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Turning the tide on diabetes management
How leaders in health care are using multi-faceted approaches

Executive summary

If it were a movie, it would rank among the top 100 US films in box office earnings. If it were a person, its net worth would be more than that of the three richest Americans, combined. If it were a country, its economy would be larger than the nations of Greece, Portugal, and the Czech Republic. At a $245 billion annual cost, the annual cost for diabetes is one of the United States' biggest and fastest-growing economic burdens.[1] Diabetes is also one of the most common chronic conditions globally. According to recent estimates, approximately one in 11 adults has diabetes[2] and 12 percent of the total global health expenditure is spent on diabetes ($673 billion).[3]

Even though many public and private organizations are implementing strategies to better manage type 2 diabetes, only a few appear to be succeeding. Intervention programs – including lifestyle modifications, care model shifts, promotional and educational campaigns, clinical management, and tech-enabled solutions – are plentiful, but their costs and effectiveness vary significantly. Interventions that work in clinical trials may not translate to real life. Still, some organizations appear to be improving outcomes for their patient populations.

We sought to understand what is working for the organizations that have scored well on diabetes quality measures or that have a reputation for innovating in care delivery. We spoke with 14 individuals from health plans, health systems, and Diabetes Centers of Excellence. We targeted respondents from organizations with top ratings in diabetes quality measures (e.g., Healthcare Effectiveness Data and Information Set

[HEDIS] measures, Centers for Medicare and Medicaid [CMS] star ratings) or which are considered a Diabetes Center of Excellence. Our discussions identified three common themes:

1. **Clinical innovation.** These organizations are experimenting with clinical care model innovations and incorporating technology into their care management strategies.
2. **Patient engagement.** They are partnering with patients and using technology to help patients make lasting changes to their diet, activity level/exercise, and disease management.
3. **Financial incentive alignment.** They are incentivizing prevention and care management through value-based payment models and are exploring strategies to deal with the impact of high deductibles for some patients.

The diabetes landscape

The high cost of poor diabetes management
The cost to care for individuals with type 2 diabetes varies greatly depending on how well the disease is managed. Despite professionals' relative agreement on how to manage the disease, diabetes is often poorly managed in practice. Diabetes treatment is complex because it requires behavioral modifications combined with drug therapy. Often, patients must change lifestyle behaviors such as diet and exercise, which requires self-management along with regular clinician engagement to monitor and manage treatment.
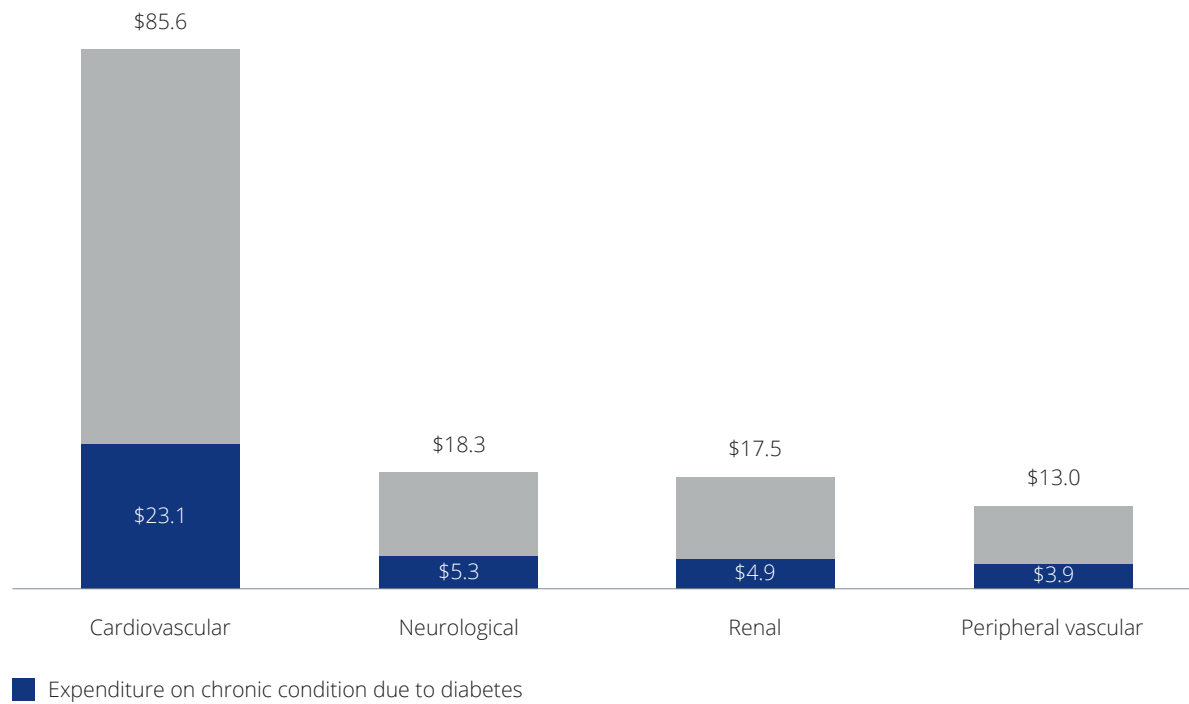
Poor diabetes management usually results in more complications – cardiovascular, neurological, renal, and vascular conditions, among others – which, ultimately, lead to increased inpatient stays, outpatient visits, and additional medication costs. For instance, in 2012, one in every three hospital inpatient days related to neurological, cardiovascular, and renal complications were attributed to diabetes (Figure 1).

Complications from poor diabetes management also add significant costs in comparison to a person with well-managed diabetes. For example, previous research[5] established that in comparison to individuals with well-managed diabetes care:

• Diabetic kidney disease, cerebrovascular disease, and peripheral vascular disease were each associated with 10–30 percent increases in cost.

• Insulin treatment, angina, and myocardial infarction were each associated with 60–90 percent increases in cost.

• Dialysis was associated with an 11-fold increase in cost.

This variance demonstrates why keeping diabetes well-managed is important for improving the health of patient populations and controlling costs for organizations treating or paying for diabetes care.

Figure 1. Diabetes complications/comorbidities make up a large portion of the health care costs of other conditions (in billions)
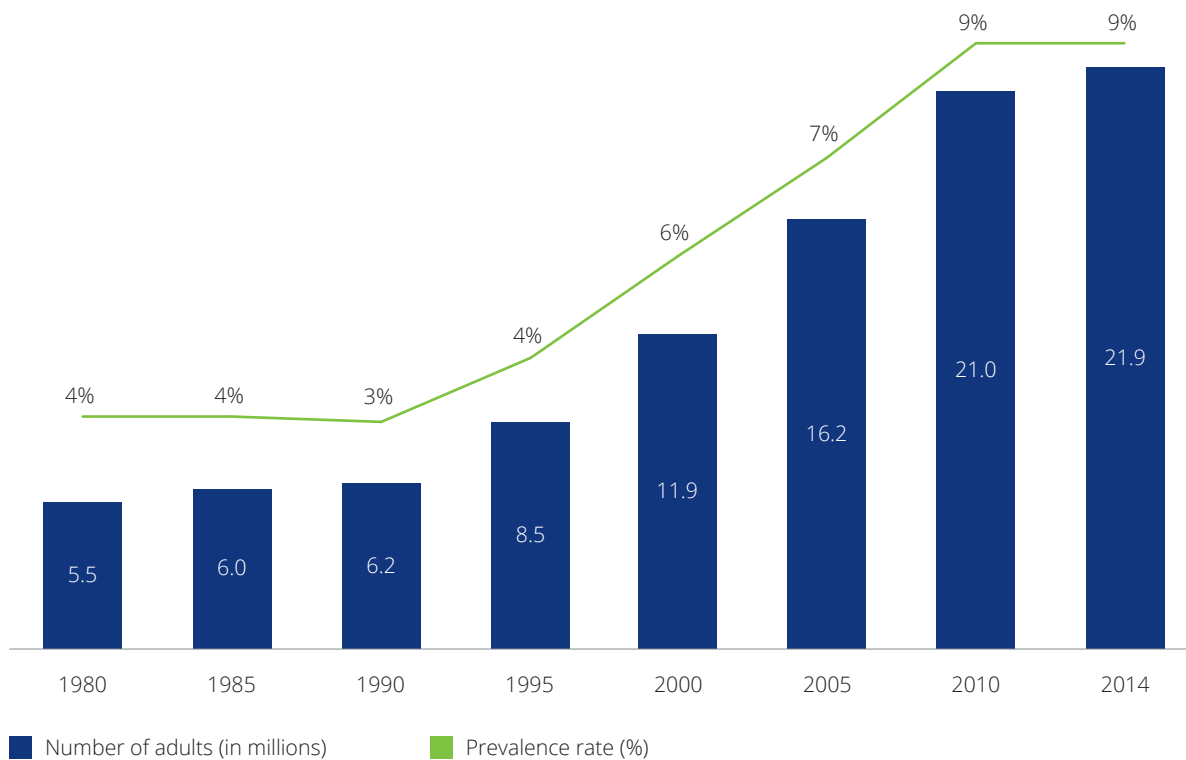

Cardiovascular: $85.6 total, $23.1 Expenditure on chronic condition due to diabetes
Neurological: $18.3 total, $5.3
Renal: $17.5 total, $4.9
Peripheral vascular: $13.0 total, $3.9

■ Expenditure on chronic condition due to diabetes

Source: Deloitte calculation based on data from American Diabetes Association[4]

Prevalence is growing

Diabetes' prevalence in the United States exploded between 1990 and 2010, with the number of diagnosed adults more than tripling (Figure 2). Enhanced detection of undiagnosed diabetes, demographic changes such as an aging population and growth of minority populations at greater risk for diabetes, and the increase in obesity and sedentary lifestyles are key factors explaining the increase.[6]

Type 2 diabetes is by far more common than type 1 diabetes. Type 2 comprises 90 percent of US diabetes cases, and obesity is one of the primary risk factors. The prevalence of obesity in US adults more than doubled between 1980 and 2012, from 15 percent to 35 percent.[7] Even among children, US obesity rates are much higher compared to other countries. Although this trend may be leveling off, obesity remains a grave concern.

Figure 2. Diabetes is growing; almost one in 10 people has diagnosed diabetes

Number of adults (in millions)
- 1980: 5.5
- 1985: 6.0
- 1990: 6.2
- 1995: 8.5
- 2000: 11.9
- 2005: 16.2
- 2010: 21.0
- 2014: 21.9

Prevalence rate (%)
- 1980: 4%
- 1985: 4%
- 1990: 3%
- 1995: 4%
- 2000: 6%
- 2005: 7%
- 2010: 9%
- 2014: 9%

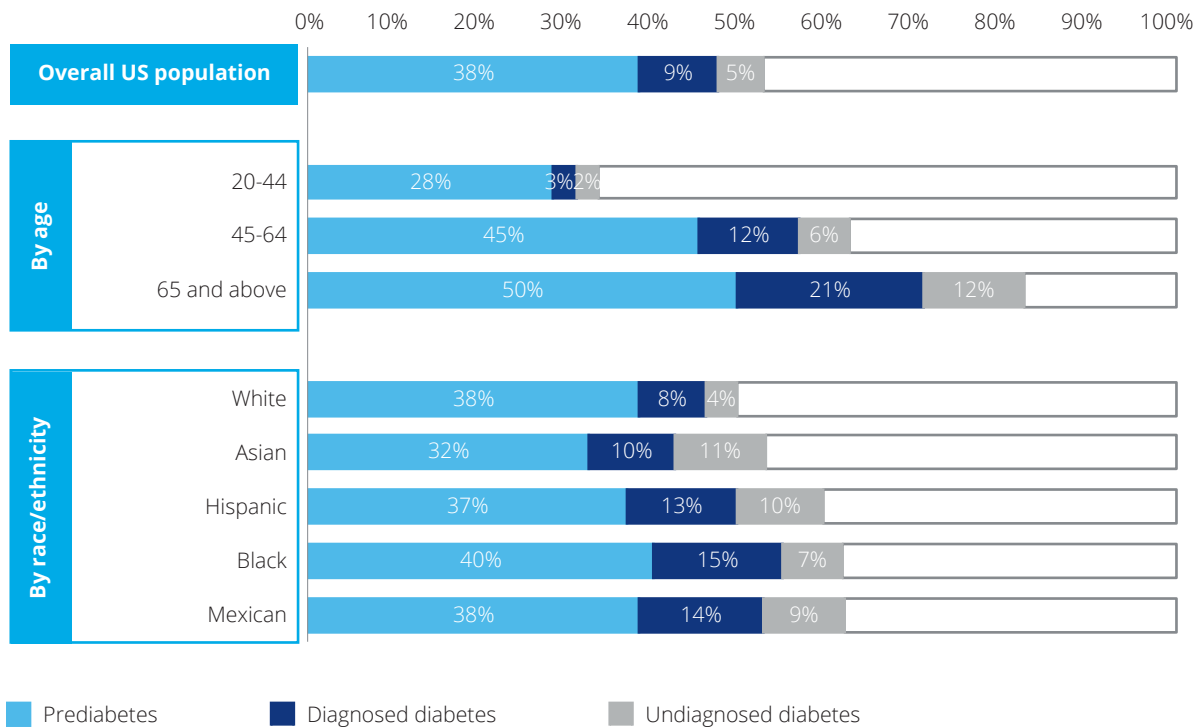■ Number of adults (in millions)   ■ Prevalence rate (%)

Source: Data from Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Interview Statistics, data from the National Health Interview Survey. Statistical analysis by the Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Diabetes Translation.

These numbers reflect only those who are actively diagnosed with diabetes. Other individuals have the condition but remain undiagnosed or have prediabetes. Currently there are approximately 54 million Americans with prediabetes, a condition where blood sugar is higher than normal but lower than diabetes range. Without intervention, prediabetes is likely to become type 2 diabetes in 10 years or less.[8]

Diabetes prevalence is higher for racial/ethnic minorities than for Whites, and certain populations are more at risk than others in terms of prevalence, outcomes, and disease self-management (Figure 3). For example, Hispanics with type 2 diabetes show poorer self-management than non-Hispanic Whites; and only 36.8 percent of Mexican Americans with diabetes have their hemoglobin A1C (A1C) under control, compared to 60 percent of non-Hispanic Whites.[9] Reasons for these dissimilarities include genetics, diet, socioeconomic status, and cultural differences in getting care.

Figure 3. Diabetes and prediabetes prevalence is higher among older adults and non-whites

	Prediabetes	Diagnosed diabetes	Undiagnosed diabetes
Overall US population	38%	9%	5%
By age — 20-44	28%	3%	2%
By age — 45-64	45%	12%	6%
By age — 65 and above	50%	21%	12%
By race/ethnicity — White	38%	8%	4%
By race/ethnicity — Asian	32%	10%	11%
By race/ethnicity — Hispanic	37%	13%	10%
By race/ethnicity — Black	40%	15%	7%
By race/ethnicity — Mexican	38%	14%	9%

Source: Deloitte calculation based on National Health and Nutrition Examination Survey (NHANES) data[10]
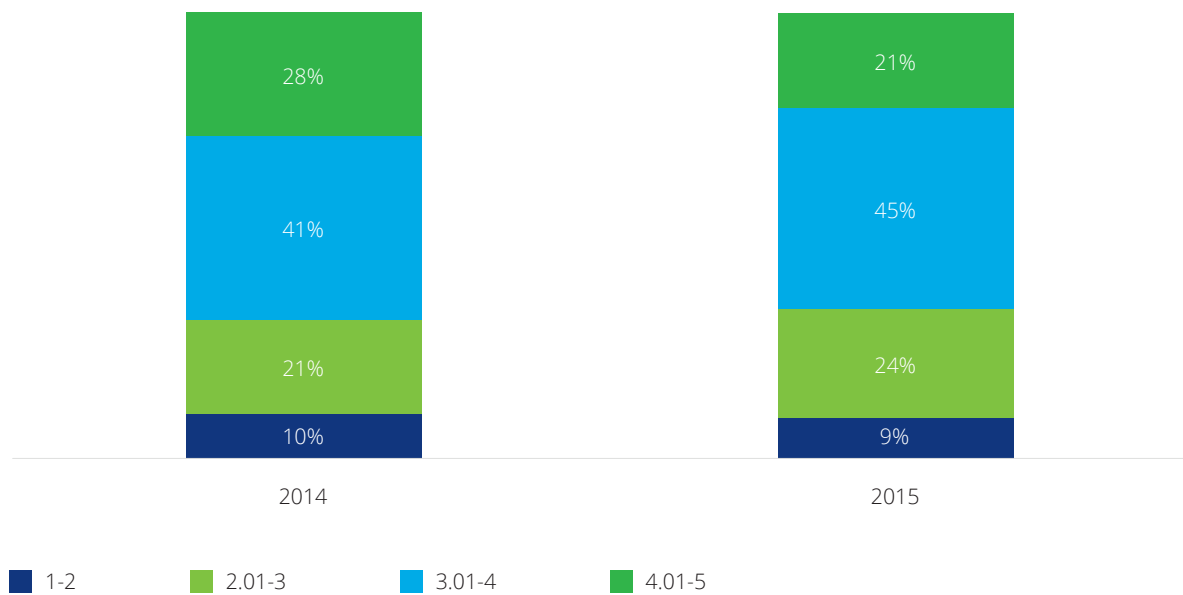
Diabetes care measures

HEDIS and CMS star ratings (which stem from HEDIS) measure health plans' quality of care for diabetes. CMS and health plans use similar measures for accountable care organizations (ACOs) and clinicians. These measures are important for an organization's reputation and they often are tied to payment.

The Rio Grande Valley ACO of Texas is a case in point. With a high rate of diagnosed diabetes (45 percent) in its patient population, the ACO employed various diabetes management initiatives to curtail costs and improve care. These initiatives included holding specialty diabetes clinics and assigning care coordinators, who reach out to patients every other day.[11] The results: Forty-nine percent of the ACO's patients have comprehensive control of their diabetes –higher than the national average of 23 percent – and the ACO generated $13.7 million in related savings for 2014.[12]

The national picture of star ratings on diabetes suggests there is room for improvement in patient care and reimbursement optimization. In 2015, only one in five Medicare Advantage (MA) plans had five stars on the diabetes metrics for star ratings (Figure 4).

Figure 4. Most Medicare health plans score on average between 3 and 4 on diabetes measures, suggesting room for improvement

Source: Deloitte analysis based on CMS average star quality ratings on four diabetes measures

What's working for high-scoring organizations?
Diabetes and metabolic disorders in general are behavior-related, which makes treatment complex. Public health organizations, governments, health plans, health systems, and life sciences companies are working on solutions and strategies to manage populations with diabetes. Some organizations appear to be doing a better job than others at improving outcomes for their patients or populations. What's working for these high-scoring organizations?

We spoke with 14 individuals from health plans and health systems with high quality scores and Diabetes Centers. Respondents included Chief Medical Officers, directors, physicians and other clinicians with expertise in endocrinology, internal/family medicine, psychiatry, health psychology, and nutrition and behavioral research.

Repeatedly, we heard from the practitioners we interviewed that taking care of people with diabetes is an evolving discipline. Because diabetes care is complex, there is no one model that organizations can replicate and adopt for all patients. Most of the organizations we spoke with are still experimenting with interventions – "trying anything and everything" – to see what works to improve care and health outcomes. However, some common themes in improved care management emerged from our interviews and are described below.

Common themes in improved diabetes care management

Theme 1: Clinical innovation

These organizations are experimenting with clinical care model innovations and incorporating technology into their care management strategies.

Shifting patients to primary care. Some health systems are moving 80-90 percent of diabetes patients from specialists (endocrinologists) to primary care or community health models. Drivers of this significant shift include improving health care access and managing diabetes as a chronic disease with major lifestyle implications. Currently, there are not enough endocrinologists to treat the increasing number of people with diabetes. And since type 2 diabetes is largely a condition managed in the primary care setting and is heavily influenced by lifestyle behaviors, it makes sense for primary care and community health providers to play a major role in managing the disease.

Retail clinics and diabetes
Retail clinics are increasing their service offerings to include customer health screenings and chronic care programs. Certain services support diabetes management, including biometric screenings for glucose, hemoglobin A1C, blood pressure, weight monitoring, and foot exams. In addition to clinical support, some retailers are offering nutrition and weight management counseling programs – even going as far as providing patients with grocery lists to direct them towards healthy food purchases within the store. Although complex diabetes patients may require more intensive treatment and ongoing management, retail clinics using clinical protocols can provide support for less complex patients.

Although primary care clinicians can manage many aspects of diabetes care, they may not feel comfortable doing so without specialist endocrinology training. To help, some of the groups we spoke with said they are using endocrinologists as consultants to primary care clinicians, diabetes educators, and mid-level clinicians rather than having the endocrinologist consult with patients, which can lead to fragmented care and increased costs. Consulting endocrinologists visit care facilities regularly (e.g., monthly) to help review charts and advise clinicians on patients' treatment plans.

Diabetes is a disease of surveillance. Patients must watch what they eat, what they drink, how often they exercise, and how and when they take their medicines to get the best possible outcomes. One interviewee said of patients: "[they] don't need an endocrinologist, [they] need a personal assistant." To that end, much of today's diabetes monitoring and care could occur outside of traditional clinical settings – at locations such as retail clinics and the home – using technology-enabled care.

Using technology (tracking data, registries, reminders, and electronic health records (EHRs) for diabetes care management. Providers and health plans are trying to balance the benefits that technology offers in diabetes prevention and management with the demonstrated value of the clinician-patient relationship. The practitioners we interviewed are positive about the electronic health record (EHR) as a useful tool in managing patient care. Interviewees said that algorithms in their EHR that prompt patient services and outreach are useful. One physician in an integrated system said the EHR alerts all system clinicians who interact with the patient about overdue tests and services. The average patient with diabetes comes in for an acute care issue, such as a sprained ankle or sore throat, as well as for routine exams, three to six times a year. The EHR helps the care team quickly identify needed tests and routine preventive care services.

Interviewed practitioners also noted high acceptance of reports that compare and track physician performance on quality measures. Research shows that sharing data and recognizing high performers within health systems can spark friendly competition among physicians and clinician teams.[13] Quality measures ratings such as Medicare stars, HEDIS, and regional quality alliances allow physicians to understand and improve their performance.[14]

Screening for and treating depression. Diabetes and prediabetes often pair with untreated depression, which impacts patient self-efficacy and can make care management difficult. High-performing organizations recognize that depression can be an issue in diabetes care management and work to screen and treat it. Several of the people we interviewed said their organizations proactively screen for depression using patient health questionnaires, and provide treatment and interventions. Comorbid depression and diabetes may significantly worsen the progression of both disorders, leading to higher complication and mortality rates[15] and total health care expenditures.[16] The interviews findings are consistent with the literature – those patients with depression and anxiety often face challenges with self-efficacy and self-management. In some, but not all, trials, glucose control can improve with depression treatment; however, undiagnosed or untreated depression among patients with diabetes is still common.[17]

Screening patients for depression can go a long way towards addressing the problem. One clinician reported that his organization screens each patient 12 years or older for depression once a year. Identifying depressed patients enables them to be tracked by their screening scores and, if need be, someone from the clinic can reach out to a patient who is not making appointments, not filling medications, and not following-up on referrals.

Theme 2: Patient engagement

These organizations are partnering with patients to help them make lasting changes to diet and exercise, and disease management.

Patients who are actively involved in their health care experience improved health outcomes and incur lower costs.[18] As a result, many health care organizations are employing strategies to engage diabetes patients in disease management by doing things such as educating them about their condition and including them in treatment decisions.

One particularly important area of patient engagement is diet and exercise. Healthy eating and physical activity are critical to diabetes management but how can practitioners best help patients make lasting changes?

Some interventions have proven effective at changing certain behaviors but few, if any, have sustained results over time. The struggle continues: Once we adopt or change a behavior, how do we get it to stick?

"Trying anything and everything" to encourage self-management and behavior change. Diabetes self-management skills and behaviors are critical for patients to achieve glycemic control, prevent complications, improve health outcomes, and remain productive. Key components of diabetes self-management include disease knowledge, glucose monitoring, healthy nutrition, and regular physical activity. Table 1 includes examples compiled from our interviews (and supported by literature) of current approaches that health plans, health systems, and others are using to help their populations.

Table 1. Patient engagement approaches to diabetes management

Moving away from "what is the matter with you" to "what matters to you"	**Wellness coaching.** Practitioners are experimenting with wellness coaching for patients with prediabetes and diabetes. They are exploring the feasibility of using wellness coaches with patients and investigating which characteristics are associated with those who buy into wellness programs. Further, they are studying whether the programs lead to behavioral changes in diet and exercise, and increased self-management and self-efficacy skills.
	Motivational interviewing. Some organizations are experimenting with tactics like motivational interviewing, in which practitioners work with each patient to determine their health goals. At one clinic, clinicians sit with patients and review their previous and current A1C levels and other biometric data. They share links to decision aids and ask patients what they think of their progress and to share their goals. At another organization, clinicians are using motivational interviewing to help with medication adherence. After multiple reminders to fill prescriptions fail to work, the practitioner and patient hold an in-person discussion about the barriers to getting and taking medication properly – and how to work to overcome them.
Applying demonstrated outcomes from lifestyle (diet and exercise) interventions to "real" patient populations	REAL HEALTH-Diabetes (Reach Ahead for Lifestyle and Health-Diabetes) is a project that adapts the LOOK AHEAD trial for community health center settings.[19] The LOOK AHEAD trial demonstrated that, compared with diabetes support and education, an intensive lifestyle intervention that teaches patients the skills necessary to make lifestyle changes can lead to sustained weight loss, fewer complications, reduced medication, improved fitness and higher quality of life.

Personal relationships are critical to advancing prediabetes strategies and diabetes management. Personal relationships – between physician and patient, among patients and other care team clinicians, and among patients in the context of group visits, online communities, and peer support – are critical to advancing prediabetes strategies and diabetes care management.

The literature behind the Centers for Disease Control and Prevention's (CDC's) National Diabetes Prevention Program (National DPP) shows that peer support is an important component of diabetes prevention in a high-risk population. The year-long National DPP program is offered in person or online and led by a certified lifestyle coach. It is designed to help participants make healthy lifestyle changes around eating, stress reduction, and physical activity. Group support from people with similar goals and challenges provides a way for participants to share ideas, celebrate accomplishments, and work collaboratively to overcome obstacles.

The interviewees whose organizations were testing pilot programs noted that when patients with diabetes were given the option of telephone discussions or in-person visits with wellness coaches or diabetes educators, many patients chose face-to-face visits. Such visits are not feasible in every case, however. One pilot program on incorporating lifestyle and behavioral changes demonstrated that an initial in-person visit with a wellness coach followed by telephone consultations also may be effective.

Another pilot program targeting Hispanic and African American patients with diabetes showed that a diabetes educator providing culturally and linguistically appropriate patient health information could improve outcomes. The diabetes educator met with the patients, on average, five times over the course of a year; program results included clinically significant reductions in hemoglobin A1C levels compared to care without the educator. Based on the number of referrals and patients' receptiveness, participants demonstrated high satisfaction with the program.

All interviewees acknowledged that telehealth and online programs may have future roles in diabetes management. For example, some patients may find it easier to consult with a specialist or primary care physician using telehealth. Already, people with prediabetes who are interested in participating in the National DPP can choose between in-person or online programs. The CDC recognizes several online programs as part of the National DPP; some of them are beginning to show positive, long-term results that compare with in-person programs.[20] No matter the modality, the interviewees agreed that an in-depth, face-to-face discussion was important to initiate any program.

Patients appear eager to use technology for disease management. Just as consumers rely on mobile apps and online communication to manage other areas of their life, they are getting on board with connected health (cHealth) to manage their diabetes care. Connected health is technology-enabled, integrated care delivery that allows for remote communication, diagnosis, treatment, and monitoring. An important goal of an effective, patient-centered cHealth approach is to improve digital connectivity between providers and patients to allow individuals to access the care they need anytime and anywhere.

Deloitte's *2015 Survey of US Health Care Consumers* showed that 74 percent of consumers with major chronic conditions are very interested or somewhat interested in monitoring technologies for health issues. That said, only 47 percent of those who are interested have actually used technology to monitor their health issue, which indicates that a gap exists between interest and use.[21]

Interviewees said that many of their patients and members like to organize and visualize their health data – a benefit of cHealth – and many patients with diabetes like being able to track their numbers, manage their risk factors, and use reminders. However, interviewees also noted that payment has been a barrier to the uptake of cHealth strategies. Providers in a fee-for-service (FFS) model often cannot bill for patient visits unless the patient is in the office, which means taking full advantage of telehealth may be a challenge. One physician in an ACO stated that her practice was gathering data to show that the use of technology is improving quality and containing costs, to make the case for reimbursement.

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cHealth for managing diabetes

A recent count revealed that there are more than 1,100 apps specifically designed for people with diabetes and health care professionals that treat diabetes.[22] Current apps include those that monitor behavior (measure physical activity, count carbohydrates/calories, track medications, manage insulin) along with clinical measures (blood glucose levels) and mood.

Some tools are used exclusively by the patient:

- Diabetik – Reminds individuals about their appointments and medicine times based on preset information and the individual's location.

- Diabetic Connect – Uses technology to create a community of people with diabetes to share experiences and lessen feelings of isolation.

Other tools rely on a relationship between the patient and provider:

- BlueStar®- A mobile prescription therapy developed for adults with type 2 diabetes and their health care providers. The app creates a self-management plan using data from the patient and input from his/her health care provider. It compares current health data, such as glucose levels and medication, with past data and offers real-time guidance to the patient while simultaneously sending the data to the provider. In early 2016, BlueStar® integrated LifeScan's blood glucose monitoring system.

Theme 3: Financial incentive alignment

Organizations are incentivizing prevention and care management through value-based payment models and are exploring strategies to deal with the impact of high deductibles for some patients.

The shift to value-based care and the increase in clinicians who are paid under accountable care arrangements are changing the face of diabetes care. Diabetes is a chronic disease that often requires clinicians to work with patients to modify lifestyle behaviors such as diet and exercise habits, as well as manage a medication regimen. However, the US health care system traditionally has been organized around – and providers paid for – acute care procedures. Both public and private payers are moving towards accountable care models, in which providers are responsible for a population and payment is based, in part, on outcomes such as avoiding hospital readmissions and reducing complications through early detection of risks. Numerous interviewees stated that having an integrated or capitated system avoids the fragmented care that FFS encourages. We heard this from many of our respondents – even without directly asking a question about the impact of the payment models. One respondent, who works under both ACO and FFS models, said that the most promising diabetes care approaches are difficult to implement under a FFS model that pays for separate services rather than a more holistic patient care approach.

Interviewees acknowledged the value of patient registries and care navigators, but asked how organizations would pay for them under FFS. In addition, some said that the shift to primary care for more patients with type 2 diabetes is only likely to work if PCPs are trained and have sufficient resources. "The organization has to be behind it and want to pay for it," one interviewee noted.

What is MACRA?

President Obama signed the Medicare Access and CHIP Reauthorization Act (MACRA) into law in 2015. MACRA will allow clinicians to develop new care models and may also motivate collaboration between health plans and hospitals, as it encourages organizations to enter into new payment and delivery models.

In April 2016, CMS released the first MACRA regulation, a rundown of how new payment tracks will work and which current payment and delivery models will most likely be counted as advanced alternative payment models (APMs) under the law. The proposed rule on the Merit-Based Incentive Payment System (MIPS) and APM Incentive under the Medicare Physician Fee Schedule (PFS) may be one of the most anticipated health care regulations in recent memory.

What are MACRA's implications for diabetes care?

- MACRA gives clinicians who continue to emphasize high-quality care for patients with diabetes the opportunity to score higher under the MIPS quality measure component, one of the four measurement categories that will comprise the MIPS composite score.

- Clinicians with more efficient diabetes care patterns may fare better under the care episode group measures in the resource use performance category. Quality measures under advanced APMs must mirror those for MIPS so clinicians using those models, whether primary care or ACO-type initiatives, likely will be rewarded for higher-quality care for diabetes patients and efficient care patterns for treatment of all major chronic conditions, including diabetes.

The bottom line: Clinicians and health systems that invest in and improve care for patients with diabetes will likely see greater rewards – in the form of MIPS performance scores and, in some cases, greater incentive payments under either track.

In coming years, the Medicare Access and CHIP Reauthorization Act (MACRA) (see sidebar) is expected to speed the transition from FFS towards new risk-bearing, coordinated care models. Although we did not discuss this specific regulation during our interviews, MACRA is likely to impact diabetes care through its emphasis on quality-related payment.

Related to the shift in payment models, many interviewees noted that changing benefit design and how consumers access and pay for health care are influencers in diabetes care. Today's health care consumer is assuming a greater share of health care costs, due to increased enrollment in high-deductible health plans (HDHPs) and rising out-of-pocket (OOP) costs. (See sidebar.) Approximately 37 percent of individuals under age 65 with private health insurance enrolled in a HDHP in 2014.[23] On average, OOP costs rose as much as 230 percent between 2006 and 2015 for consumers in employer-sponsored plans.[24]

What does increased cost-sharing mean for consumers? The interviewees acknowledged that while many HDHPs cover a range of recommended preventive services with no cost-sharing, it may be required for health coaching programs and other chronic care services. Programs like the National DPP and other community-based initiatives are sometimes offered outside the health care system, and it can be difficult to promote those programs if it is not clear whether individuals can afford to pay for them. CMS recently announced that it is exploring options to cover the National DPP for Medicare beneficiaries, but at this time it is not clear what the coverage would entail or if patients would be responsible for any of the costs.

Access barriers and adherence
Diabetes drug treatment has evolved over the last decade, with several innovative classes of drugs now available to treat this challenging disease more effectively than in the past. Several combination products and long-acting drugs designed to improve patient convenience and adherence are also available.

Managing patients with type 2 diabetes often involves the use of multiple drugs and delivery forms. Health plans and Pharmacy Benefit Managers (PBMs) build evidence-based formularies to help direct patients to the most cost-effective drug treatments. Many clinicians view treatments within, or even across, drug classes as interchangeable and create restrictions for certain drugs. Some plans and PBMs might implement utilization management tools, like prior authorization, to validate that a patient requires treatment with a specific drug before allowing the drug to be dispensed. Formulary decisions, authorization requirements, and cost-sharing could affect patient access to specific treatments.

Better adherence improves outcomes in type 2 diabetes treatment, but patients' oral medication adherence ranges from 36 percent to 93 percent.[25] High cost-sharing requirements or other access barriers likely contribute to non-adherence.[26]

Physicians and patients should consider discussing potential access and adherence barriers when engaging in shared decision-making around drug treatment options. We looked at data from publicly available formulary information in one state chosen at random depicted in Table 2 below. Depending on what type of coverage a patient has, he or she may have access to only one drug within a class. Since many of the newer classes of drugs do not have any generic alternatives, those that are covered are expensive and tend to fall into formulary tiers that require greater cost-sharing. As a result, patients with financial challenges may not fill their prescriptions.

It is important to note that formularies and utilization management approaches are updated as new evidence becomes available, so health plans and PBMs should make patients aware of any changes to their existing treatment regimens before they take effect.

Table 2. Health plans offer limited coverage for GLP-1 agonists

	Commercial Plan 1		Commercial Plan 2 (HIX - Silver)	
	Number of choices covered	**Cost-Sharing**	**Number of choices covered**	**Cost-sharing**
Tier 1	0	NA	0	NA
Tier 2	0	NA	1	15% after deductible
Tier 3	1	45% of the plan allowance, may require prior authorization	0	NA
Tier 4	0	NA	0	NA

Source: Publicly available formulary information/plan benefit designs, accessed May 2016

Pulling it all together: Implications for stakeholders

Diabetes is a complicated, costly, chronic disease. Many organizations are piloting strategies and programs to better understand what can help people avoid getting diabetes and how to improve care for patients with the disease.

These and other efforts may provide important lessons for health care stakeholders, such as how to use technology to extend personal relationships and tailor interventions and information to help patients track and manage their condition. Also likely to be part of the solution is expanded use of retail clinics, telehealth, and analytics– data from traditional health care sources such as the EHR and newer sources as wearables and mobile apps – to get a more holistic understanding of consumers and patients and better tailor behavioral change interventions to them.

Sector-specific considerations:

- **Health care providers**
  – Increase opportunities to selectively scale primary care collaboration with specialists. With the primary care team managing much of the diabetes population, and concerns about a lack of specialists to deal with growing patient numbers, some primary care teams are exploring short- and long-term ways to partner with endocrinologists to triage type 2 diabetes patients.
  – Work to build meaningful relationships with patients through outreach and tailored care plans, and help to enable patients to self-manage and reduce risks.
  – Engage in shared decision-making with patients on treatment options and strategies to improve healthy behaviors.

- **Health plans**
  – Continue to explore value-based insurance designs (i.e., reducing financial barriers to medication access) that can improve medication adherence and diabetes self-management. Examples include reducing copays for diabetes medications or providing incentives for getting recommended medical care, such as a regular A1C test.
  – Partner with clinicians to offer enhanced, targeted, prevention and management programs to high-risk members.
  – Use analytics, such as information from heath risk assessments, claims, and EHR data, to identify gaps in care and understand what can be done to improve health outcomes.

- **Biopharma companies**
  – Work with clinicians (physicians, diabetes educators, nurse practitioners) to understand and address drivers of patient non-adherence, and develop technology solutions that encourage and monitor adherence.
  – Generate more and better targeted real-world evidence on medication effectiveness within sub-populations, and share leading practices on medication management.

- **Medical technology companies**
  – Continue to develop solutions that forge stronger relationships between clinicians and their patients, such as remote monitoring and other cHealth devices.
  – Integrate and interpret data from glucose monitoring and other technology solutions to inform providers' care decisions.

- **Employers**
  – Incorporate prediabetes and diabetes programs into wellness offerings and work with health plans to implement value-based insurance designs that have demonstrated effectiveness in medication adherence.

- **Government and policymakers**
  – Work to improve school lunch offerings and provide educational campaigns about the importance of healthy eating and physical activity.
  – Continue to promote the National Diabetes Prevention Program and work with health care providers and plans to implement lessons learned in their patient and member populations.

Our research shows that, although the road ahead is long, there are many reasons to be optimistic about a shared journey to more effective diabetes prevention and care management. The health care system's increasing focus on cost and quality shows no signs of slowing, and all interview participants viewed the new payment landscape as a sign of progress for prevention and chronic care management. Consumers will likely continue to assume more responsibility for their health care decisions and costs but will be aided by cHealth solutions, expanded use of health coaching, and the growing recognition that managing depression and other mental health risks are paramount to managing diabetes. Finally, leading health plans and health systems are working hard and stretching resources to find creative and innovative ways to better meet the needs of their patients with diabetes.

Appendix
Drug treatment options for type 2 diabetes

Drug therapy is an important and significant treatment option for type 2 diabetes. Fifty-seven percent of the average cost of diabetes treatment is attributed to prescribed medicine.[27] Spending on diabetes drugs increased by 14 percent in 2015, driven equally by increased utilization (growing number of patients being diagnosed and treated) and new treatment launches.[28]

Diabetes drug treatment has evolved over the last decade, with several innovative classes of drugs now available to effectively treat this challenging disease more effectively than in the past. Several combination products and long-acting drugs designed to improve patient convenience and adherence also are available.

Managing patients with type 2 diabetes often involves the use of multiple drugs and delivery forms. Optimizing drug treatment requires frequent monitoring of glucose levels, especially for patients whose dosage requirements might change as they adopt lifestyle modifications and, for example, lose weight. Drug treatment complexity creates additional challenges for physicians treating type 2 patients.

Drug treatment options for type 2 diabetes

Drug class	Number of branded drugs (by chemical)[1]	Number with generic alternatives
Insulin and analogues	7	None[2]
DPP-IV inhibitors	4	None
GLP-1 (glucagon-like peptide-1) agonists	4	None
SGLT-2 inhibitors (Sodium-glucose cotransporter-2)	3	None
Biguanides (Metformin)	1	1
Thiazolidinediones (TZDs)	1	1
Sulfonylureas	2	2
Alpha-glucosidase inhibitors	1	1
Meglinides	1	None
Amylin agonist analogs	1	None

1. Number of branded drugs is defined by the number of unique chemicals on the market, excluding unique delivery mechanisms or combination products

2. The first generic insulin is expected to launch in December 2016

Source: Data monitor Healthcare, accessed May 2016

Endnotes

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