A Supplement to CareManagement

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Integration of CGM Into Managed Care: Using CGM to Improve Quality Metrics and Population Health Management

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INTRODUCTION

The US health care community is progressively transitioning from the traditional fee-for-service (FFS) volume-based health care delivery model to value-based care. Unlike the FFS model, in which health care providers are reimbursed for each service they deliver, value-based care focuses on improved clinical outcomes and treatment satisfaction. Value-based care aims to enhance patient health outcomes and lower the costs associated with patient care.

Statistics indicate that the number of people living with diabetes in the US will be approximately 60.6 million by 2060.[1] Statistics also show a concerning rise in the incidence of type 2 diabetes among younger populations, with projections indicating a 700% increase in the next 40 years.[2] The change is expected to burden the American health care system because the population affected by diabetes tends to live longer, and there is an increased probability of earlier morbidity among younger populations with type 2 diabetes and its complications compared with those who are diagnosed with type 2 diabetes in later life.[3]

Integrating strategies to lower costs is essential, considering the financial implications of diabetes on society. An analysis of the economic cost of diabetes in the US shows that the national cost of diabetes stands at $412.9 billion.[4] Additionally, $306.6 billion or 74% of this figure is attributed to direct medical costs. Twenty-six percent or $106.3 billion is attributed to lost productivity as a result of absence from work, minimized productivity at work and at home, and unemployment due to chronic disability and premature mortality.[4] Despite the awareness that value-based care benefits patients, the health care system and, commercial and public insurance plans, its implementation cannot be without an established set of standardized quality metrics against which all parties can evaluate and benchmark their performance. This article outlines the benefits of value-based care, the significance of diabetes quality metrics, and the rapidly increasing use of continuous glucose monitoring (CGM) in diabetes management, which impacts these measures while enhancing the quality of life for people with diabetes.

BENEFITS OF VALUE-BASED DIABETES CARE

Among the many clinical benefits provided by the value-based model, economic value can also be achieved.[5] The model potentially offers providers an increased likelihood of financial success while it potentially improves health for patients. Providers and health systems benefit from using standardized and evidence-based health care practices that ensure the removal of unnecessary services, leading to enhanced quality of care with increased cost efficiencies. Payers benefit from lower overall costs and can accurately evaluate the immediate and foreseen benefit of medications and technologies because they have immediate access to outcomes data and quality ratings, which are essential to expanding their customer base. The adoption and implementation of value-based care tackle the problem of health care disparities encountered by racial and ethnic minorities and members of low socioeconomic status (SOS). Numerous scholarly works have established the existence of disparities among patients with lower SOS in the initiation of new medications[6] and the use of advanced diabetes technologies such as CGM.[7-11]

IMPORTANCE OF QUALITY METRICS TO PROVIDERS AND HEALTH PLANS

Quality metrics play a significant role in several aspects of health plan performance. In addition to being an essential component of value-based contracts with health plan providers, quality metrics can also assist clinicians with identifying and closing gaps in medical and pharmaceutical care in their patient population. Quality metrics are important components of health plan ratings for all lines of business and are also used by health plans to assist with internal quality improvement efforts. According to the Centers for Medicare & Medicaid Services (CMS), quality measures are "tools that help us measure or quantify health care processes, outcomes, patient perceptions, and organizational structure and systems that are associated with the ability to provide high-quality care and that relate to one or more quality goals for health care."[12]

The National Committee for Quality Assurance (NCQA) is a nonprofit organization that supports health plans in providing accessible, cost-effective, and high-quality patient care. They do this by relying on quality metrics to evaluate the quality of clinical care and customer services rendered by providers. NCQA provides accreditation of health plans in the US after thoroughly assessing each plan's structure and processes, clinical quality, and patient satisfaction scores.[13] NCQA collaborates with academic researchers, consumer representatives, and corporate purchasers to create and update the Healthcare Effectiveness Data and Information Set (HEDIS®). HEDIS is used by over 90% of health plans to measure performance.[14]

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Healthcare Effectiveness Data and Information Set (HEDIS)

HEDIS quality measures are used to evaluate 6 domains of care: effectiveness, availability/access of care, care experience, utilization, measures reported via electronic clinical data systems, and health plan descriptive information. More than 90 HEDIS measures are spread across these 6 domains.[15] NCQA accreditation remains voluntary for commercial insurers. Still, the CMS requires HEDIS reports for all commercial health plans with more than 15,000 members. In addition, CMS uses HEDIS metrics for assignment of Star ratings for Medicare Advantage health plans. Star ratings include metrics across the following 2 HEDIS groups of measures: staying healthy (preventive screening measures such as breast cancer screening and colorectal cancer screening), and managing chronic conditions such as diabetes and asthma. Star ratings also include member experience as measured by the Consumer Assessment of Health Plans Survey (CAHPS), member complaints, and customer service metrics. Scores are compared among each other and ranked as a start system ranging from 1 through 5. Table 1 highlights how Star ratings impact health plans.

TABLE 1 QUALITY BONUS AND REBATE PERCENTAGE BASED ON STAR RATING (CMS.GOV)

2023 Star Rating	Quality Bonus %	Rebate %
5 Stars	5%	70%
4.5	5%	70%
4.0	5%	65%
3.5	0%	60%
3.0	0%	50%
New Plan or Low Enrollment	3.5%	65%

Implications of Quality Measures on Payers

Both Hospital Performance Ratings (HPR) and Medicare Advantage Star ratings influence payers. HEDIS metrics and Medicare Advantage Star Ratings are important metrics for payers in rating their potential to retain current customers and enroll new ones. Establishing the Quality Bonus Program has caused Star ratings to affect reimbursement and impacted commercial insurers who offer Medicare Advantage plans.[16] Consistent low scores (below 3 Stars for 3 or more years) result in a Consistent Poor Performer notice that is sent to individuals who have enrolled in that Medicare Advantage Plan. The notice instructs individuals on how to change to a higher performing plan if they choose (www.cms.gov). Reimbursement bonuses are awarded to best performers that have a Star rating of 3.5 or more. For example, a Medicare Advantage plans grant a 5% bonus for a score of 4 or more Stars. The bonuses can increase to 10% in counties with high Medicare Advantage penetration and low traditional Medicare spending.[16] A recently conducted systematic review by Borrelli et al[17] established that a Star rating directly influences enrollment and renewal in each plan. For providers, HEDIS metrics can measure quality outcomes and affect revenue payments based on the contract structure. It should be noted that HEDIS performance is also a key component of the Quality Rating System (QRS) for Exchange plans, and many states incorporate HEDIS performance in the evaluation of state Medicaid programs.

ROLE OF CGM IN ASSESSING QUALITY OUTCOMES

Technology Overview

Unlike blood glucose meters (BGM), which only provide instantaneous readings of an individual's glucose levels and do not provide any utility for quality measure reporting, CGM delivers continuous feedback on a person's glycemic status through automatic data transmission to a handheld reader or smartphone application. The data collected are analyzed and presented in both numeric and graphic forms. This enables patients to view their current glucose level and trends. The trend arrows point to the direction and rate of change in glucose levels. All CGM systems deliver active alarms that alert their users about current and impending hyperglycemic and hypoglycemic events, enabling them to take an immediate course of action to treat or prevent an acute glycemic event.[18]

Efficacy and Use of CGM in the Management of Diabetes

Recent randomized clinical trials and other research studies have demonstrated that consistent use of CGM improves overall glycemic control. Other benefits of CGM are reduced diabetes-related events, reduced exacerbation and hospitalization rates, and reduced costs[24, 34-36] in individuals diagnosed with diabetes regardless of their pharmaceutical therapy. In addition to the stated benefits, scientific studies have shown that use of CGM bolsters patients' understanding of their diabetes and promotes self-management.[37-39] These find-

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ings have collectively demonstrated the current health care practices to embrace CGM as a standard approach in the management of diabetes as evidenced by adoption of CGM metrics in guidelines by standard-setting diabetes organizations.[42,43]

Although the many benefits of CGM are extended to patients to simply live better with diabetes, practitioners also benefit from viewing CGM metrics and reports, which enables them to take real-time assessment of their patients' past and current glycemic status. This leads to accurate decisions relating to a patient's glycemic status and the identification of problematic glycemic patterns. Practitioners can make more informed treatment decisions and set goals, bolstering meaningful collaboration with their patients. Integration of CGM into patients' treatment leads to more precise and personalized diabetes care.[42] It also helps with diabetes medication adherence, given that it is a triple-weighted measure for Medicare Advantage Part D prescription drug coverage and for prescription drug plans.

As technology advancement in health care aims to efficiently streamline workflow, sharing of digitized CGM data across the health care team becomes beneficial. There is a platform through which the glucose data is relayed and transmitted from a patient to a practitioner for retrospective analysis using software. This platform can be integrated with telehealth technology to facilitate remote patient monitoring, assessment, and consultation. This way, clinicians can monitor the patient's glycemic status and formulate therapy when needed. Studies have linked the significance of remote access to glycemic data to enhanced glycemic control[44-49]and increased adherence.[50] Evidence from meta-analyses has illustrated that the use of telehealth technologies leads to a remarkable drop in HbA1c and cost efficiency compared to in-clinic diabetes care.[44,51-54] The ability of CGM to collect real-time digital data makes it possible to understand accurate patient status. Moreover, integration of these data into the health system's database advances the identification of appropriate practices and opportunities for further improvement of gaps in care.[53-54]

Glycemic Management Indicator (GMI) for Clinical Assessment

Following a conference of international specialists on diabetes in 2019, evidence-based and standardized CGM targets were developed for practitioners. The goal of the meeting was to create guidelines for clinicians and patients on the use, interpretation, and reporting of CGM data in clinical care and research. Ten core metrics were developed, as outlined in Table 2. The recommendations were immediately endorsed.

TABLE 2 STANDARDIZED CGM METRICS AND GOALS FOR CLINICAL CARE[57]

Core CGM Metric	Recommendation
Number of days CGM worn	14 days
Percentage of time CGM is active	70% of data from 14 days
Mean glucose, mg/dL	<154 gm/dL
Glucose management indicator (GMI)	<7%
Glycemic variability (coefficient of variation [%CV])	≤36%
Time above range (%TAR)–% of readings >250 mg/dL	<5%
Time above range (%TAR)–% of readings 181-250 mg/dL	<25%
Time in range (%TIR)–% of readings 70-180 mg/dL	>50%
Time below range (%TBR)–% of readings 54-69 mg/dL	<4%
Time below range (%TBR)–% of readings <54 mg/dL	<1%

A glucose management indicator (GMI) (LOINC 97506-0- Glucose Management Indicator code) is another commonly used CGM metric. GMI displays the average expected HbA1c level based on the mean glucose readings in a large sample of individuals with diabetes over 14 days of CGM use.[56] It is beneficial because it is not affected by medications or conditions that can lead to false HbA1c levels.[57,58]

HEDIS MEASURES FOR COMPREHENSIVE DIABETES CARE

HEDIS assessment metrics for diabetes care apply to all patients with diabetes and focus on 7 major areas: glycemic status, retinal eye exam, nephropathy screening, blood pressure control, use of statin therapy, monitoring of patients with schizophrenia, and

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reporting of emergency department visits for hypoglycemia in older adults (Table 3).[57]

TABLE 3 SUMMARY OF 2024 HEDIS PERFORMANCE MEASURES FOR COMPREHENSIVE DIABETES CARE

Measure	Performance Metric
Glycemic status (HbA1c or GMI)	>9% poor control <8% in control
Retinal eye exam	Performed
Nephropathy screening	Reported
Blood pressure (BP) control	BP <140/90 mm Hg
Statin therapy	Performed
Monitoring of people with schizophrenia	Performed
Emergency department visits for hypoglycemia in adults aged ≥67 years	Performed

Changes in HEDIS Measures

In 2024, NCQA introduced significant changes to the HEDIS metrics. Among the changes was the simplified methods for identification of persons with diabetes to mitigate the inclusion of persons without diabetes who are on diabetes medications for other purposes such as weight loss.[59] NCQA also introduced the stratification by race and ethnicity to 9 HEDIS measures that included kidney health evaluation for patients with diabetes and eye examination for patients with diabetes.[59] These changes were introduced to address health disparities across the Medicaid population irrespective of specific disorders or medical conditions. A significant change in the 2024 measures also included the transition from HbA1c control for patients with diabetes to glycemic status assessment for patients with diabetes.[59]

Advantages of GMI Over HbA1c Assessment

The reliance on GMI in clinical settings has been found to eliminate the failures of the HbA1c metrics[55] by providing more timely and accurate data on a person's glycemic status. This is also important from a financial viewpoint as it eliminates the possible treatment based on falsely inaccurate glycemic status, which can affect health system performance and negatively impact both the HPR and Star ratings. On the other hand, the utilization of GMI is cost-effective because the values are automatically derived from downloaded CGM data, making them timelier in terms of the assessment of a patient's glycemic status while at the same time eliminating the laboratory expense of HbA1c testing. Most commercial and public insurers only pay for HbA1c testing every 3 months. GMI also removes the need for patients to visit the laboratory or clinic in person. These stated benefits also align with obtaining CMS Quality Bonus Payments.[60] Overall, the requirement to include GMI further promotes the use of CGM among patients with diabetes. Numerous studies have demonstrated this method to be safe and effective regardless of diabetes therapy.[18-41] An emerging body of evidence indicates that use of CGM is cost-effective in all patients with diabetes[24,37,61,62] by reducing all-cause diabetes-related events and hospitalization rates.[24,34-37]

LITERATURE REVIEW: REAL-WORLD EXPERIENCES

A study designed to review medical records for adults with type 2 diabetes using basal insulin with or without antihyperglycemic medications revealed a significant drop in HbA1c at baseline and after the use of a CGM device. The study established that using flash glucose monitoring devices substantially reduced basal insulin-treated type 2 diabetes.[26] Another study conducted in Germany involving young individuals asked participants to anonymously respond to questionnaires on their glucose monitoring, satisfaction, quality of CGM use, and diabetes distress. The study yielded 308 completed questionnaires, with 30% using real-time CGM. Other participants used self-monitoring of blood glucose, while the rest used intermittent scanning continuous BGM. A larger sample, 75%, were on CGM, and the treatment satisfaction was very high. However, the study revealed that the use of CGM was not linked to reduced diabetes distress or better glycemic control. The study noted that the young individuals who constantly analyzed their CGM data reported lower levels of HbA1c.[27]

ROLE OF THE CARE MANAGER

Care managers are pivotal in diabetes self-management education by identifying barriers to the adoption of CGM. They provide customized treatment plans and facilitate the realization of the treatment objectives. Care managers, together with registered nurses, social workers, dieticians, and other health care professionals, rely on credible problem-solving tools to guide patients to be actively involved

in the management of diabetes when data from CGM are analyzed. A care manager can help a patient identify prerequisites for health insurance coverage, determine copays, and facilitate communication with insurance providers to obtain prescriptions for a CGM device. In addition to that, they provide patients with the needed resources that offer technical support, such as the manufacturer's contact information that can enable a patient to get information when needed. Sharing, supporting, and educating patients regarding their condition is part of the care manager's role. Their other contribution is through the support of patients with diabetes by observing glucose patterns and trends through the facilitation of behavioral objectives and by promoting the effectiveness of lifestyle changes.[66]

IMPLICATIONS FOR FUTURE PRACTICE

The latest modifications and updates to HEDIS metrics reflect a transition towards value-based diabetes care from the conventional FFS model. These changes conform with the advancements in glucose monitoring and insulin delivery technologies. Integrating new metrics like GMI into HEDIS measures requires time and investment. One promise is the rise of connected devices, interoperability, and a rapidly emerging virtual ecosystem. This enables health care providers to transfer seamless data to benefit patients, health care providers, and payers.

The ecosystem strives to provide feedback mechanisms that enable real-time diabetes data transfer for health evaluation, assist diagnosis, and guide therapy decisions. It resolves therapeutic inertia, enhances glycemic control and clinical outcomes, and solves the problem of higher costs. Data generated by the systems can be accessed through electronic medical record (EMR) databases and used to assess technology efficacy and cost-effectiveness. Agencies like NCQA and the American Diabetes Association (ADA) are currently focused on developing quality standards for these technologies.[63]

Integrating these metrics into the HEDIS measures will take time and investment. However, with the increasing adoption of "connected" devices, such as automated insulin delivery devices, "smart" insulin pens, and other technologies, we are seeing a virtual ecosystem of connected diabetes devices and technologies that can seamlessly transfer data to the cloud where it can be accessed by patients, health care clinicians, and payers. Linking these devices and technologies with the CGM metrics creates a vital feedback loop between patients and their health care team that enhances treatment adherence and patient experience and facilitates more informed treatment decision-making.

As determined by an international panel of expert diabetes clinicians, researchers, patient advocates, and industry representatives, the ultimate goal in leveraging this ecosystem is to create an overarching architecture of feedback mechanisms that facilitate the transfer of real-time diabetes data to monitor health status, aid in the diagnosis of pertinent concerns, guide therapy decisions, and advise/adjust treatment directly between individuals with diabetes and their health care providers.[63] This approach would address the negative impact of therapeutic inertia, which continues to drive persistent suboptimal glycemic control, poor clinical outcomes, and increasing costs.[64]

Moreover, because the data would move through each health system's EMR database, health systems and payers would have immediate access to information that can be used to assess the efficacy and cost-effectiveness of these connected technologies using advanced analytics and provide evidence for developing evidence-based best practices. Notably, the data would allow NCQA to accurately assess whether or to what degree established quality measures are being met. It is encouraging that NCQA is collaborating with the ADA to establish a pathway for developing quality standards and measures that allow stakeholders to assess the value and utility of the various diabetes technologies and how they contribute to current and future care models.[65]

One of the significant challenges to creating this feedback mechanism is convincing EMR developers to change to a data interoperability platform. Although issues regarding protecting intellectual property and proprietary software will need to be addressed, we encourage health systems and health plans to work with their EMR developers to overcome these potential obstacles. Given the increasing prevalence of diabetes and rising costs of diabetes care, it is in everyone's interest to improve interoperability capabilities, thereby improving the quality of diabetes care. ■

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Integration of CGM Into Managed Care: Using CGM to Improve Quality Metrics and Population Health Management

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Questions

1. **Value-based health care focuses on improved clinical outcomes and treatment satisfaction rather than volume of services.**
   a. True
   b. False
2. **Which of the following are benefits of value-based diabetes care?**
   a. Increased patient satisfaction
   b. Removal of unnecessary tests
   c. Addressing problems of health disparities
   d. Enhanced quality
   e. All of the above
3. **Quality measures are:**
   a. Tools that help measure or quantify processes
   b. Measures outcomes
   c. Measures of patient perception
   d. All of the above
4. **Health plans and organizations use quality metrics to evaluate the quality of clinical care offered by providers and the consumer services rendered.**
   a. True
   b. False
5. **The Healthcare Effectiveness Data and Information Set (HEDIS®) is used to evaluate which of the following?**
   a. Patient access to care
   b. Patient experience
   c. Utilization of health care resources
   d. All of the above
6. **Quality metrics including HEDIS® are used by Medicare and state Medicaid plans and most health plans to measure the quality of care delivered to their members.**
   a. True
   b. False
7. **Quality metrics are important for retaining health plan members and attracting new members.**
   a. True
   b. False
8. **The use of CGM addresses quality outcomes by which of the following?**
   a. Achieving glycemic control
   b. Educating patients about diabetic-related events
   c. Reducing hospitalization rates
   d. All of the above
9. **With use of CGM, which of the following outcome metrics can be used to evaluate care?**
   a. Mean glucose level
   b. Glycemic variability
   c. Time above or below the range
   d. All of the above
10. **HEDIS quality metrics for diabetes care include which of the following?**
    a. Glycemic status
    b. Retinal eye exam
    c. Nephropathy screening
    d. All of the above
11. **The role of the case manager is pivotal in diabetes self-management and includes which of the following?**
    a. Facilitation of treatment objectives
    b. Education of patient and caregivers
    c. Facilitation of health insurance coverage
    d. All of the above
12. **The case manager can support the patient with diabetes by observing glucose patterns and trends through facilitating behavioral objectives and promoting the effectiveness of lifestyle changes.**
    a. True
    b. False

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Integration of CGM Into Managed Care: Using CGM to Improve Quality Metrics and Population Health Management

Objectives

1. State 4 benefits of value-based diabetes care.
2. State the goal of quality metrics to providers and health plans.
3. State the role of CGM in addressing quality outcomes.
4. State 3 quality metrics used in assessing outcome measures in comprehensive diabetes care.
5. Define the role of the case manager in using CGM.

Answers

Please indicate your answer by filling in the letter:

1._____ 2._____ 3._____ 4._____ 5._____ 6._____ 7._____ 8._____ 9._____ 10._____ 11._____ 12._____

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