

Measure Title	Diabetes: Hemoglobin A1c Indicating Overtreatment in the Elderly		
eMeasure Identifier (Measure Authoring Tool)	XXX	eMeasure Version number	X
NQF Number	Not Applicable	GUID	XXXX
Measurement Period	January 1, 20xx through December 31, 20xx		
Measure Steward	Centers for Medicare & Medicaid Services		
Measure Developer	National Committee for Quality Assurance		
Endorsed By	None		
Description	Percentage of patients 65 and older with type 2 diabetes taking an antihyperglycemic other than metformin monotherapy with complex clinical status or risks for hypoglycemia and who had hemoglobin A1c reading < 7.0 percent during the measurement period		
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Measure Scoring	Proportion		
Measure Type	Outcome		
Stratification	None		
Risk Adjustment	None		
Rate Aggregation	None		

Rationale

The intent of this measure is to detect overtreatment of diabetes and missed opportunities for deintensification of treatment in patients for whom the benefits of aggressive treatment do not outweigh the risks. Aggressive control of blood glucose can put frail patients at risk of hypoglycemia and might not be optimal for patients with short life expectancies.

Diabetes is the sixth leading cause of death in the United States, resulting in about 54,000 deaths in adults 65 and older in 2014 (Center for Disease Control and Prevention [CDC] 2016). Diabetes is a group of diseases marked by high blood glucose levels resulting from the body's inability to produce or use insulin (American Diabetes Association [ADA] 2013; CDC 2012a). Type 2 diabetes accounts for 90 to 95 percent of all cases and is often associated with older age (CDC 2011; Mayo Clinic 2016). According to the CDC, in 2012, there were 11.2 million American adults 65 and older with diabetes (ADA 2017; CDC 2014). Older adults are at high risk for type 2 diabetes because of their increased insulin resistance and impaired pancreatic islet function with aging (Kirkman et al. 2012). In addition to microvascular (retinopathy, nephropathy, neuropathy) and macrovascular (coronary heart disease, cerebrovascular disease, peripheral artery disease) health impacts, older adults with diabetes may also experience depression, cognitive impairment, muscle weakness (sarcopenia), falls and fractures, and physical frailty (ADA 2013; Brown et al. 2003; Gregg et al. 2002; Sinclair et al. 2012).

One way to control the potential health impacts of diabetes is through blood glucose monitoring and management. Hemoglobin A1c (HbA1c) is a blood test that measures average blood glucose levels over the past three months. The test is used routinely in clinical settings to monitor glycemic control and prevent diabetes complications (National Institute of Diabetes and Digestive and Kidney Diseases 2014). Although glycemic control is important to the management of diabetes and its associated complications, aggressive control (for example, intensive HbA1c targets) might put patients at increased risk for safety events like hypoglycemia. This risk is potentially greater in older adults who are more likely to experience events that require medical attention more frequently than other patients. For example, adults 75 and older with diabetes have double the rate of emergency department visits for hypoglycemia compared with younger adults with diabetes (CDC 2012b). Adults with severe hypoglycemia have a 3.4-fold higher risk of death within five years, and experience more acute cardiovascular events, fall-related fractures, and driving-related accidents compared to their diabetic counterparts without severe hypoglycemia (Lipska and Montori 2013).

According to the American Geriatrics Society, providers should “avoid using medications other than metformin to achieve hemoglobin A1c < 7.5 percent in most older adults; moderate control is generally better” (American Geriatrics Society 2015). As demonstrated in the Action to Control Cardiovascular Risk in Diabetes (ACCORD) trial, intensive management of blood glucose (targeting HbA1c < 6.0 percent) can increase death from any cause (hazard ratio = 1.19) and death from cardiovascular causes (hazard ratio = 1.29) (ACCORD 2008; ACCORD 2011). Similar studies (Veterans Affairs Diabetes Trial and the Action in Diabetes and Vascular Disease: Preterax and Diamicon Modified Release Controlled Evaluation [ADVANCE] trial) found no benefits in cardiovascular endpoints from intensive glucose control (ADVANCE 2008; Duckworth et al. 2009). Also, most medications used to achieve lower blood glucose can cause serious adverse events in older adults.

Clinical Recommendation Statement	<p>American Geriatrics Society (2015):</p> <ul style="list-style-type: none"> • Avoid using medications other than metformin to achieve hemoglobin A1c < 7.5% in most older adults; moderate control is generally better. <p>American Diabetes Association-Professional Association (2016): Population: Older Adults</p> <ul style="list-style-type: none"> • Hypoglycemia should be avoided in older adults with diabetes. It should be screened for and managed by adjusting glycemic targets and pharmacological interventions. (B recommendation) • Older adults who are functional and cognitively intact and have significant life expectancy may receive diabetes care with goals similar to those developed for younger adults. (Expert Consensus or Clinical Experience) • Glycemic goals for older adults might reasonably be relaxed, using individual criteria, but hyperglycemia leading to symptoms or risk of acute hyperglycemic complications should be avoided in all patients. (Expert Consensus or Clinical Experience) <p>Population: Most Adults with Diabetes</p> <ul style="list-style-type: none"> • A reasonable A1c goal for many nonpregnant adults is <7.0% (53 mmol/mol). • Providers might reasonably suggest more stringent A1c goals (such as <6.5% [48 mmol/mol]) for selected individual patients if this can be achieved without significant hypoglycemia or other adverse effects of treatment. Appropriate patients might include those with short duration of diabetes, type 2 diabetes treated with lifestyle or metformin only, long life expectancy, or no significant cardiovascular disease. (C recommendation) • Less stringent A1c goals (such as <8% [64 mmol/mol]) may be appropriate for patients with a history of severe hypoglycemia, limited life expectancy, advanced microvascular or macrovascular complications, extensive comorbid conditions, or long-standing diabetes in whom the general goal is difficult to attain despite diabetes self-management education, appropriate glucose monitoring, and effective doses of multiple glucose-lowering agents including insulin. (B recommendation)
Improvement Notation	<p>A lower score indicates better quality.</p>
Reference	<p>Action to Control Cardiovascular Risk in Diabetes (ACCORD) Study Group. "Effects of Intensive Glucose Lowering in Type 2 Diabetes." <i>New England Journal of Medicine</i>, vol. 358, no. 24, 2008, pp. 2545–2559. doi:10.1056/NEJMoa0802743.</p>
Reference	<p>Action to Control Cardiovascular Risk in Diabetes (ACCORD) Study Group. "Long-Term Effects of Intensive Glucose Lowering on Cardiovascular Outcomes." <i>New England Journal of Medicine</i>, vol. 364, no. 9, 2011, pp. 818–828. doi:10.1056/NEJMoa1006524.</p>
Reference	<p>ADVANCE Collaborative Group. Patel, A., S. MacMahon, J. Chalmers, B. Neal, L. Billot, M. Woodward, M. Marre, M. Cooper, P. Glasziou, D. Grobbee, P. Hamet, S. Harrap, S. Heller, L. Liu, G. Mancia, C.E. Mogensen, C. Pan, N. Poulter, A. Rodgers, B. Williams, S. Bompont, B.E. de Galan, R. Joshi, and F. Travert. "Intensive Blood Glucose Control and Vascular Outcomes in Patients with Type 2 Diabetes." <i>New England Journal of Medicine</i>, vol. 358, no. 24, June 2008, pp. 2560–2572.</p>

Reference	American Diabetes Association. "Diabetes Care 2017." <i>Diabetes Care</i> , vol. 40, suppl. 1, January 2017, pp. S50-S56; S99-S104.
Reference	American Diabetes Association. "Diabetes Basics." 2013. Available at http://www.diabetes.org/diabetes-basics/?loc=GlobalNavDB .
Reference	American Geriatric Society. "Ten Things Clinicians and Patients Should Question." 2015. Available at http://www.choosingwisely.org/wp-content/uploads/2015/02/AGS-Choosing-Wisely-List.pdf .
Reference	Brown, A.F., C.M. Mangione, D. Saliba, and C.A. Sarkisian. "Guidelines for Improving the Care of the Older Person with Diabetes Mellitus." <i>Journal of the American Geriatrics Society</i> , vol. 51, no. 5s, May 2003, pp. S265–S280.
Reference	Centers for Disease Control and Prevention. "Health, United States, 2015: With Special Feature on Racial and Ethnic Health Disparities." Atlanta, GA: Centers for Disease Control and Prevention, May 2016.
Reference	Centers for Disease Control and Prevention. "National Diabetes Statistics Report, 2014: Estimates of Diabetes and Its Burden in the United States." Atlanta, GA: Centers for Disease Control and Prevention, 2014.
Reference	Centers for Disease Control and Prevention. 2012a. "Diabetes Public Health Resource: Basics About Diabetes." 2012. Available at https://www.cdc.gov/diabetes/basics/index.html .
Reference	Centers for Disease Control and Prevention. "National Diabetes Fact Sheet, 2011." Atlanta, GA: Centers for Disease Control and Prevention, 2011.
Reference	Centers for Disease Control and Prevention. 2012b. "Diabetes Public Health Resources: Emergency Department Visit Rates for Hypoglycemia as First-Listed Diagnosis Per 1,000 Diabetic Adults Aged 18 Years or Older, by Age, United States, 2006-2009." September 2012. Available at http://www.cdc.gov/diabetes/statistics/hypoglycemia/fig5byage.htm .
Reference	Duckworth, W., C. Abraira, T. Moritz, D. Reda, N. Emanuele, P.D. Reaven, F.J. Zieve, J. Marks, S.N. Davis, R. Hayward, S.R. Warren, S. Goldman, M. McCarren, M.E. Vitek, W.G. Henderson, and G.D. Huang. "Glucose Control and Vascular Complications in Veterans with Type 2 Diabetes." <i>New England Journal of Medicine</i> , vol. 360, no. 2, January 2009, pp. 129–139.
Reference	Gregg, E.W., M.M. Engelgau, and V. Narayan. "Complications of Diabetes in Elderly People." <i>BMJ</i> , vol. 325, no. 916, October 2002, pp. 916–917.
Reference	Kirkman, M.S., V.J. Briscoe, N. Clark, H. Florez, L.B. Haas, J.B. Halter, E.S. Huang, M.T. Korytkowski, M.N. Munshi, P.S. Odegaard, R.E. Pratley, and C.S. Swift. "Diabetes in Older Adults: A Consensus Report." <i>Journal of the American Geriatrics Society</i> , vol. 60, no. 12, December 2012, pp. 2342–2356.
Reference	Lipska, K.J., and V.M. Montori. "Glucose Control in Older Adults With Diabetes Mellitus—More Harm Than Good?" <i>JAMA Internal Medicine</i> , vol. 143, no. 14, July 2013, pp. 1306-1307.
Reference	MayoClinic. "Diseases and Conditions: Type 2 Diabetes, Risk Factors." January 2016. Available at http://www.mayoclinic.com/health/type-2-diabetes/DS00585/DSECTION=risk-factors .

Reference	National Institute of Diabetes and Digestive and Kidney Diseases. "The A1C Test & Diabetes." September 2014. Available at http://diabetes.niddk.nih.gov/dm/pubs/A1CTest/ .
Reference	Sinclair, A., J.E. Morley, L. Rodriguez-Manas, G. Paolisso, T. Bayer, A. Zeyfang, I. Bourdel-Marchasson, U. Vischer, J. Woo, I. Chapman, T. Dunning, G. Meneilly, J. Rodriguez-Saldana, L.M. Gutierrez Robledo, T. Cukierman-Yaffe, R. Gadsby, G. Schernthaner, and K. Lorig. "Diabetes Mellitus in Older People: Position Statement on Behalf of the International Association of Gerontology and Geriatrics (IAGG), the European Diabetes Working Party for Older People (EDWPOP), and the International Task Force of Experts in Diabetes." <i>Journal of the American Medical Director's Association</i> , vol. 13, no. 6, July 2012, pp. 497–502.
Definition	None
Guidance	<p>Patient is numerator compliant if the most recent HbA1c level is less than 7.0 percent.</p> <p>Only patients with a diagnosis of type 2 diabetes should be included in the denominator of this measure; patients with a diagnosis of secondary diabetes because of another condition should not be included.</p>
Transmission Format	TBD

Initial Patient Population	<p>Patients 65 and older with type 2 diabetes whose diabetes started at least 90 days before the start of the measurement period (MP) who are on an antihyperglycemic medication other than metformin monotherapy and who have complex clinical status* or risks for hypoglycemia with a visit during the MP</p> <p>*Complex clinical status includes the following:</p> <p>Having at least one of the following conditions, which may occur any time in the patient's history but must be active during the measurement period:</p> <ul style="list-style-type: none"> • Taking insulin or sulfonylureas • Blindness caused by diabetes • Chronic kidney disease requiring dialysis, or end state renal disease • Dementia and/or cognitive impairment with complications • Diabetic peripheral neuropathy • Hepatic failure • Hospice care • Ischemic vascular disease • Oxygen-dependent lung disease <p>Or having at least one of the following conditions, which may occur any time in the patient's history:</p> <ul style="list-style-type: none"> • Amputation of lower extremity • Coronary artery bypass grafting • Hypoglycemia requiring treatment • Myocardial infarction • Percutaneous coronary intervention • Stroke • Thoracic aortic aneurysm <p>Or having three or more of the following conditions, which may occur any time in the patient's history but must be active during the measurement period:</p> <ul style="list-style-type: none"> • Arthritis • Cancer • Chronic obstructive pulmonary disease • Cirrhosis • Congestive heart failure • Chronic kidney disease (stages 1-4 not requiring dialysis) • Dementia without complications • Emphysema • Major depression • Falls • Hypertension
Denominator	Equal to the initial population
Denominator Exclusions	Patients who do not have an A1c test during the measurement period

Numerator	Patients whose most recent A1c level during the measurement period is < 7 percent
Numerator Exclusions	TBD
Denominator Exceptions	None
Measure Population	Not Applicable
Measure Observations	Not Applicable
Supplemental Data Elements	For every patient evaluated by this measure, also identify payer, race, ethnicity and sex.