performance on the basis of a mixed bag of measures that vary in myriad ways, including but not limited to whether they are patient-centered, evidence-based, clinically relevant, applicable across practice settings, and feasible. Even measures attempting to capture the same insights often have differences in methods of measurement (100). Consequently, physicians are confused and lack confidence in the measures' ability to accurately capture the quality of care (101).

CMS has acknowledged that standardizing performance measures for physicians and hospitals will be critical as the number of VBP models and other performance-based programs continues to grow and participation in them expands (102). Focus on a limited set of accurate, meaningful measures that are consistent across programs will empower physicians to test new models, focus resources on direct patient care, and prioritize interventions that improve the quality and efficiency of care. Aligning metrics also facilitates the sharing of data across payers and models.

10. The American College of Physicians recommends that value-based payment programs move away from "check the box" performance requirements toward a limited set of patient-centered, actionable, appropriately attributed, and evidence-based measures for public reporting and payment purposes, while also supporting the use of additional clinically meaningful measures for internal quality improvement.

Payers and other entities that assess performance should focus on outcomes-based goals and allow physicians and their care teams to decide how to meet them. This will enable physicians to deliver care that is customized to the unique needs and preferences of their patients rather than checking process-related boxes. The ACP calls for an appropriate mix of measures to be used by the physicians and practices to drive value-based improvements, with only a subset of the most valid, meaningful (to both the patient and physician), and evidence-based measures used for public reporting and determining payment. Multiple stakeholders have voiced interest in such an approach (103). The ACP also recognizes that process measures can be valuable indicators of quality in certain cases (104). Ongoing research should determine the appropriateness of measurement approaches tied to payment or whether there is a fundamentally different way that VBPs should be determined. To move toward this goal, payers should immediately reduce the number of required individual metrics within each of their programs and, in particular, limit those used for value calculations and public reporting to a subset of the best available measures. This approach aligns with those advocated by CMS (105) and ACP (95).

Furthermore, ACP strongly supports physician-led, team-based care, particularly in a value-centric environment and recommends that, in most cases, measures tied to payment incentives should be evaluated at the team, practice, or system level rather than at the individual physician or other clinician level (31). A report on private payer value-based initiatives found that performance measurement and incentive payments were more often evaluated at the level of the physician group rather than the individual physician, and that physicians favored this approach (106). Every measure should meet standards for statistical reliability, clinical relevance, patient-centeredness, and other priority criteria. Payers should deploy tactics to improve the statistical reliability of existing measures through tactics including, but not limited to, increasing case minimums, scoring all or certain episode-based measures only at the Tax Identification Number–level, and improving or removing unreliable measures (97).

Meanwhile, physicians, clinical care teams, and practices should use a broader set of structure, process, and outcome measures to internally drive their performance. These internal use and quality improvement measures should be based on the best available evidence, likely to promote appropriate care, and methodologically sound. Practices that engage in these quality improvement efforts should be rewarded for doing so, independent of how they perform on those individual measures.

11. The American College of Physicians recommends that all performance targets be provided to physicians and their clinical care teams in a prospective and transparent manner and that all performance feedback be accurate, actionable, and timely.

Physicians and their clinical care teams are in the best position to optimize patient care and meet performance targets when they know exactly which patients they are responsible for through prospective patient assignment. Voluntary patient attribution, which enables patients to select their primary care physicians, is the patient-centered gold standard. Patient-relationship codes, which allow physicians to identify each patient they are responsible for managing, are another promising form of attribution of patients. These methods should be incorporated into existing clinical and billing processes to minimize burden. If voluntary or another prospective attribution approach is not possible, then payers should establish robust case minimums and look to establish clinical service patterns by requiring 2 or more clinically relevant services or codes to ensure that patients are only assigned to the physicians who are actively involved in their care (107).

Performance targets should be clear, achievable, and prospectively established. The ACP recommends benchmarks that are fixed across all participants, combined with targets that reward improvement for individual performance. Relative benchmarks, which compare groups with their peers and are only available after the performance period, should be avoided (97). Relative benchmarks create arbitrary "winners" and "losers," tend to benefit larger practices and health systems that have more infrastructure to support quality measurement, leave physicians without targets to aim for, and hinder deployment of targeted interventions. Prospective benchmarks should be set by using the most current data available. Shorter performance periods help to facilitate this.

Value-based payment programs should provide physicians and clinical care teams with actionable feedback and raw data that enables them to identify areas for improvement and deploy targeted interventions to improve patient outcomes. Measures must be evaluated at the appropriate level of control and influence, giving groups the opportunity to assess their performance overall while allowing individual clinicians to understand their own individual contributions and thus engender greater physician trust of the data.

For these efforts to effectively influence physician behavior and patient outcomes, feedback must be actionable and timely. Under the Merit-based Incentive Payment System (MIPS), CMS conducts performance feedback on an annual basis and does not make this information available until after the performance year has concluded. Physicians and care teams have to wait over 12 months to receive feedback on certain claims, unless they pay to view the data through a registry or other third-party vendor (108). The ACP recommends that payers make performance data available on at least a quarterly basis, with the goal of providing real-time claims data at the point of care (109). As technology evolves, patient-reported data, including that collected through digital health apps and wearable devices, should also be incorporated to provide a more complete picture of patient experience and outcomes while minimizing the burden of data collection.

"Safe harbors" should be established for clinicians who test measures that are new or are undergoing substantive changes. At a minimum, practices should be provided with the performance results from these measures without having their payments adjusted. Ideally, there should be incentives for those willing to test new measures (109).

12. The American College of Physicians calls for a collaborative, multistakeholder measure development and maintenance process that features upfront, ongoing, and transparent input from patients and frontline physicians and their clinical care teams.

Stakeholder feedback, particularly from patients and physicians and their care teams, is critical to the successful development and implementation of any new VBP. Physicians and their care teams can provide direct, real-world feedback on the cost, burden, and unintended consequences of measures. In the short term, ACP calls for all measures that are relevant to internal medicine and used or proposed for use in public reporting or VBP programs be recommended by ACP's Performance Measurement Committee (PMC), which includes practicing internal medicine specialists and methodology experts. A PMC review of current internal medicine–relevant physician performance measures used in MIPS found only about one third of them to be valid (110). Furthermore, all measures in use by public reporting or VBP programs should be endorsed or recommended by an independent entity, such as the National Quality Forum (NQF), a multistakeholder organization that endorses quality measures and clinical practices by utilizing a consensus-based process with a set of rigorous, evidence-based criteria; the Measures Application Partnership, a multistakeholder partnership born out of the NQF, whose mission is to help the U.S. Department of Health and Human Services select effective performance measures for federal health programs; or the Core Quality Measures Collaborative, a multistakeholder, voluntary effort to promote measure alignment and harmonization across public and private payers with a focus on improving quality metrics, reducing reporting burden, and improving the usability of quality information to help patients make informed decisions about their care (103, 111).

13. The American College of Physicians recommends that the performance measurement infrastruc-

ture evolve into one that supports, with policy that prioritizes, what is important to measure and evaluates and continually improves upon the science of and methodologies for performance measurement.

The short-term approach described above must evolve into a more cohesive infrastructure that consistently and appropriately takes multistakeholder feedback into account. This infrastructure and the policy on which it is based should also serve to 1) identify and prioritize what is important to measure for various purposes; 2) evaluate the science of performance measurement (including ensuring that all measures are fully up to date with the latest clinical best practices and technologies); 3) ensure the optimum methodologies for collecting and sharing measure data; and 4) identify the most accurate and appropriate performance thresholds. Team-based care coordination, patient-reported experience, and outcome measures must be effectively incorporated into performance measurement and VBPs. A first step would be to develop a single set of standards to evaluate the validity and trustworthiness of all performance measures by a neutral third party, such as the National Academy of Medicine (112).

Adequate adjustment for risk, health status, and social determinants of health is critically important to the accurate evaluation of quality and cost metrics without penalizing those who care for sick, underserved patient populations and possibly leading to unintended consequences, such as access issues for vulnerable patient populations (113–115). The ACP and others have noted that CMS' Hierarchical Condition Category (HCC) risk-adjustment methodology, which is also used by many private payers to risk-adjust for their own value-based initiatives, fails to adequately account for social determinants of health, overlap of multiple conditions, and severity of conditions, among other important risk factors (116). Risk-adjustment approaches must be appropriately calibrated to ensure that high-risk patients still receive the best possible care while undesired outcomes that are beyond physicians' control are accounted for. Geographic and social risk factors that negatively affect patient outcomes should also be accounted for. Distance from the nearest hospital or specialist, access to transportation to medical appointments, ability to afford critical medications, and socioeconomic status have all been proven to negatively affect quality and cost outcomes (117, 118). However, most current risk-adjustment methodologies, including HCC, account for none of these.

Finally, all performance measures, methodologies, and VBP programs should be assessed in advance of their implementation for any potential unintended consequences—and continually monitored and updated as needed to ensure that they are truly leading toward better patient-centered care at the lowest cost. As noted earlier, physicians and clinical care teams must be offered the opportunity to provide critical, real-world input into these assessments, including through limited-scale pilots. There should be full transparency around the input they provide, and payers should be responsive to their feedback. Even if a specific change cannot be made, the feedback should be provided in an open manner.

Redesign Health IT to Enhance the Patient–Physician Relationship and Improve Patient Care

14. The American College of Physicians recommends that improvements to health IT usability should prioritize the needs of patients and frontline physicians and their clinical care teams, strive to remove non–value-added interactions, and support value-based payment reform initiatives.

The ACP has long advocated that the primary goal of health IT should be to improve high-value, patient-centered care and facilitate successful implementation of value-based health care payment and delivery reforms. To reach this goal, health IT should enhance patient care and the patient–physician relationship to improve health outcomes while also contributing to seamless data collection, exchange, and access to support value-based care delivery and payment (119). Health IT should engage patients and caregivers and facilitate shared decision making instead of serving as a barrier to care or communication. Improving the efficiency of health IT and EHR-enabled care will provide the health care team with the time and focus necessary to leverage the technology to make care delivery better, safer, and more valuable and decrease the amount of face-to-face time spent on low-acuity care.

Useful health IT for patients and physicians should be more than scanning faxes and digitizing paper; health IT should include features that help physicians and patients make better care decisions and effectively and securely share information with the entire care team, patients, families, and other caregivers. As discussed in detail throughout this paper, VBP and delivery reforms; the promotion of team-based, coordinated care; and technology are changing the way patients engage with the health care system and how physicians work. Patient portals provide online access to medical records for patients and their caregivers, while mobile health applications and wearable devices allow individuals to collect, manage, and communicate their health information. Engagement with these health-related technologies has increased over the years but still lags behind other industries, in part because of the usability of the technology, usefulness of the information provided, and the inability to share data with physician and hospital health IT systems (120).

Patient engagement in technology and efforts to promote patient-centered, team-based, coordinated care has evolved the role of EHRs and the kinds of tools and functionalities necessary to improve care delivery. Physicians need tools within their health IT systems that provide clinical and administrative workflow support, data analytics, advanced data visualization, and anticipatory decision support. These new tools need to leverage existing data within the EHR—as well as data that exist in other EHR systems or external data sources, such as digital health apps or wearable devices—and

remove the need to click through numerous pages and templates to find useful and actionable data. Specifically, EHR screen views and data management can all be enhanced by implementing user-centered design practices and knowledge available on human computer visualization and memory methodology (121, 122). These types of analytical tools can help care teams close gaps in care and identify populations of patients who need closer attention, while helping patients avoid unnecessary hospitalizations and manage chronic diseases. Not only are the usability and usefulness of the technology important for all health care stakeholders, research shows that basic usability enhancements to EHRs are associated with better clinician cognitive workload and performance (123). To meet and exceed these important usability needs, patients, physicians, and clinical care teams must be involved throughout the entire health IT development and testing process. Moreover, the usability of these systems should be effectively assessed before physicians and other clinicians are held accountable for their use with regard to performance metrics and financial incentives or consequences.

Health IT should not only facilitate improvements in patient care, but also reduce the administrative burdens of practice and help both physicians and patients communicate and navigate the complexities of the health care system (89). However, a large body of empirical evidence suggests that health IT is not reaching these goals, but rather adding burden to clinical practice (124, 125) and increasing physician burnout (89). The 2009 Health Information Technology for Economic and Clinical Health (HITECH) Act, and the subsequent Meaningful Use and EHR Incentive programs, provided financial incentives for physicians and hospitals to adopt and "meaningfully use" health IT and EHRs. The HITECH Act was passed a decade ago and has been followed by various iterations of regulatory guidelines and mandates, ultimately resulting in mass adoption of EHRs throughout the country, with EHR adoption and implementation rates among physicians at almost 90% (126). While providing financial incentives to adopt health IT, those initial stages of the Meaningful Use Program focused on measuring functional capabilities of health IT and how physicians and other clinicians used their systems through a "one-size-fits-all" approach. The program did not attempt to address practice-specific usability needs or the ability to exchange health information within and across systems until later stages. Functionality of health IT is an important element in reducing burden and improving patient care; health IT usability and the ability to exchange electronic health data are essential when supporting and enhancing VBP and delivery system reforms. This initial focus, coupled with other regulatory requirements and market-driven incentives, pushed health IT vendors to develop systems designed to collect information for coding and billing purposes and to satisfy regulatory requirements and has resulted in the current state of poor EHR usability and dissatisfaction. The widespread adoption of disparate EHR technologies, developed on the basis of billing and regulatory requirements (in an already overly complex health care system and without a foundation for exchanging information), has resulted in backward incentives across the health IT industry.

The use of EHR data collection capabilities for secondary or alternative purposes, such as billing documentation, measure and public health reporting, and regulatory requirements, among others, must be redesigned in a manner that does not take away from patient care (89). Currently, the U.S. health care system's methods for measuring performance and value is limited owing to the insufficient data currently available within the EHR system, and physicians and clinical care teams are then limited with workflows designed to generate data largely for the sake of reimbursement, performance measurement, and reporting rather than to improve patient care. Since the passage of the HITECH Act in 2009, physicians and other clinicians have continuously been adopting, implementing, and upgrading EHR systems while simultaneously trying to navigate the changing landscape of reporting requirements for incentive programs. To move beyond the burdensome reporting elements of the legacy EHR reporting programs, physicians need more flexibility to choose measures or health IT–related activities that are most beneficial to their practice and patients. Doing so would allow participants to focus on key strategic areas for meaningful improvement in care delivery while reducing reporting burden, promoting interoperability, and promoting the use of health IT to improve patient care.

15. The American College of Physicians calls for interoperability efforts to be focused on the adoption and consistent implementation of health IT standards irrespective of the health IT system or digital technology.

The widespread adoption of disparate health IT systems without the infrastructure for these systems to communicate has resulted in silos of health information. Health IT standards enable software designed by different companies to understand how to exchange clinical data and interpret complicated medical concepts. A number of nationally recognized standards development organizations develop and test these health IT standards through a consensus-based, deliberative process. However, there is still a lack of industry consensus, within and outside health care organizations, on which standards to use, and the implementation of these standards is not always consistent across systems—creating issues when trying to exchange and interpret data. Improvements in interoperability should focus on promoting the consistent adoption and implementation of industry-approved, standards-based technologies, and all healthcare stakeholders must collaborate to develop and implement shared technical requirements to achieve the desired outcomes of improved quality, safety, and efficiency of patient-centered care delivery (127).

16. The American College of Physicians believes that the testing and subsequent implementation of health IT standards and interoperability rules should be conducted in stages to avoid and/or mitigate adverse effects on patient care, privacy, security, clinical workflow, and data visualization and interpretation.

Much of the current focus of improving interoperability is enhancing the flow of all health data ever collected and moving large portions of data elements back and forth between health systems and physicians. This results in an overflow of patient information that can sometimes hinder the ability to find useful and actionable information at the point of care. In addition to industry-approved, standards-based solutions to interoperability, efforts to enhance interoperability should consider the concept of "practical interoperability." Practical interoperability focuses on the exchange of context-rich, meaningful, and actionable data at the point of care, and the ability to incorporate clinical perspective as well as query health IT systems for up-to-date information related to specific and relevant clinical questions. While industry efforts continue to look at both large population-level data sets and individual data elements for exchange, the importance of context and meaning behind the data is critical. The functionality to retrieve and review both large and targeted data sets is important, but the ability for a physician and clinical care team to better understand another clinician's assessment and the patient's encounter in a different health care organization is extremely important. Efforts to improve the exchange of health information should target the high-yield clinical data that have been shown to be the most useful in the clinical management of patients as they transition through the health care system. It is not reasonable or practical to expect a physician or clinician to copy and move pages and pages of care summaries as an appropriate solution to improving interoperability. Such an approach inhibits addressing specific questions and contributes to substantial note bloat and information overload (128). Physicians need data presented in a way that allows them to interpret the important elements and apply medical judgment to the patient at hand, communicate and educate patients on their health, and engage in shared medical decision making (119).

Patients should have seamless access to their health information and will benefit from improvements in interoperability. However, privacy, security, and patient safety concerns remain regarding the increased exchange of health information, particularly given the industry's focus to open the data floodgates and share as much health information as possible (129, 130). Personal health information is some of the most sensitive information. There is evidence showing how health-related app developers sell data to third parties and how most of those developers do not share privacy policies with the patient or, when they do, do not adhere to those policies (131). Although it is absolutely a patient's right to have access to that information, allowing and promoting access to such sensitive information without requiring necessary privacy and security controls presents risks for public embarrassment or possible discrimination. Lack of trust in the system could affect patients' willingness to disclose information to their physicians. As the digital health ecosystem continues to expand and evolve, and third-party technology vendors are gaining access to personal health information, privacy and security guardrails must be put in place before opening any new avenues for exchange. With continued access and exchange of personal health information, the health IT industry must build and maintain a foundation of trust among patients and consumers. Failing to do so will limit the ability of technology to improve patients' experiences with the health care system and improve the ability of physicians and clinical care teams to provide individualized, thoughtful care to patients. Exchanging inaccurate and outdated information poses a patient safety issue as well. From a technical perspective, once a full set of clinical data is sent from the source, it is considered historical data. Something may have changed since the latest copy was received that would cause a change in decision making about the patient. Therefore, it is extremely important that efforts to improve the exchange of sensitive and critical health information should move forward in stages to effectively assess the risks to patient safety, privacy, and care delivery.

17. The American College of Physicians recommends that stakeholders support the development, adoption and use of innovative technologies that seamlessly enable enhanced and coordinated patient-centered care.

As the health care system continues to transform, all key health care stakeholders, including physicians, other clinicians, patients, vendors, payers, and the federal government, should support the development, adoption, and optimal use of innovative information technologies based on the needs of patients, physicians, and care teams. Value-based payment and delivery initiatives that support the adoption and use of these innovative technologies are necessary to effectively spur use and innovation. The health care industry must utilize and leverage existing and emerging health IT to shift the current paradigm to one where EHRs are seen as the solution and not the problem. Examples of innovative, team-based care delivery that can be facilitated by health IT, with appropriate practice infrastructure and support, include integration of non–visit-based care and patient-generated data, facilitated self-care, and proactive chronic care management (132). Specifically, health IT and EHRs can be used to identify patients who have not had preventive services and put into place processes to notify those patients. Recent reports have shown success in new technologies used to connect patients to community resources that help address the ongoing effects of social determinants of health and close gaps in care (133). The National Academy of Medicine outlined necessary components of a patient-centered health information system that include supporting clinical workflow and real-time decision making, allowing visualization of meaningful and actionable cost and coverage data, as well as connecting to all relevant health applications and devices that can span the vast definition of digital health (134). The ACP supports the expanded role of telemedicine as a method of health care delivery that may enhance patient–physician collaborations, improve health outcomes, increase access to care and members of a pa-

tient's health care team, and reduce medical costs when used as a component of a patient's longitudinal care (135).

The integration of artificial intelligence (AI) into health IT remains an important area of focus when discussing innovative technologies to promote seamless delivery of individualized patient care, population health management, and removing burdens associated with EHR use. Cognitive computing, machine learning, neural networks, and deep learning are techniques often associated with AI that can be applied to such tools as natural language processing, voice recognition, pattern recognition, and information extraction. These tools can be applied to a broad range of functions in health care and are still in the early stages of development and implementation. Many projects are attempting to insert AI capabilities into health care processes, including clinical decision support, computer-assisted coding, drug discovery, diagnosis, therapy selection, population health, precision medicine, security, and revenue cycle management, among many others (136). One particular area that has seen some success is feature identification in radiologic images. Systems using "traditional" computer science techniques can only achieve accuracy in the 80% range. Moving to AI techniques, such as deep learning, is raising the scores above 90% and rising (137).

Certain AI technologies have the capability to enhance the clinical documentation process in order to reduce documentation burden on physicians and other clinicians; increase the accuracy of coded data; and support other uses of the clinical documentation such as for research, performance measurement, and public health. Specifically, computer-assisted coding and diagnostic support allow physicians to document care without having to perform all of the coding that payers, regulators, and other stakeholders require. At present, AI-related technologies are making their way into daily use in back-office health care processes. Health care organizations are seeing some success in such areas as automated customer service, managing computer system security, and automated coding for billing, all of which could help detangle the use of health IT systems from administrative processes and instead associate the use of health IT with enhanced clinical care. There is great potential for new technologies, including AI and other digital health technologies, to advance value-based care reform, but more evidence is needed on their ability to improve health outcomes. In the near future, experts expect to see strong growth in support for diagnosis, therapy selection, and population health management through the use of AI capabilities. The movement of automated, AI-based systems into these areas is a cause for concern by many physicians and others—specifically when considering care decisions regarding diagnosis and therapy selection (138). There is justifiable concern that what may be initially presented as an assistant could easily become a risk to physician autonomy and a risk to patient safety. The work in this area could endanger patient safety if not done carefully and in close consultation with physician and other ex-

pert clinicians to make those concerns very clear at every opportunity (139). These concerns must be addressed satisfactorily before these technologies are permitted to enter the clinical workflows, and more research on the potential effects of the use of AI, as well as any emerging technology, in clinical workflows is needed. Once these new technologies are proven safe for patient care, VBP initiatives must support incorporating and testing these new technologies in practice. As discussed previously, user-centered design methodologies should be used, and physicians and patients should be included in the development and implementation of these technologies to adequately represent what is needed for high-value care. Moreover, any new technology, platform, or functionality that is incorporated into health IT systems or existing workflows must be proven safe, effective, and useful before physicians and their care teams are held accountable for using them for reporting or achievement of metrics with financial consequences.

Health IT plays an integral role in VBP and delivery system reforms, and the industry should continue to develop innovative technologies, policies, and technical standards that support the needs of both patients and physicians throughout the health care continuum without adding to administrative or documentation burden. The ACP believes that health IT innovation comes from private health care stakeholders, including payers, physician organizations, technology vendors, physicians, and other clinicians, and the role of the federal government is to serve as a convener and source of information and recommendations that help to further the use of health IT to improve care. The health care industry must utilize and leverage existing and emerging health IT to improve care delivery, reduce administrative burden, and shift the current paradigm to one where EHRs are seen as the solution and not the problem.

CONCLUSION

In 2017, one quarter of U.S. health care payments were tied to some type of pay-for-performance or other quality-based program based on the existing FFS system, whereas another one third were tied to VBP reform models. Those numbers are rising, but less than 4% of payments were based on a population-based payment not built on the FFS architecture (140). As our nation's health care payment and delivery systems move further along the value-based trajectory, it is important to consider where current value-based models are going awry.

First, the failures of the FFS system on which these programs are built must be addressed. The FFS system undervalues the skills of internal medicine specialists and the complex cognitive services they provide relative to procedures. Without fixing the foundation on which these value-based initiatives are built, our country will continue to see shortages in a physician workforce prepared to meet the demands of an aging and complex patient population and the demands of a de-

livery and payment system that depends on primary care physicians to manage care.

From there, patients, physicians, other clinicians, payers, vendors, and other stakeholders must work together to cut through the complex maze of billing requirements, quality reporting criteria, and other administrative red tape that detract from patient care and take us further, not closer, to value. Khan (141) warned, "[I]f we strictly adhere to the current path, Medicare performance measurement could become an exercise in mandated compliance instead of actual performance improvement." Many of those same issues that inhibit the success of MIPS similarly affect private payer programs. Multiple stakeholders must collaborate to develop performance programs and VBP reform models with harmonized quality and cost criteria and shared goals that free practices from the burdens of current programs. This will enable care teams to focus on core areas of improvement and provide them with the flexibility to determine how to most effectively meet quality and cost targets for their unique patient population, collaborating in multipayer initiatives whenever possible. Payers should offer a range of flexible value-based incentive options that accommodate a wide range of diverse practice and patient needs, including rural, socioeconomically disadvantaged, and medically complex populations. Quality and cost metrics, as well as risk-adjustment, patient attribution, and financial benchmarking methodologies, should be meticulously refined through stakeholder input and testing to ensure that they are clinically accurate, statistically relevant and valid, and patient-centered. As health care delivery and payment reform efforts maintain momentum, the health IT industry is at a pivotal moment where a number of critical decisions need to be made and policies developed to enhance health IT and EHR usability, promote practical interoperability, and lay the foundation for future advances in innovative health IT—all in the interest of improving patient-centered care.

To date, value-based reform efforts have been much like the health care system they aim to fix: well-intended, but falling short of expectations while expending many wasted hours and resources in the process. If patients, physicians, payers, and other stakeholders are willing to work together to refocus and align a scattered reform effort, it is possible to achieve a more efficient and effective system that restores satisfaction and confidence among our physician workforce while, most importantly, improving quality of, access to, and satisfaction with care for the patients they serve.

The recommendations offered in this paper will help achieve ACP's vision of a better U.S. health care system for all. Specifically, payment systems must be made to put the interests of patients first, better support primary care, make health care less complex, correct inappropriate disparities in payment levels between complex cognitive care relative to procedures, simplify billing and documentation requirements, and redesign health IT to transform VBP programs to achieve what matters most to physicians and their patients.

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References

1. Doherty R, Cooney TG, Mire RD, et al; Health and Public Policy Committee and Medical Practice and Quality Committee of the American College of Physicians. Envisioning a better U.S. health care system for all: a call to action by the American College of Physicians. Ann Intern Med. 2020;172:S3-6. doi:10.7326/M19-2411
2. Crowley R, Daniel H, Cooney TG, et al; Health and Public Policy Committee of the American College of Physicians. Envisioning a better U.S. health care system for all: coverage and cost of care. Ann Intern Med. 2020;172:S7-32. doi:10.7326/M19-2415
3. Butkus R, Rapp K, Cooney TG, et al; Health and Public Policy Committee of the American College of Physicians. Envisioning a better U.S. health care system for all: reducing barriers to care and addressing social determinants of health. Ann Intern Med. 2020;172: S50-9. doi:10.7326/M19-2410
4. Papanicolas I, Woskie L, Jha A. Health care spending in the United States and other high-income countries. The Commonwealth Fund. 13 March 2018. Accessed at www.commonwealthfund.org /publications/journal-article/2018/mar/health-care-spending-united -states-and-other-high-income on 17 June 2019.
5. Institute of Medicine. Crossing the Quality Chasm: A New Health System for the 21st Century. Washington, DC: National Academies Pr; 2001. doi.org/10.17226/10027
6. Nelson B. Medical care overuse causes waste, harm in healthcare. The Hospitalist. June 2015. Accessed at www.the-hospitalist.org /hospitalist/article/122392/medical-care-overuse-causes-waste-harm -healthcare on 10 October 2019.
7. Emanuel EJ, Fuchs VR. The perfect storm of overutilization. JAMA. 2008;299:2789-91. [PMID: 18560006] doi:10.1001/jama.299 .23.2789
8. Institute of Medicine Roundtable on Evidence-Based Medicine; Yong PL, Saunders RS, Olsen LA, eds. The Healthcare Imperative: Lowering Costs and Improving Outcomes: Workshop Series Summary. Washington, DC: National Academies Pr; 2010. Accessed at www.ncbi.nlm.nih.gov/books/NBK53920/ on 10 October 2019.
9. Lyu H, Xu T, Brotman D, et al. Overtreatment in the United States. PLoS One. 2017;12:e0181970. Accessed at www.ncbi.nlm.nih.gov /pmc/articles/PMC5587107 on 10 October 2019.
10. Niess MA, Prochazka A. Preoperative chest x-rays: a teachable moment. JAMA Intern Med. 2014;174:12. [PMID: 24081219] doi:10 .1001/jamainternmed.2013.10531
11. Gawande A. Overkill. The New Yorker. 11 May 2015. Accessed at www.newyorker.com/magazine/2015/05/11/overkill-atul-gawande on 10 October 2019.

12. Damberg CL, Sorbero ME, Lovejoy SL, et al. Measuring success in health care value-based purchasing programs. Santa Monica, CA: RAND; 2014. Accessed at www.rand.org/content/dam/rand/pubs /research_reports/RR300/RR306/RAND_RR306.pdf on 17 June 2019.

13. Health Care Payment Learning & Action Network. Measuring progress: adoption of APMs in commercial, Medicaid, Medicare Advantage, and Medicare fee-for-service programs. 22 October 2018. Accessed at https://hcp-lan.org/2018-apm-measurement/ on 17 June 2019.

14. Porter ME. What is value in health care? N Engl J Med. 2010;363: 2477-81. [PMID: 21142528] doi:10.1056/NEJMp1011024

15. Nickel WK, Weinberger SE, Guze PA; Patient Partnership in Healthcare Committee of the American College of Physicians. Principles for patient and family partnership in care. An American College of Physicians position paper. Ann Intern Med. 2018;169:796-9. [PMID: 30476985] doi:10.7326/M18-0018

16. Sulmasy LS, Bledsoe TA; ACP Ethics, Professionalism and Human Rights Committee. American College of Physicians ethics manual: seventh edition. Ann Intern Med. 2019;170:S1-32. [PMID: 30641552] doi:10.7326/M18-2160

17. Health Care Cost Institute. 2016 health care cost and utilization report. 19 June 2018. Accessed at www.healthcostinstitute.org /research/annual-reports/entry/2016-health-care-cost-and-utilization -report/ on 2 December 2019.

18. Frakt A, Mehrotra A. What type of price transparency do we need in health care? Ann Intern Med. 2019;170:561-2. [PMID: 30934087] doi:10.7326/M19-0534

19. Saver BG, Martin SA, Adler RN, et al. Care that matters: quality measurement and health care. PLoS Med. 2015;12:e1001902. [PMID: 26574742] doi:10.1371/journal.pmed.1001902

20. Bertakis KD, Azari R. Patient-centered care is associated with decreased health care utilization. J Am Board Fam Med. 2011;24:229-39. [PMID: 21551394] doi:10.3122/jabfm.2011.03.100170

21. Berwick DM, Nolan TW, Whittington J. The triple aim: care, health, and cost. Health Aff (Millwood). 2008;27:759-69. [PMID: 18474969] doi:10.1377/hlthaff.27.3.759

22. Bodenheimer T, Sinsky C. From triple to quadruple aim: care of the patient requires care of the provider. Ann Fam Med. 2014;12: 573-6. [PMID: 25384822] doi:10.1370/afm.1713

23. Paterniti DA, Fancher TL, Cipri CS, et al. Getting to "no": strategies primary care physicians use to deny patient requests. Arch Intern Med. 2010;170:381-8. [PMID: 20177043] doi:10 .1001/archinternmed.2009.533

24. Greenfield S, Kaplan S, Ware JE Jr. Expanding patient involvement in care. Effects on patient outcomes. Ann Intern Med. 1985; 102:520-8. [PMID: 3977198]

25. Nazi KM, Turvey CL, Klein DM, et al. VA OpenNotes: exploring the experiences of early patient adopters with access to clinical notes. J Am Med Inform Assoc. 2015;22:380-9. [PMID: 25352570] doi:10.1136/amiajnl-2014-003144

26. Bell SK, Mejilla R, Anselmo M, et al. When doctors share visit notes with patients: a study of patient and doctor perceptions of documentation errors, safety opportunities and the patient-doctor relationship. BMJ Qual Saf. 2017;26:262-70. [PMID: 27193032] doi: 10.1136/bmjqs-2015-004697

27. Wright AA, Zhang B, Ray A, et al. Associations between end-of-life discussions, patient mental health, medical care near death, and caregiver bereavement adjustment. JAMA. 2008;300:1665-73. [PMID: 18840840] doi:10.1001/jama.300.14.1665

28. Bischoff KE, Sudore R, Miao Y, et al. Advance care planning and the quality of end-of-life care in older adults. J Am Geriatr Soc. 2013; 61:209-14. [PMID: 23350921] doi:10.1111/jgs.12105

29. Daniel H. Improving health care efficacy and efficiency through increased transparency. Position paper. American College of Physicians. 22 July 2017. Accessed at www.acponline.org/acp_policy /policies/improving_health_care_efficacy_and_efficiency_through _increased_transparency_2017.pdf on 17 June 2019.

30. Desai S, Hatfield LA, Hicks AL, et al. Association between availability of a price transparency tool and outpatient spending. JAMA. 2016;315:1874-81. [PMID: 27139060] doi:10.1001/jama.2016.4288

31. Doherty RB, Crowley RA; Health and Public Policy Committee of the American College of Physicians. Principles supporting dynamic clinical care teams: an American College of Physicians position paper. Ann Intern Med. 2013;159:620-6. [PMID: 24042251] doi:10 .7326/0003-4819-159-9-201311050-00710

32. American Academy of Family Physicians; American Academy of Pediatrics; American College of Physicians; American Osteopathic Association. Joint principles of the patient-centered medical home. March 2007. Accessed at www.acponline.org /system/files/documents/running_practice/delivery_and_payment _models/pcmh/demonstrations/jointprinc_05_17.pdf on 2 December 2019.

33. American College of Physicians. The patient-centered medical home neighbor: the interface of the patient-centered medical home with specialty/subspecialty practices. 2010. Accessed at www .acponline.org/system/files/documents/advocacy/current_policy _papers/assets/pcmh_neighbors.pdf on 2 December 2019.

34. Mendel P, Buttorff C, Chen PG, et al. Perspectives of physicians in small rural practices on the Medicare Quality Payment Program. RAND Corporation. 2019. Accessed at www.rand.org/content/dam /rand/pubs/research_reports/RR2800/RR2882/RAND_RR2882.pdf on 17 October 2019.

35. Fincher JW. Re: Medicare Program; Medicare Shared Savings Program; Accountable Care Organizations Pathways to Success (CMS-1701-P). American College of Physicians. 16 October 2018. Accessed at www.acponline.org/acp_policy/letters/acp_response _to_proposed_2019_mssp_rule_2018.pdf on 25 June 2019.

36. Matulis R. Medicaid accountable care organization shared savings programs: options for maximizing provider participation and program sustainability. Center for Health Care Strategies. July 2017. Accessed at www.chcs.org/media/Medicaid-ACO-Benchmark -Rebasing-TA-Brief_072817.pdf on 25 June 2019.

37. Bendix J. CMS's proposed retooling of ACOs getting mixed reviews. Medical Economics. 20 August 2018. Accessed at www .medicaleconomics.com/article/cms%E2%80%99s-proposed -retooling-acos-getting-mixed-reviews on 25 June 2019.

38. Introcaso D, Berger G. MSSP year two: Medicare ACOs show muted success. Health Affairs Blog. 24 September 2015. Accessed at www.healthaffairs.org/do/10.1377/hblog20150924.050753/full/ on 25 June 2019.

39. Highlights of the 2017 Medicare Shared Savings Program results. National Association of ACOs. Accessed at www.naacos.com /highlights-of-the-2017-medicare-shared-savings-program-results on 17 June 2019.

40. Feore J, Sullivan G. Medicare accountable care organizations generate savings. Avalere Health. 2018. Accessed at https://avalere .com/press-releases/medicare-accountable-care-organizations -generate-savings-as-experience-grows on 17 June 2019.

41. Gordon R, Burrill S, Chang C. Volume- to value-based care: physicians are willing to manage cost but lack data and tools. Deloitte. 11 October 2018. Accessed at www2.deloitte.com/insights/us/en /industry/health-care/volume-to-value-based-care.html on 17 June 2019.

42. Tao W, Agerholm J, Burström B. The impact of reimbursement systems on equity in access and quality of primary care: a systematic literature review. BMC Health Serv Res. 2016;16: 542. [PMID: 27716250]

43. Kao AC, Green DC, Zaslavsky AM, et al. The relationship between method of physician payment and patient trust. JAMA. 1998; 280:1708-14. [PMID: 9832007]

44. Peikes D, Anglin G, Harrington M, et al. Independent evaluation of Comprehensive Primary Care Plus (CPC+): first annual report. Mathematica Policy Research. Accessed at www.mathematica.org /our-publications-and-findings/publications/independent-evaluation -of-comprehensive-primary-care-plus-cpc-first-annual-report on 22 April 2019.

45. Caprada C. Patient-centered medical home model improves chronic disease management. Center for Health Equity Research and Promotion. U.S. Department of Veterans Affairs. 20 November 2017.

Accessed at www.cherp.research.va.gov/CHERP/features/VA_PACT_Improves_Outcomes.asp on 17 June 2019.

46. Jabbarpour Y, Coffman M, Habib A, et al. Advanced primary care: a key contributor to successful ACOs. Patient-Centered Primary Care Collaborative. August 2018. Accessed at www.pcpcc.org/sites/default/files/resources/PCPCC%202018%20Evidence%20Report.pdf on 18 June 2019.

47. Doherty R; Medical Practice and Quality Committee of the American College of Physicians. Assessing the patient care implications of "Concierge" and other direct patient contracting practices. A policy position paper from the American College of Physicians. Ann Intern Med. 2015;163:949-52. [PMID: 26551655] doi:10.7326/M15-0366

48. Lacey P. Per capita DPC enrollment. Hint Health. 27 March 2018. Accessed at https://blog.hint.com/per-capita-dpc-enrollment on 25 June 2019.

49. Eskew PM, Klink K. Direct primary care: practice distribution and cost across the nation. J Am Board Fam Med. 2015;28:793-801. [PMID: 26546656] doi:10.3122/jabfm.2015.06.140337

50. Leavitt Partners. Using alternative payment models to address health care disparities. 8 August 2017. Accessed at https://leavittpartners.com/using-alternative-payment-models-address-health-care-disparities/ on 17 June 2019.

51. Browning L, Minnes K. The next generation of paying for value in Medicaid. The Commonwealth Fund. 11 October 2018. Accessed at www.commonwealthfund.org/blog/2018/next-generation-paying-value-medicaid on 17 June 2019.

52. Daniel H, Bornstein SS, Kane GC; Health and Public Policy Committee of the American College of Physicians. Addressing social determinants to improve patient care and promote health equity. An American College of Physicians position paper. Ann Intern Med. 2018;168:577-8. [PMID: 29677265] doi:10.7326/M17-2441

53. Jerant A, Fenton JJ, Franks P. Primary care attributes and mortality: a national person-level study. Ann Fam Med. 2012;10:34-41. [PMID: 22230828] doi:10.1370/afm.1314

54. Roetzheim RG, Ferrante JM, Lee JH, et al. Influence of primary care on breast cancer outcomes among Medicare beneficiaries. Ann Fam Med. 2012;10:401-11. [PMID: 22966103] doi:10.1370/afm.1398

55. Starfield B, Shi L, Macinko J. Contribution of primary care to health systems and health. Milbank Q. 2005;83:457-502. [PMID: 16202000]

56. Basu S, Berkowitz SA, Phillips RL, et al. Association of primary care physician supply with population mortality in the United States, 2005-2015. JAMA Intern Med. 2019;179:506-14. [PMID: 30776056] doi:10.1001/jamainternmed.2018.7624

57. Safran DG, Taira DA, Rogers WH, et al. Linking primary care performance to outcomes of care. J Fam Pract. 1998;47:213-20. [PMID: 9752374]

58. Cheung PT, Wiler JL, Lowe RA, et al. National study of barriers to timely primary care and emergency department utilization among Medicaid beneficiaries. Ann Emerg Med. 2012;60:4-10.e2. [PMID: 22418570] doi:10.1016/j.annemergmed.2012.01.035

59. Kravet SJ, Shore AD, Miller R, et al. Health care utilization and the proportion of primary care physicians. Am J Med. 2008;121:142-8. [PMID: 18261503] doi:10.1016/j.amjmed.2007.10.021

60. Kronman AC, Ash AS, Freund KM, et al. Can primary care visits reduce hospital utilization among Medicare beneficiaries at the end of life? J Gen Intern Med. 2008;23:1330-5. [PMID: 18506545] doi:10.1007/s11606-008-0638-5

61. Baicker K, Chandra A. Medicare spending, the physician workforce, and beneficiaries' quality of care. Health Aff (Millwood). 2004; Suppl Web Exclusives:184-97.

62. Ferrante JM, McCarthy EP, Gonzalez EC, et al. Primary care utilization and colorectal cancer outcomes among Medicare beneficiaries. Arch Intern Med. 2011;171:1747-57. [PMID: 22025432] doi:10.1001/archinternmed.2011.470

63. Starfield B. Primary care and health. A cross-national comparison. JAMA. 1991;266:2268-71. [PMID: 1920727]

64. Starfield B, Shi L. Policy relevant determinants of health: an international perspective. Health Policy. 2002;60:201-18. [PMID: 11965331]

65. Starfield B. Primary Care: Concept, Evaluation, and Policy. New York: Oxford Univ Pr; 1992:6, 213-35.

66. Friedberg MW, Hussey PS, Schneider EC. Primary care: a critical review of the evidence on quality and costs of health care. Health Aff (Millwood). 2010;29:766-72. [PMID: 20439859] doi:10.1377/hlthaff.2010.0025

67. Zhan C, Miller MR, Wong H, et al. The effects of HMO penetration on preventable hospitalizations. Health Serv Res. 2004;39:345-61. [PMID: 15032958]

68. Parchman ML, Culler S. Primary care physicians and avoidable hospitalizations. J Fam Pract. 1994;39:123-8. [PMID: 8057062]

69. Kruzikas DT, Jiang HJ, Remus D, et al. Preventable Hospitalizations: A Window into Primary and Preventive Care, 2000. AHRQ publication no. 04-0056. Rockville, MD: Agency for Healthcare Research and Quality; 2004.

70. Zerehi R. How is the shortage of primary care physicians affecting the quality and cost of medical care? Position paper. American College of Physicians. 25 October 2008. Accessed at www.acponline.org/acp_policy/policies/primary_care_shortage_affecting_hc_2008.pdf on 17 June 2019.

71. Rosenblatt RA, Wright GE, Baldwin LM, et al. The effect of the doctor-patient relationship on emergency department use among the elderly. Am J Public Health. 2000;90:97-102. [PMID: 10630144]

72. Menec VH, Sirski M, Attawar D. Does continuity of care matter in a universally insured population? Health Serv Res. 2005;40:389-400. [PMID: 15762898]

73. Petterson SM, Liaw WR, Phillips RL Jr, et al. Projecting US primary care physician workforce needs: 2010-2025. Ann Fam Med. 2012; 10:503-9. [PMID: 23149526] doi:10.1370/afm.1431

74. Dalen JE, Ryan KJ, Alpert JS. Where have the generalists gone? They became specialists, then subspecialists [Editorial]. Am J Med. 2017;130:766-8. [PMID: 28216448] doi:10.1016/j.amjmed.2017.01.026

75. Hauer KE, Durning SJ, Kernan WN, et al. Factors associated with medical students' career choices regarding internal medicine. JAMA. 2008;300:1154-64. [PMID: 18780844] doi:10.1001/jama.300.10.1154

76. Craft JA 3rd, Craft TP. Rising medical education debt a mounting concern. Graduates also face less favorable repayment terms, shortage of training positions. Mo Med. 2012;109:266-70. [PMID: 22953586]

77. New research shows increasing physician shortages in both primary and specialty care. Association of American Medical Colleges. 11 April 2018. Accessed at www.aamc.org/news-insights/press-releases/new-research-shows-increasing-physician-shortages-both-primary-and-specialty-care on 21 June 2019.

78. Pham HH, O'Malley AS, Bach PB, et al. Primary care physicians' links to other physicians through Medicare patients: the scope of care coordination. Ann Intern Med. 2009;150:236-42. [PMID: 19221375]

79. Centers for Disease Control and Prevention. Chronic diseases in America. 15 April 2019. Accessed at www.cdc.gov/chronicdisease/resources/infographic/chronic-diseases.htm on 17 June 2019.

80. Raghupathi W, Raghupathi V. An empirical study of chronic diseases in the United States: a visual analytics approach. Int J Environ Res Public Health. 2018;15. [PMID: 29494555] doi:10.3390/ijerph15030431

81. Bodenheimer T, Chen E, Bennett HD. Confronting the growing burden of chronic disease: can the U.S. health care workforce do the job? Health Aff (Millwood). 2009;28:64-74. [PMID: 19124856] doi:10.1377/hlthaff.28.1.64

82. American Medical Association. RBRVS overview. Accessed at www.ama-assn.org/about/rvs-update-committee-ruc/rbrvs-overview on 17 June 2019.

83. Ginsburg PB, Grossman JM. When the price isn't right: how inadvertent payment incentives drive medical care. Health Aff (Millwood). 2005;Suppl Web Exclusives:W5-376-84.

84. Katz S, Melmed G. How relative value units undervalue the cognitive physician visit: a focus on inflammatory bowel disease. Gastroenterol Hepatol (N Y). 2016;12:240-4. [PMID: 27231455]

85. Rebalancing Medicare's physician fee schedule toward ambulatory evaluation and management services. In: Report to the Congress: Medicare and the Health Care Delivery System. Washington, DC: Medicare Payment Advisory Commission; June 2018:65-84. Accessed at www.medpac.gov/docs/default-source/reports/jun18 _medpacreporttocongress_sec.pdf on 2 December 2019.

86. Centers for Medicare & Medicaid Services. 2019 Physician Fee Schedule and Quality Payment Program. Final rule. Accessed at www.govinfo.gov/content/pkg/FR-2018-11-23/pdf/2018-24170.pdf on 2 December 2019.

87. Himmelstein DU. A comparison of hospital administrative costs in eight nations: U.S. costs exceed all others by far. The Commonwealth Fund. 8 September 2014. Accessed at www.commonwealth fund.org/publications/journal-article/2014/sep/comparison -hospital-administrative-costs-eight-nations-us on 17 June 2019.

88. Organization for Economic Co-operation and Development. Health and expenditure funding. Accessed at https://stats.oecd.org /Index.aspx?DataSetCode=SHA#_ga=2.200178408.777802634 .1559938198-455313369.1559938198 on 17 June 2019.

89. Sinsky C, Colligan L, Li L, et al. Allocation of physician time in ambulatory practice. A time and motion study in 4 specialties. Ann Intern Med. 2016;165:753-60. [PMID: 27595430] doi:10.7326 /M16-0961

90. Woolhandler S, Himmelstein DU. Administrative work consumes one-sixth of U.S. physicians' working hours and lowers their career satisfaction. Int J Health Serv. 2014;44:635-42. [PMID: 25626223]

91. What's ruining medicine for physicians: paperwork and administrative burdens. Medical Economics. 12 December 2018. Accessed at www.medicaleconomics.com/business/whats-ruining-medicine -physicians-paperwork-and-administrative-burdens on 2 December 2019.

92. Survey: U.S. physicians overwhelmingly satisfied with career choice. American Medical Association. 30 March 2017. Accessed at www.ama-assn.org/press-center/press-releases/survey-us-physicians -overwhelmingly-satisfied-career-choice on 17 June 2019.

93. Ashwood JS, Mehrotra A, Cowling D, et al. Direct-to-consumer telehealth may increase access to care but does not decrease spending. Health Aff (Millwood). 2017;36:485-491. [PMID: 28264950] doi: 10.1377/hlthaff.2016.1130

94. Kvedar J, Coye MJ, Everett W. Connected health: a review of technologies and strategies to improve patient care with telemedicine and telehealth. Health Aff (Millwood). 2014;33:194-9. [PMID: 24493760] doi:10.1377/hlthaff.2013.0992

95. Erickson SM, Rockwern B, Koltov M, et al; Medical Practice and Quality Committee of the American College of Physicians. Putting patients first by reducing administrative tasks in health care. A position paper of the American College of Physicians. Ann Intern Med. 2017;166:659-61. [PMID: 28346948] doi:10.7326/M16-2697

96. Centers for Medicare & Medicaid Services. Patients over paperwork. Accessed at www.cms.gov/About-CMS/story-page/patients -over-paperwork.html on 18 June 2019.

97. Mire RD. Re: Medicare Program; CY 2020 revisions to payment policies under the Physician Fee Schedule and other changes to Part B payment policies. American College of Physicians. 26 September 2019. Accessed at www.acponline.org/acp_policy/letters/acp _comments_proposed_2020_pfs-qpp_rule_september_2019.pdf on 17 October 2019.

98. Fincher JW. Re: request for information regarding Physician Self-Referral Law[CMS-1720-NC]. American College of Physicians. 24 August 2018. Accessed at www.acponline.org/acp_policy/letters/acp _stark_rfi_comments_2018.pdf on 17 October 2019.

99. ACP response to request for information regarding anti-kickback statute and beneficiary inducements. American College of Physicians. 25 October 2018. Accessed at www.acponline.org/acp_policy /letters/acp_aks_rfi_comments_2018.pdf on 17 October 2019.

100. Center for Medicare and Medicaid Innovation. Comprehensive Primary Care Plus: CPC+ payment and attribution methodologies for program year 2019. 21 February 2019. Accessed at https://innovation.cms.gov/Files/x/cpcplus-methodology-py19.pdf on 17 June 2019.

101. Fincher JW. Re: Medicare Program; CY 2018 updates to the Quality Payment Program [CMS-5522-P]. American College of Physicians. 21 August 2017. Accessed at www.acponline.org/acp_policy /letters/cms_comment_letter_re_cy_2018_macra_qpp_proposed _rule_2017.pdf on 17 June 2019.

102. Sanborn BJ. CMS promises more APM's, continued flexibility, better alignment of reporting tracks for MACRA. Healthcare Finance. 16 March 2018. Accessed at www.healthcarefinancenews.com /news/cms-promises-more-apms-continued-flexibility-better -alignment-reporting-tracks-macra on 25 June 2019.

103. AHIP, CMS, and NQF partner to promote measure alignment and burden reduction. Core Quality Measures Collaborative. Accessed at www.qualityforum.org/cqmc/ on 17 October 2019.

104. Internists express support for CMS on its Patients Over Paperwork and Meaningful Measures initiatives. American College of Physicians. 31 October 2017. Accessed at www.acponline.org/acp -newsroom/internists-express-support-for-cms-on-its-patients-over -paperwork-and-meaningful-measures on 17 June 2019.

105. Centers for Medicare & Medicaid Services. Meaningful Measures hub. Accessed at www.cms.gov/Medicare/Quality-Initiatives -Patient-Assessment-Instruments/QualityInitiativesGenInfo/MMF /General-info-Sub-Page.html on 18 October 2019.

106. Cosgrove J. Private-sector initiatives can help inform CMS quality and efficiency incentive efforts. Government Accountability Office. December 2012. Accessed at www.gao.gov/assets/660/651103 .pdf on 17 June 2019.

107. Mire RD. Re: Development and reevaluation of outpatient outcome measures for the Merit-based Incentive Payment System (MIPS). American College of Physicians. 24 May 2019. Accessed at www.acponline.org/acp_policy/letters/acp_letter_to_cms _development_mips_outcome_measure_hospital_admission_rates _2019.pdf on 17 October 2019.

108. Quality Payment Program, Centers for Medicare & Medicaid Services. Performance year 2019 timeline. Accessed at https://qpp .cms.gov/about/deadlines on 17 October 2019.

109. Fincher JW. Re: Medicare program; revisions to payment policies under the Physician Fee Schedule and other revisions to Part B for CY 2019; Medicare Shared Savings Program requirements; Quality Payment Program; and Medicaid Promoting Interoperability Program [CMS-1693-P]. American College of Physicians. 10 September 2018. Accessed at www.acponline.org/acp_policy/letters/acp _comments_2019_qpp_pfs_proposed_rule_2018.pdf on 17 June 2019.

110. MacLean CH, Kerr EA, Qaseem A. Time out - charting a path for improving performance measurement. N Engl J Med. 2018;378: 1757-61. [PMID: 29668361] doi:10.1056/NEJMp1802595

111. National Quality Forum. NQF's history. Accessed at www .qualityforum.org/about_nqf/history/ on 17 June 2019.

112. ACP calls for a 'time out' to assess and revise approach to performance measurement. American College of Physicians. 18 April 2018. Accessed at www.acponline.org/acp-newsroom/acp-calls-for-a -time-out-to-assess-and-revise-approach-to-performance-measurement on 17 June 2019.

113. Wadhera RK, Joynt Maddox KE, Wasfy JH, et al. Association of the hospital readmissions reduction program with mortality among Medicare beneficiaries hospitalized for heart failure, acute myocardial infarction, and pneumonia. JAMA. 2018;320:2542-52. [PMID: 30575880] doi:10.1001/jama.2018.19232

114. Sheingold SH, Zuckerman R, Shartzer A. Understanding medicare hospital readmission rates and differing penalties between safety-net and other hospitals. Health Aff (Millwood). 2016;35:124-31. [PMID: 26733710] doi:10.1377/hlthaff.2015.0534

115. Gu Q, Koenig L, Faerberg J, et al. The Medicare Hospital Readmissions Reduction Program: potential unintended consequences for hospitals serving vulnerable populations. Health Serv Res. 2014; 49:818-37. [PMID: 24417309] doi:10.1111/1475-6773.12150

116. Chen LM, Epstein AM, Orav EJ, et al. Association of practice-level social and medical risk with performance in the medicare physician value-based payment modifier program. JAMA. 2017;318:453-461. [PMID: 28763549] doi:10.1001/jama.2017.9643

117. Warshaw R. Health disparities affect millions in rural U.S. communities. Association of American Medical Colleges. 31 October 2017. Accessed at https://news.aamc.org/patient-care/article/health-disparities-affect-millions-rural-us-commun/ on 17 June 2019.

118. Internists say social determinants of health play role in improving patient care and promoting health equity. American College of Physicians. 17 April 2018. Accessed at www.acponline.org/acp-newsroom/internists-say-social-determinants-of-health-play-role-in-improving-patient-care-and-promoting on 17 June 2019.

119. Kuhn T, Basch P, Barr M, et al; Medical Informatics Committee of the American College of Physicians. Clinical documentation in the 21st century: executive summary of a policy position paper from the American College of Physicians. Ann Intern Med. 2015;162:301-3. [PMID: 25581028] doi:10.7326/M14-2128

120. Patel V, Johnson C. Individuals' use of online medical records and technology for health needs. Office of the National Coordinator for Health Information Technology. April 2018. Accessed at www.healthit.gov/sites/default/files/page/2018-03/HINTS-2017-Consumer-Data-Brief-3.21.18.pdf on 18 June 2019.

121. West VL, Borland D, Hammond WE. Innovative information visualization of electronic health record data: a systematic review. J Am Med Inform Assoc. 2015;22:330-9. [PMID: 25336597] doi:10.1136/amiajnl-2014-002955

122. Rizvi RF, Marquard JL, Hultman GM, et al. Usability evaluation of electronic health record system around clinical notes usage-an ethnographic study. Appl Clin Inform. 2017;8:1095-105. [PMID: 29241247] doi:10.4338/ACI-2017-04-RA-0067

123. Mazur LM, Mosaly PR, Moore C, et al. Association of the usability of electronic health records with cognitive workload and performance levels among physicians. JAMA Netw Open. 2019;2:e191709. [PMID: 30951160] doi:10.1001/jamanetworkopen.2019.1709

124. Sinsky C, Colligan L, Li L, et al. Allocation of physician time in ambulatory practice. A time and motion study in 4 specialties. Ann Intern Med. 2016;165:753-60. [PMID: 27595430] doi:10.7326/M16-0961

125. Arndt BG, Beasley JW, Watkinson MD, et al. Tethered to the EHR: primary care physician workload assessment using EHR event log data and time-motion observations. Ann Fam Med. 2017;15:419-426. [PMID: 28893811] doi:10.1370/afm.2121

126. National Center for Health Statistics. National Health Care Surveys fact sheet. 2019. Accessed at www.cdc.gov/nchs/data/factsheets/factsheet_nhcs.pdf on 17 June 2019.

127. Pronovost P, Johns MM, Palmer S, et al, eds. Procuring Interoperability: Achieving High-Quality, Connected, and Person-Centered Care. Washington, DC: National Academy of Medicine; 2018.

128. Hultman GM, Marquard JL, Lindemann E, et al. Challenges and opportunities to improve the clinician experience reviewing electronic progress notes. Appl Clin Inform. 2019;10:446-53. [PMID: 31216591] doi:10.1055/s-0039-1692164

129. Shen N, Bernier T, Sequeira L, et al. Understanding the patient privacy perspective on health information exchange: a systematic review. Int J Med Inform. 2019;125:1-12. [PMID: 30914173] doi:10.1016/j.ijmedinf.2019.01.014

130. McGraw D, Dempsey JX, Harris L, et al. Privacy as an enabler, not an impediment: building trust into health information exchange. Health Aff (Millwood). 2009;28:416-27. [PMID: 19275998] doi:10.1377/hlthaff.28.2.416

131. Huckvale K, Torous J, Larsen ME. Assessment of the data sharing and privacy practices of smartphone apps for depression and smoking cessation. JAMA Netw Open. 2019;2:e192542. [PMID: 31002321] doi:10.1001/jamanetworkopen.2019.2542

132. Smith CD, Balatbat C, Corbridge S, et al. Implementing optimal team-based care to reduce clinician burnout. Discussion paper. National Academy of Medicine. 17 September 2018. Accessed at https://nam.edu/implementing-optimal-team-based-care-to-reduce-clinician-burnout/ on 2 December 2019.

133. Arndt RZ. Tending to social determinants of health with software. Modern Healthcare. 26 January 2019. Accessed at www.modernhealthcare.com/article/20190126/TRANSFORMATION03/190129973/tending-to-social-determinants-of-health-with-software on 17 June 2019.

134. Horvath K, Sengstack P, Opelka F, et al. The vision for a person-centered health information system. Discussion paper. National Academy of Medicine. 1 October 2018. Accessed at https://nam.edu/a-vision-for-a-person-centered-health-information-system/ on 2 December 2019.

135. Daniel H, Sulmasy LS; Health and Public Policy Committee of the American College of Physicians. Policy recommendations to guide the use of telemedicine in primary care settings. An American College of Physicians position paper. Ann Intern Med. 2015;163:787-9. [PMID: 26344925] doi:10.7326/M15-0498

136. Sullivan T. Half of hospitals to adopt artificial intelligence within 5 years. Healthcare IT News. 11 April 2017. Accessed at www.healthcareitnews.com/news/half-hospitals-adopt-artificial-intelligence-within-5-years on 17 June 2019.

137. Monegain B. How artificial intelligence is helping detect tuberculosis in remote areas. Healthcare IT News. 19 April 2017. Accessed at www.healthcareitnews.com/news/how-artificial-intelligence-helping-detect-tuberculosis-remote-areas on 17 June 2019.

138. Challen R, Denny J, Pitt M, et al. Artificial intelligence, bias and clinical safety. BMJ Qual Saf. 2019;28:231-7. [PMID: 30636200] doi:10.1136/bmjqs-2018-008370

139. Roberts K, Boland MR, Pruinelli L, et al. Biomedical informatics advancing the national health agenda: the AMIA 2015 year-in-review in clinical and consumer informatics. J Am Med Inform Assoc. 2016;24:e185-90.

140. Health Care Payment Learning & Action Network. APM measurement effort. Accessed at https://hcp-lan.org/workproducts/apm-infographic-2018.pdf on 17 June 2019.

141. Kahn C. The future of value-based payment-time to reexamine and refocus our efforts. Health Affairs Blog. 11 August 2017. Accessed at www.healthaffairs.org/do/10.1377/hblog20170811.061426/full/ on 18 June 2019.

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