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Financing Diabetes Care in the U.S. Health System: Payment Innovations for Addressing the Medical and Social Determinants of Health

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Abstract

Purpose of Review Review innovations in health care financing promoting health system investments in addressing medical and social determinants of health (SDH) for patients with diabetes.

Recent Findings Particular payment models implemented in the public and private sectors increasingly offer flexibility in health care organizations (HCOs) to allocate resources towards helping patients with diabetes overcome the medical and socio-economic problems driving poor population and individual health.

Summary The barriers imposed by the traditional fee-for-service (FFS) payment model to incorporating SDH into health care delivery across the health system are being overcome with new payment approaches rewarding the quality of care provided rather than strictly the volume of health services rendered. Evidence suggests health care financing changes will facilitate the realization of health reform goals to provide the right care to the right people at the right time through the expansion of the role of integrated care teams that can address patients' medical and health-related social needs.

Keywords Diabetes · Social determinants of health (SDH) · Chronic disease · Health care financing

Introduction

The USA spends more on health care compared to other developed countries without achieving comparable improvements in health outcomes [1]. In lieu of projections that national health spending would continue to grow faster than the economy, health reform efforts set in motion with the passage of the Affordable Care Act [2] made cost containment and reduction national priorities. As of 2017, national health expenditures in the USA were 18% of the gross domestic product (GDP) [3]. Approximately 6% of GDP, over $1 trillion dollars in direct health care costs [4], were attributable to chronic conditions, like diabetes, which are also major drivers of death and disability in the USA [5]. The total estimated cost of diabetes alone in 2017 was $327 billion, and predictions were that diabetes would continue to pose a major health crisis for Americans despite medical advances and prevention efforts. Projections estimated that more than $622 billion in medical and societal costs would be related to diabetes [6]. Currently, over 30 million Americans have diabetes, and more than 1 in 3 US adults have prediabetes—no diagnosis of diabetes but higher than normal blood sugar levels [7, 8]. With the increase in the prevalence of diabetes across the USA, aggressive population health measures were prescribed to help interrupt and turn around grim trends in diabetes prevalence, morbidity, and costs [6].

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Population health focuses on "the health outcomes of a group of individuals, including the distribution of such outcomes within the group" [9]. Health systems, including both the insurers responsible for reimbursing health care providers on behalf of patients and the health care organizations (HCOs) providing front-line patient care, have adopted population health management (PHM) as a promising means for improving health, quality of care, and/or reducing health care costs [1]. One proposed PHM strategy has been for health systems to assess patients' health status, socioeconomic status, and personal characteristics to more equitably allocate the appropriate level of resources for addressing the needs of a particular group [10]. These types of strategies represent efforts stemming from the growing recognition across the health care system that medical care alone only influences a small portion of overall health that determines health care utilization and costs [11]. The broader social, economic, and environmental factors more significantly influence health status over the lifespan, accounting for nearly 80% of what influences overall health [11–14]. These social determinants of health (SDH) include the range of non-medical factors that are shaped by the unequal distribution of power and resources across all levels of society and which ultimately impact health [15]. Consequently, SDH can serve as a major source of social and economic disadvantage, making them a promising target for reducing health inequities [16].

Better integration of SDH into the health care system may hold the greatest potential to improve health outcomes and reduce health care expenditures [17]. However, our health care system currently lacks a consistent, organized way to capture those social needs across different care settings and incorporate that data into an individualized overall care plan. Impacting SDH in a way that would result in population level changes requires broad public policy action for which a major challenge is the need to finance what are considered public goods. To date, health policy financing approaches to address SDH rely on government and organizational resources for funding, but, unlike voters or local/state legislatures, these groups lack the authority to institute wider policy changes that could have more sustainable impacts. The role, responsibility, and scope of participation for the health system in this process have yet to be defined making the standardization of financing difficult. No consensus exists despite public support from clinicians on how exactly to finance SDH interventions in clinical settings [18, 19].

To our knowledge, no overview describes the new payment innovations that are being employed in the US health care system to address SDH specifically to improve diabetes care. While not a systematic review, we report on the development and use of new payment models supporting diabetes interventions that incorporate SDH into patient care. We also describe the current state of provider reimbursement for various approaches to diabetes care delivery addressing patients' SDH. To conclude, we highlight the policy implications of the changing payment landscape around SDH, emphasizing the opportunities to reinforce a supportive payment infrastructure as well as the need for additional research on the effects of such changes to payment policy for patients with diabetes.

The Changing Payment Landscape

To date, the vast majority of the interventions to target SDH have been focused on strategies to mitigate the acute social and economic challenges of individual patients by providing a bridge between the clinical encounter and community-based social services [20••]. Alternative payment models (APMs) have created unique opportunities for health insurers to work with HCOs to integrate SDH into diabetes care. The health care financing innovations, including APMs, altering the payment landscape for diabetes care are described in Table 1. Global capitation and shared-savings payment approaches foundational to some APMs reward reductions in avoidable health care use and promote population health. They also offer financial incentives to integrate managing medical and social needs for patients with complex conditions like diabetes. Capitation provides an amount that is given on a monthly basis, referred to as a per member per month (PMPM) payment. The capitation is usually risk-adjusted based on the patient's health conditions, such as diabetes, and sometimes also adjusted for sociodemographic factors that influence health. Shared-savings programs set financial and quality benchmarks that physicians must meet to receive a portion of the savings they generate for the payer (distributor of funds for health care utilization).

APMs reflect changes in the policies of health insurers in how HCOs can disperse the money they receive to provide care for patients with diabetes. For example, establishing connections with a local food pantry or providing food coupons to patients with diabetes in order to increase access to healthy foods. Other examples include educating patients on diabetes self-management, educating providers on best practices for working with patients with diabetes, and enriching community relationships to build social capital in the community setting. Multi-component interventions related to addressing SDH often extend into various areas of the community, and they tend to simultaneously involve multiple stakeholders (patients, providers, and community-based organizations). Changes in health system financing have potential to facilitate interventions to meet individual social needs for patients with diabetes.

The proliferation of APMs relates to a shift in the health care system towards value-based payment arrangements. Such payment models incorporate financial incentives for patients and providers to encourage the use of "valuable" health care services, which evidence demonstrates are cost-effective, vital to quality care, and also promote better health outcomes.

Table 1 Description of innovations changing health care financing for patients with diabetes

Health care financing innovations	Description	Current use in health systems		
		Public insurance	Private insurance	Both
Alternative Payment Models (APMs)	APM is an umbrella term for any type of payment not based solely on fee-for-service (FFS) where all care is separated into discrete reimbursable units. APMs may include full/partial capitation, shared savings, or episode groups (i.e., bundled payments). Most APMs have a quality measurement component.			X
Global capitation	A single payment made to a health care organization to cover the cost of a pre-determined set of services delivered to a patient; gives providers a stronger incentive to reduce unnecessary care and control spending			X
Shared savings	When a provider or health care organization shares in the savings that accrue to a payer when actual spending for a defined population is less than a previously expected target amount. Often qualifying to share in the savings requires meeting performance targets on health care quality measures			X
Accountable Care Organizations (ACOs)	A voluntarily formed group of doctors, hospitals, and other health care providers, who take responsibility and coordinate high-quality care for a population of patients. ACOs were originally a Medicare initiative, but they have spread to both Medicaid and private insurance.			X
Bundled payment	A single payment made to cover the cost for services delivered over a defined period of time, possibly by multiple providers, to treat a given episode of care (e.g., a year's worth of diabetes care)			X
Patient-Centered Medical Homes (PCMH)	A care delivery model whereby patient treatment is coordinated through the primary care physician and that is designed to re-align payment incentives through blended APMs			X
Accountable Health Communities (AHCs)	A CMS grant funded care delivery model to better connect clinical care and community services in identifying and addressing the health-related social needs of Medicare and Medicaid beneficiaries' through screening, referral, and community navigation services in hopes of impacting health care costs and reducing health care utilization	X		
State Innovation Models (SIM)	A CMS grant funded initiative to form multi-payer health care delivery and payment systems	X		
Section 1115 Medicaid waivers	Permission CMS gives states to change the operations of their Medicaid programs. Waivers provide an avenue to test innovative approaches in Medicaid that differ from federal legal requirements and/or use federal dollars for delivery system reforms not currently available under the law.	X		
Pay for Success (PFS) programs	Pay for Success (PFS) programs establish social impact bonds to provide private capital as upfront funding for health systems to address SDH.			X

While for SDH interventions, the cost-effective or highest value services may differ across sites, APMs allow for health organizations to direct resources to programs they believe will have the greatest impact for their patients with diabetes. These APMs allow the flexibility and financial support to build the evidence base demonstrating which aspects of SDH interventions, under which conditions, yield the greatest success.

Financing the Integration of Health Care and Social Services

Public Insurance Programs: Medicare and Medicaid

Medicare and Medicaid are the dominant publicly funded health insurance programs in the USA. Medicare provides federally funded health insurance to the elderly (65 years and over) and the non-elderly with a long-term disability [21]. Medicaid is a combined federal and state-funded health insurance program for people with low income [22]. Though publicly funded, Medicare and Medicaid contract with private managed care plans to provide comprehensive services to their beneficiaries. These public-private relationships to finance and provide health care services vary in their implementation of APMs to integrate health care and social services, meaning that coverage could be financed through either a traditional FFS or an APM as a part of a managed care plan.

The Affordable Care Act (ACA) [2] spurred a number of health reform efforts that have altered health care payment policy. First, the ACA created accountable care organizations (ACO) [23] to better serve patients with complex, chronic conditions associated with high utilization and high costs. Originally, ACOs were a Medicare initiative, but Medicaid has adopted the concept of an ACO to create its own initiatives. ACOs capitalize on the incentives of global payment structures to encourage PHM, especially for patients with diabetes. ACOs center around primary care, but they also establish integrated health teams of providers and hospitals to better coordinate patient care. These health care teams forming an ACO participate in the Shared Savings Program [24] where

they share the financial and medical responsibility for their patients. As a part of the Shared Savings Program, when ACOs reduce costs by delivering high-quality health care, they get to share in the monetary savings to Medicare. The global payment structure of ACOs, which moves towards incentivizing value and outcomes instead of volume, allows HCOs to direct resources to specific programs of great value for their patients, like interventions to address SDH. The ability to share in any savings accrued permits health systems to reinvest in the integration of medical and social services that improve population health.

While most ACOs significantly increased the percentage of patients whose diabetes was well controlled, limited evidence exists about how those improvements to diabetes quality measures were specifically achieved [25]. A select group of ACOs have started segmenting their patient population to better match them with interventions which comprehensively address medical and social needs. For example, segmentation of patients with diabetes, a typical high need, high cost group, has identified opportunities for outreach to the socially isolated; more vigilant care from frontline clinicians, social workers, and care managers; and recognizing housing insecurity [26•]. How many ACOs and to what extent these health care teams have adopted delivery care models that incorporate addressing SDH as a way to improve diabetes care and reduce costs is currently unknown.

Second, the ACA provided authorization to the Center for Medicare and Medicaid Innovation (CMMI) within the Centers for Medicare and Medicaid Services (CMS) to design, test, and implement new payment models within Medicare and Medicaid [27]. These new payment models were to address the growing costs of health care and improve quality.

Many of the new payment approaches CMMI has implemented have been in Medicare (e.g., ACOs). They alter reimbursement schemes to bundled payment models where a total budget is provided for all services a beneficiary receives throughout a given episode of care or form patient-centered medical homes (PCMH), which can form APMs with blended components: some bundled payments, others FFS, and additional quality performance payments (e.g., shared savings). CMMI promoted the development of PCMH built around strengthening primary care to improve access as well as the coordination of medical and social services. PCMH build in screening for social needs of patients with diabetes and use those identified needs to form individualized care plans. PCMHs recognize that these social supports have unique benefits for patients with diabetes attempting to manage their condition and maintain their health. [28].

CMMI has also delivered 5-year grants or $1–5 million to 30 organizations participating in Medicare and Medicaid to build Accountable Health Communities (AHCs). For patients like those with diabetes, AHCs address unmet health-related social needs (i.e., housing instability, food insecurity, transportation, etc.) that can reduce an individual's ability to manage their health conditions, increase costs, and lead to avoidable health care utilization. The components of an AHC involve (1) screening of patients to identify unmet health-related social needs, (2) referring patients to community services, (3) navigation services to assist with accessing community resources, and (4) ensuring availability and responsiveness of community services to patient needs through clinical and community collaboration [29]. To achieve these goals, grant funds can be directed to support any infrastructure or staffing needs of bridge organizations, but they cannot pay directly or indirectly for any community services (e.g., housing, food, violence intervention programs, utilities, or transportation).

Within Medicaid, CMMI has provided federal grants to states as a part of the State Innovation Models (SIMs) initiative to form innovative multi-payer health care delivery and payment systems. To date, CMMI has supported two rounds of SIM awards to states. In 2013, the first round of grants went to 25 states. Four of the six states tested new care models focused on expanding care linkages between primary care and community organizations/social services [30]. By 2014 when the second round of SIM awards were granted, all 11 states testing new care models explicitly addressed SDH like housing, employment, and food security [31]. The attention given to SDH in health system innovation demonstrates a commitment to explore whether greater integration of health and social services leads to gains in population health. In fact, the round 2 SIM funding announcement from CMMI required SIM applicants to develop a statewide Plan to Improve Population Health (PIPH) addressing three core areas, one of which was diabetes. These shifts towards integrating SDH, public health, and health care delivery have yet to be fully evaluated but are likely to have meaningful effects on quality of care, costs, and outcomes for patients with diabetes. SIMs eliminate a reliance on a pre-established FFS system to fund new approaches to integrated care for patients' medical and social needs.

Medicaid State Section 1115 Waivers

In addition to the initiatives of CMMI, CMS also permits Section 1115 Medicaid waivers, which give states an avenue to test innovative approaches in Medicaid that differ from federal legal requirements and/or use federal dollars for delivery system reforms not currently available under the law. These waivers to states can offer significant flexibility to how they operate their Medicaid programs [16]. Section 1115 Medicaid waivers are another mechanism through which states can direct funding streams to integrate health care and social services. For example, Oregon has started providing housing-related services by making investments in local housing [32]. Colorado has a waiver to establish

payments on a per member per month basis for its Medicaid enrollees, which has been leveraged to refer and connect patients to community services [33]. Collectively, these new payment approaches in public insurance are tying payment in the health care system to outcomes and creating benchmarks for "total cost of care" [34].

Role of the Private Sector in Healthcare Financing to Address SDH

Government (Medicare and Medicaid) initiatives integrating health care and social services exclude the millions of Americans ineligible for these public programs from benefiting from these care delivery transformations and payment reforms. Employer-sponsored private insurance, which covered more than half of Americans in 2017 (56%) [35], has experienced similar trends of soaring health care costs and an intensified focus on population health. The regulatory constraints for private insurance differ from public programs as there has traditionally been less national oversight from federal agencies like CMS to ensure certain baseline quality standards. In fact, coverage practices in Medicare often serve as a guide for the private insurance market, which prior to the ACA had greater ability to offer health plans below as well as above Medicare coverage levels. This has made the private market traditionally more amenable to implementing innovations in care delivery as they did not need prior authorization from federal regulatory agencies.

Private health insurers and payers have initiated a number of programs within plans they administer to address SDH. Major commercial insurers including UnitedHealth, Anthem, Aetna, and Humana have started investing in SDH, predominantly food security and housing [36]. These insurers are developing programs that form stronger ties with community resources and no longer treating health-related social needs as beyond the purview of the health system. As SDH can largely impact the ability of patients with diabetes to manage their condition, these initiatives could considerably ease some of the health-related but non-medical challenges these individuals face.

Integrating medical care with the provision of social services is a matter of expanding the traditional American safety net. The US safety net, which includes all of the structures and assistance programs to support American workers (e.g., unemployment, Social Security, Medicare/Medicaid, etc.) [37], has historically relied on public and private partnerships to support individuals. Where political will was lacking to implement public policies, the private sector and philanthropy have often stepped in to fill the gaps [38]. Pay for Success (PFS) programs have been developed to fill such a gap in health care. PFS programs establish social impact bonds leveraging public and private sectors. Within the PFS financing model, private capital provides upfront funding for health systems to address SDH [39•]. Most PFS interventions have targeted housing, behavioral risk factors, and psychosocial factors [40]. PFS financing allows governments to implement and expand evidence-based interventions focused on prevention and SDH without raising additional public revenue, which is often a public policy challenge. The National Kidney Foundation of Michigan's Diabetes Prevention Program is one example of a PFS program for patients with diabetes where trained lifestyle coaches directly work with individuals on weight loss, healthy eating, and weekly exercise to improve health outcomes [41]. Private sector initiatives to incorporate social needs into health care signals broader, national health system changes promoting population health for diabetes patients at all levels of American society.

Beyond Health Insurance Design: Logistics of Provider Reimbursement for SDH Interventions

Appropriately screening for social needs is a necessary precursor to reporting SDH in electronic health records (EHRs) or medical claims. EHRs and medical claims establish a record of patient information (e.g., medical history) and the health care services providers deliver to patients; they represent the reporting mechanisms that dictate the monetary reimbursement insurance companies disperse to health care providers for their beneficiaries' care. Integrating information gathered from social needs' screening with EHRs and with health care claims is essential to timely intervention either for prevention or to address medical and social acuity [42]. Following social screening and systematic reporting, subsequent efforts that meaningfully extract data on SDH from EHRs and use them to direct appropriate care delivery are essential to informing health sector population health initiatives [43]. With neither a standardized screening tool, nor a method for integrating the data collected on SDH into health care administrative databases (like EHRs and medical claims), variation across HCOs exists on which patients are screened, how they are screened, and how to incorporate these data into medical records and care plans [44].

Billing codes within medical claims denote the care that occurs related to a clinical encounter, such as a physician visit, a procedure performed, or a drug administered/prescribed. Z-codes are a specific series of billing codes which document a range of social and economic risk factors that could affect health, such as unstable living, family, or economic circumstances [45]. These codes reporting health-related social diagnoses in the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10) have been required by the Department of Health and Human Services (HHS) for EHR documentation and required by CMS for use in health care claims for reimbursement since

2015. ICD-10 is a codebook for medical billing that standardizes the diagnoses reported in health care administrative data. Z-codes are intended to serve as a universal set of codes for insurers to use as they move towards paying for more than just medical treatment to improve population health.

Z-codes are useful for representing population health activities and their associated new payment mechanisms because these SDH interventions rely on integrated care teams, and Z-codes can be assigned by multiple types of providers [46]. Gottlieb and colleagues suggest that Z-codes could inform efforts to promote population health in four ways: (1) improving management of patient populations by combining clinical and social data, (2) expanding the definition of quality improvement to include programs like those providing food and nutrition support, (3) staffing health care teams with include social workers and/or case managers to help patients secure the community services and supports needed to manage their health, and (4) adjusting provider panel sizes to ensure providers have adequate time to address the social situations impacting patient health [43]. These suggested uses of Z-codes have particular relevance to patients with diabetes as various health system interventions incorporating similar approaches to address SDH have already shown success with improving health outcomes and reducing health care costs [32].

Currently, health care providers do not routinely use Z-codes to capture patients' social circumstances [47, 48], but this is changing as population health initiatives become more widespread. The American Medical Association and the UnitedHealth Group have endorsed the use of ICD-10 codes for SDH in the insurance billing process in 2019. UnitedHealthcare will combine traditional medical data with patient-reported SDH information documented with these codes, triggering referrals to social and government services to address patient's unique needs by directly connecting them to local and national resources [49]. These new ICD-10 codes have been submitted to the ICD-10 Coordination and Maintenance Committee, a federal body that includes members from the Centers for Disease Control and CMS, and, if approved, could become an industry standard within a year [50]. Increased use of SDH to direct care plans would markedly affect patients with diabetes whose medical and health-related social needs could be co-located in medical records while simultaneously facilitating payment to address those needs.

Summary and Conclusions

The evolution of the payment environment for health systems away from FFS is instrumental to facilitating the integration of medical care and social services to address SDH. As disease outcomes for diabetes are determined by both health care and SDH, patients with diabetes stand to tremendously benefit from the linkage of clinical care and community resources. Health insurers in both the public and private sector have started leveraging new payment models offering increased flexibility to implement programs that will illuminate how health systems can intervene to address SDH and ultimately move closer to establishing the incorporation of SDH into patient care as standard clinical practice. The extent that these programs facilitate the integration of SDH into clinical care may not be sufficient as increased provider payments have demonstrated mixed results in their effects on patients [51]. Additional challenges include (1) a lack of standardized approaches and (2) the variation in the readiness and capacity of HCOs and/or community resources to support such integrated models of care.

We do not know all of the mechanisms by which SDH interventions might contribute to prevention or improve health, and the most cost-effective components of interventions have yet to be identified or replicated in multiple settings. Further evaluation of SDH interventions being implemented and documentation of their implications for costs will be critical to achieve further redirection of health care resources to addressing SDH where needed. Having an impact on the SDH that can prevent acute health needs from arising or the development of chronic conditions, like diabetes, requires changing environments, lifestyles, and disease prevention and health management strategies. However, prevention has largely been shown to increase medical spending [52]. The importance of future cost-effectiveness analysis on addressing SDH to determine the effects of these types of interventions on medical spending should not be understated. Evidence on both health outcomes, the payment models that support them, and the return on investment are critical to encouraging the sustainability of these SDH interventions. The suitable role of the health care system in fostering wider population level changes in SDH which heavily influence overall health has yet to be determined.

What has become apparent is that the provision of medical care alone has not yielded the results hoped for in decreasing health care costs. The share of GDP currently spent on health care is still increasing at alarming rates, and a large proportion of those costs are incurred by populations with complex medical and social needs that health care services alone cannot meet. Chronic illnesses like diabetes have a disproportionate toll on minority, underserved, and geographically isolated populations, who are more likely to experience challenges with access to care and socioeconomic vulnerabilities. Population health initiatives creating integrated health teams and intentionally bridging HCOs to community resources have produced some of the most promising opportunities to achieve health equity, improve health outcomes, and bend the cost curve. Most new payment innovations do not remain siloed to either the public or private sectors but are widely adopted following encouraging results (Table 1). Payment innovations for addressing the medical and social determinants of health for patients with diabetes will enable and accelerate the realization of these successes on a national scale.

Additional evidence is needed for policymakers to determine the optimal health care financing mechanisms that account for the range of contexts under which health systems operate.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Human and Animal Rights and Informed Consent This article does not contain any studies with human or animal subjects performed by any of the authors.

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Population segmentation of high need, high risk, or vulnerable patients may provide one way to enhance the care for patients with diabetes, ensuring their medical and social needs can be met.

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