

Diabetes EDAC Summary of Peer-Reviewed Literature, Clinical Guidelines, and Empirical Evidence

Peer-Reviewed Literature

Diabetes is a common condition that impacts approximately 25% of Medicare Fee-For-Service (FFS) beneficiaries (Center for Medicare and Medicaid Services, 2021), and short and long-term complications often result in hospital admission. In 2018 there were more than 8.2 million hospital admissions for type 1 or type 2 diabetes (Agency for Healthcare Research and Quality [AHRQ], 2018). Medicare-age patients account for about 50% of all diabetes-related hospitalizations (AHRQ, 2018).

Post-acute care hospital use following discharge, including readmission, is common and costly. A review article published in 2021 found that 30-day readmission rates among patients with diabetes in the United States ranged from 16 percent to 20 percent, resulting in annual costs of \$20-25 billion (Rubin & Shah, 2021). Post-acute care use following discharge is also undesirable to patients, resulting in stress, confusion, and high personal costs (both direct and indirect). In the long term, better management of diabetes and its complications, including during the peri-discharge period, can improve long-term outcomes, such as reduced rates of amputation, improved patient quality of life, and lower healthcare costs (Friel et al., 2022; Boreland et al., 2015).

Numerous studies have found an association between the quality of inpatient or transitional care and readmission rates and ED visits for a wide range of conditions including diabetes. Safely transitioning patients after hospital discharge requires a complex series of tasks, including but not limited to timely and effective communication between providers, prevention of and response to complications, patient education about post-discharge care and self-management, and timely follow-up (AHRQ, 2020). Suboptimal transitions contribute to a variety of adverse outcomes post-discharge including ED evaluation, need for observation, and readmission (AHRQ, 2019). Variation in the care of patients' diabetes while hospitalized is associated with poor outcomes; for example, patients who are discharged with blood glucose near or at hypoglycemic levels have higher levels of 30-day readmission and post-discharge mortality (Spanakis et al., 2019). Care transitions, such as discharge medication regimens reconciliation, are an opportunity for reducing the incidence of post-discharge hospital events for diabetic patients (Gosmanov, Mendez, & Umpierrez, 2020).

A 2023 review of interventions aimed at reducing readmissions for patients with type 2 diabetes concluded that interventions that start at the index admission are effective (Cai & Islam, 2023). Study authors identified common strategies associated with effective interventions, including multidisciplinary teams, dedicated care teams, certified diabetes educator appointments post-discharge, and hospital protocol development and implementation, among others. Similarly, a 2021 review found that interventions including inpatient diabetes education, inpatient diabetes management service, inpatient/outpatient care coordination, and medication adjustment, were effective at reducing the risk of readmissions/ED visits for patients discharged after hospitalization for diabetes (Rubin & Shah, 2021).

While most studies have been retrospective, there have been a few randomized controlled, prospective trials. The largest randomized controlled trial, published in 2020, found that patients randomized to receive care at a specialized multidisciplinary diabetes program had significantly lower rates of unplanned readmissions 30 days after discharge compared with patients who were randomized to a standard primary care setting (7% vs. 19%, respectively, $p=0.02$) (Bhalodkar et al., 2020).

The evidence presented above, including the prevalence of diabetes, variation in care and outcomes, and evidence-based interventions that can improve outcomes, underscores the importance and need for a quality measure to track hospital-level post-discharge acute care in this population. The goal of the Diabetes EDAC measure is to improve patient care by providing patients, physicians, and hospitals with information about hospital-level, risk-adjusted acute care use following hospitalization for diabetes.

Clinical Guidelines

Standards for hospital care for patients with diabetes are well established, including care at the peri-discharge period. The American Diabetes Association (ADA) Professional Practice Committee (2025) routinely releases a Standards of Care in Diabetes as part of the Diabetes Care Journal of Clinical and Applied Research and Education. Within their January 2025, Volume 48, Supplement 1 Standards of Care, the ADA explicitly dictates intervention strategies for an array of populations. Specifically for crossover in which clinical guidelines support the Diabetes EDAC measure, the ADA notes appropriate interventional strategies for both older adults (chapter 13) and diabetes care in the hospital (chapter 16). More specifically for hospital-based interventional strategies in chapter 16, the ADA notes a series of recommendations that connect to reducing readmissions for patients hospitalized for diabetes. They provide clear guidance for hospitals for how to transition from the hospital to ambulatory setting for patients hospitalized for diabetes to reduce future readmissions: 16.16 A structured discharge plan should be tailored to the individual with diabetes. Under 16.16, they specify the need for Medication Reconciliation and Structured Discharge Communication, along with specific interventions for Older Adults. However, evidence suggests that there is variation in the implementation of standard care, resulting in gaps of healthcare quality between hospitals. For example, in one hospital system that developed a tool to identify gaps across five hospitals in a single system the results showed variation in the structure, processes, resources, and leadership for diabetes care across their health system. Specifically, they found variation in glucose management, variation in training of providers on glucose management, and the lack of adequate resources for ambulatory care for patients with diabetes (Golden et al., 2017). Furthermore, patients themselves report gaps in care coordination (Colvin et al., 2023).

There are evidence-based interventions, based on guideline-directed standards, that hospitals can implement to reduce post-discharge acute care use. For example, one of the biggest risk factors for a readmission for diabetes is the lack of a post-discharge ambulatory visit (Rubin et al., 2023); and interventions around ensuring such a visit have shown that such follow up is associated with reduce risk of post-discharge acute care utilization (Ostling, Wyckoff, & Ciarkowski, 2017). In fact, CORE has found in our own empirical analyses in Medicare patients that the most common reason (principal discharge diagnosis) after discharge for a diabetes hospitalization is itself, a diabetes complication, suggesting that

better management of diabetes in the peri-discharge period can reduce excess post-discharge acute care utilization.

Empirical Evidence in Support of Quality Gap

The research and guidelines discussed above indicate evidence-based approaches that hospitals can implement to improve quality and focus targeted efforts to reduce excess post-discharge acute care through advances in patient care. These efforts can ultimately result in cost savings and better long-term outcomes for patients with diabetes. Use of outcome measurement to drive quality improvement is not proscriptive; there are many evidence-based processes that facilitate improved outcomes. Using outcomes as the basis for quality improvement allows hospitals to determine the root causes of poor performance and implement tailored interventions that address the underlying goals of their quality improvement programs.

There is evidence of a quality gap in care of patients hospitalized for diabetes seen in the variation in hospital-level outcomes (30-day post-discharge acute care utilization). CORE's own empirical analyses of Medicare beneficiaries hospitalized with a principal discharge diagnosis of a diabetes complication shows that excess post-discharge acute utilization (unplanned readmission, ED visit, observation stay) within 30 days at the hospital level ranged from -125 excess days in acute care per 100 discharges to 1,613 excess days in acute care per 100 discharges; the difference between the 10th and 90th percentile is about 95 excess days per 100 discharges. This wide variation in hospital measure scores, and evidence presented through a literature and standards of care review identifying interventions that hospitals can take to improve outcomes, underscores the importance and need for a quality measure to track hospital-level post-discharge acute care in this population.

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