

# INSIGHT: CONTROLLING GLUCOSE LEVELS IN PATIENTS WITH TYPE 2 DIABETES

AMGA ANALYTICS

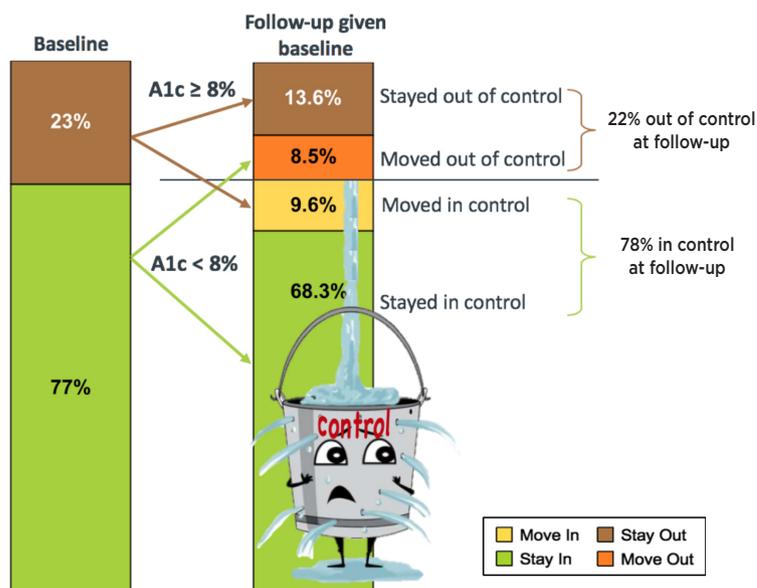
Glycemic control or managing blood sugar levels (hemoglobin A1c, HbA1c, or simply A1c), is a crucial factor in preventing serious health complications associated with diabetes. Yet most healthcare organizations, despite concerted efforts, struggle to increase the proportion of patients whose blood sugar levels are in control.

## The Leaky Bucket Phenomenon

At AMGA, we examined population level changes in A1c control across 29 AMGA healthcare organizations (HCOs) in the Optum® Analytics database.<sup>1</sup> We looked at 245,000 patients aged 18–75 with Type 2 diabetes who had two A1c measures 12 to 15 months apart. Using the Together to Goal® threshold of A1c < 8%, we found 77% of patients at these HCOs were in glycemic control at the start of our analysis. That meant at baseline, 23% were out of control (or had an A1c ≥ 8). Twelve to 15 months later (at follow-up), 22% of patients were out of control. This lack of improvement among the population (~ 1%) was observed consistently across all 29 organizations—despite how hard these groups were working to improve glycemic control for their patients with Type 2 diabetes.

**Figure 1. The Leaky Bucket: Changes in A1c Control over 12-15**

Did this mean that 22% of patients faced insurmountable challenges in gaining control of their A1c? To answer this question, we tracked each patient's control status over time (Figure 1). We found that about one-tenth of patients moved into control during the 12- to 15-month period (9.6% shown in yellow, Figure 1). This was good news. First, it meant only 13.6% of patients stayed out of control over the 12 to 15 months (not 22%). Second, these organizations were having significant success bringing patients into glycemic control!



Unfortunately, we found over this same 12 to 15 months, almost the same proportion of patients moved out of glycemic control (8.5% shown in orange, Figure 1). The result: patients moving out of control were cancelling out the population-level improvements of those gaining control of their A1c. It was like trying to fill a leaky bucket. Patients losing A1c control “leak” out of the measure numerator—offsetting patients who gain control. This explains why HCOs, even though they successfully helped 9.6% of patients gain control of their A1c, still could not see population-level improvements and fix the “leaky bucket.”

### Patients Considered “Safe” May Still Be at Risk

In Figure 1, we see that nearly one-fifth of patients with Type 2 diabetes had a change in control status over the 12 to 15 months of our analysis (orange + yellow). To make gains in glycemic control for patients with Type 2 diabetes, we needed to understand more about what we observed. Specifically, were these changes in A1c clinically meaningful or were they just very small changes in A1c happening for patients close to the threshold ( $A1c < 8.0$ )? We found patients moving out of control experienced on average an absolute change of 1.7% in their A1c levels in 12 to 15 months (for example moving from an A1c of 6.6% to 8.3%). In fact, one-third of the patients who moved out of control had an  $A1c < 7.0$  at the start of the study. These are patients who are considered “safe” by most providers’ standards.

### Which “Safe” Patients Are at Risk of Slipping Out of Control?

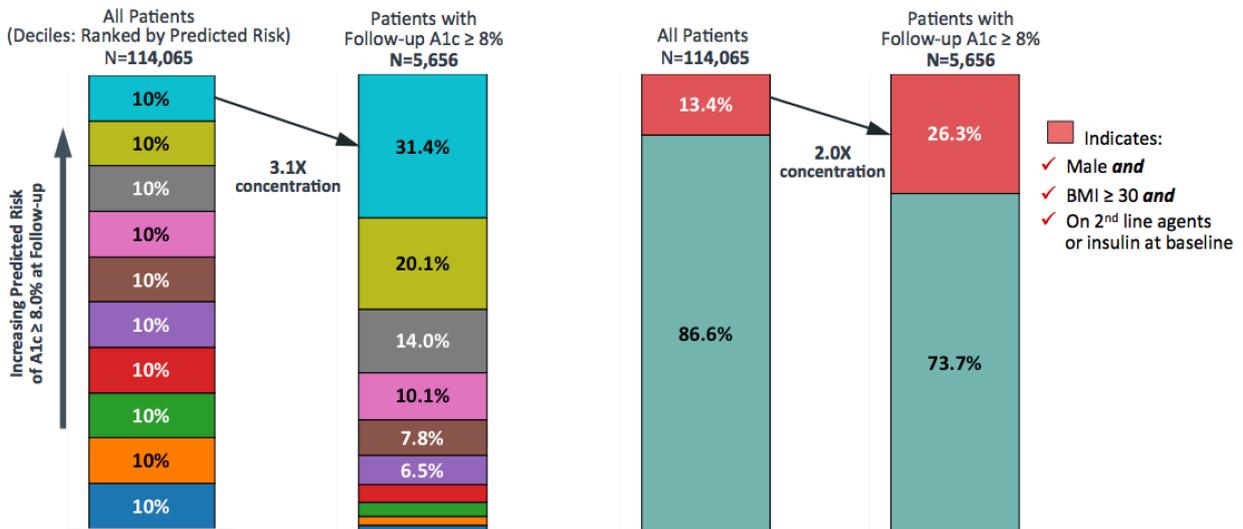
To plug the holes in this leaky bucket and improve A1c population-level control rates, HCOs would have to identify their “safe” patients who are at risk of transitioning out of control. AMGA created a predictive model to identify which safe patients were at highest risk of slipping out of glycemic control ( $A1c \geq 8$ ). For a detailed presentation that walks you through the leaky bucket concept and AMGA’s predictive model, visit the Together 2 Goal® website for the webinar series [Population Management Strategies for Diabetes featuring AMGA Analytics \(May 18, 2017\)](#).<sup>2</sup>

Validation of AMGA’s predictive model showed 10% of well-controlled ( $A1c 5.5 - 6.9\%$ ) patients who were predicted to be at highest risk of transitioning out of control accounted for 31.4% of those who slipped out of glycemic control at their 12- to 15-month follow-up. By focusing on well-controlled, Type 2 diabetes patients in this 10% risk bracket, providers could potentially prevent 31% of transitions out of control (concentrating their efforts by a factor of 3.1).

### How Does This Help?

AMGA simplified our complex predictive model by creating a “rule of thumb” that practitioners can use to focus resources on approximately 13% of “safe” patients who meet all of the criteria for slipping out of control. Using the rule of thumb, providers have opportunities to intervene *before* patients move out of glycemic control and prevent 26% of adverse glycemic control transitions 12 to 15 months later. The rule of thumb uses a few readily available predictors. If patients meet all of these factors, they are at risk for transitioning out of control:  $A1c$  between 5.5 and 6.9; male;  $BMI \geq 30$ ; *and* on a second-line anti-diabetes agent and/or insulin (Figure 2).

**Figure 2. Patient Stratification Rule of Thumb**  
(Well Controlled Patients\* at High Risk of Slipping Out of Control)



\*Well-controlled patient is defined in our analysis as having a baseline A1c between 5.5% and 6.9%.

### Steps to Manage Safe (A1c < 8%) Patients at Risk of Losing Glycemic Control

- Find the Together 2 Goal® webinar describing AMGA’s leaky bucket predictive model and learn more about this phenomenon at [Population Management Strategies for Diabetes featuring AMGA Analytics \(May 18, 2017\)](#).<sup>3</sup>
- Explain the leaky bucket phenomenon to practitioners. Urge them to keep this in mind as they care for *all* A1c-controlled patients by being alert to circumstances that can prompt changes in A1c levels (e.g., a significant life change; depression or anxiety; financial hardship; a recent physical trauma; severe illness or infection; among others). During these times, practitioners may offer patients more support and monitor their A1c more frequently.

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(CONTINUED)

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- Use rule of thumb insights to identify patients in your EHR at risk of slipping out of glycemic control (A1c  $\geq$  8%). Orient care teams on use of the rule of thumb. Explain how they can incorporate this information into daily workflows to document and capture data needed to reevaluate patients. *(See campaign planks: Use a Patient Registry and Embed Point-of-Care Tools).*
- Conduct patient outreach and reengage patients identified as safe using the rule of thumb. Measure A1c levels among this group more frequently (1 to 3 months). Reevaluate these patients often to ensure glycemic control. *(See campaign planks: Conduct Practice-Based Screening and Measure HbA1c Every 3–6 months).*
- Embed point-of-care tools, such as patient registries, banner alerts, glucose trackers, point of care A1c testing, daily visit planners, etc., in the EHR to ensure patients arrive ready for visits and care teams have complete information to proactively manage their blood sugar levels and other care needs. *(See campaign plank: Embed Point-of-Care Tools.)*
- Digital health tools such as Emmi<sup>®</sup>, Televox<sup>™</sup>, Epharmix<sup>®</sup>, and others can augment patient outreach efforts by sending automated messages through email, smartphone messaging (SMS), and phones to remind patients about self-care, patient-reported A1c compliance, and upcoming appointments, etc. *(See campaign planks: Contact Patients Not at Goal and with Therapy Change within 30 Days.)*
- Develop a proactive treatment algorithm for rule of thumb patients (A1c  $<$  8%) to make sure therapies are effectively stabilizing their conditions, include complementary methods—education, lifestyle, and medication management—as well as consults and referrals to behavioral health, pharmacy, dieticians, diabetes educators, and care coordinators for optimal glycemic control. *(See campaign plank: Adopt a Treatment Algorithm.)*
- Host leader-driven education sessions, preferably outside of clinic hours and settings, to increase provider awareness (physicians, physician assistants, nurses, nurse practitioners, dietitians, pharmacists, certified diabetes educators, and other front-line professionals) about the leaky bucket and the rule of thumb. Explain the importance of proactive monitoring and management of A1c in this group of patients. *(See campaign plank: Build an Accountable Diabetes Care Team.)*

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- Offer at-risk patients access to diabetes education, emphasizing the need to self-monitor glucose levels and regularly communicate changes to practitioners to enable timely, proactive changes in treatment. Add resources describing the leaky bucket on web portals and in clinic-based education tools. (*See campaign plank: Refer to Diabetes Self-Management Education and Support Programs.*)
- Collaborate with and refer patients to community-based diabetes education and resources at local YMCAs, Medicare Diabetes Prevention Programs (MDPP), gyms, grocery stores, and other community-based centers. Offer educational resources written in simple, easy-to-understand formats. (*See campaign planks: Refer to Diabetes Self-Management Education and Support Programs and Insight: Weight Loss and Management of Type 2 Diabetes.*)
- For more opportunities to control A1c in these patients, refer to *Insight: Weight Loss and Management of Type 2 Diabetes*.

**References**

1. The study used longitudinal electronic health record (EHR) data from 29 U.S. healthcare organizations who pool their EHR data as part of a national learning collaborative. All organizations in the collaborative use Optum's population health management and risk analytics platform which extracts data for multiple sources, cleans, normalizes and validates it, making it possible to conduct accurate lateral analysis and comparisons. Optum Analytics' clinical database is comprised of longitudinal ambulatory EHR data from 106 million patients treated by 84 U.S. healthcare organizations. The longitudinal patient records are de-identified and become part of one of the largest integrated data warehouses in the U.S., also managed by Optum.
2. Slides and audio can be found on the Together to Goal® website ([www.together2goal.org/Improve/webinars\\_improve.html](http://www.together2goal.org/Improve/webinars_improve.html)). Slides only ([www.together2goal.org/assets/PDF/20170518.pdf](http://www.together2goal.org/assets/PDF/20170518.pdf)) or slides and audio (<https://amgaevents.webex.com/amgaevents/lsr.php?RCID=ab9490d6950e6bda49883af8fd5cfb57>).
3. Ibid.

*Developed in partnership with Optum, AMGA's Distinguished Data & Analytics Corporate Collaborator*

# TOOL: HbA1c POC TESTING HANDOUT

MERCY



## HbA1c POC Testing

July 2017

Mercy Clinic East Community Quality Measures

### POC HbA1c DCA Analyzers are now available in your office!

**Why use HbA1c POC testing?** The results give you a good idea of how well your patient's diabetes treatment plan is working, and, it may actually save providers time by not having to message the MA to call the patient, look up all the patient's meds, and make adjustments after the patient's office visit. By using POC A1c testing at the time of the visit you can get immediate results to save you time and support face-to-face counseling and adjustments to therapy at the time of the visit. Studies suggest that by engaging patients in shared decision making about their diabetes, they are more likely to be compliant in their treatment plan and abide by regular testing for A1c and Glucose levels; therefore, better, more consistent control of A1c.



### How to Meet the Quality Measure



Overview Features & Benefits Assays Technical Specifications



DCA Vantage Analyzer

Provide the clinical confidence your patients deserve. The DCA Vantage® Analyzer helps you monitor glycemic control and detect early kidney disease in environments ranging from the physician's office to remote, point-of-care coordinated sites in hospitals and multisite practices. Meet lab-quality testing standards with an analyzer that speeds and simplifies diabetes tests and delivers accurate,<sup>1</sup> clinically relevant results shown to improve decision-making,<sup>2,3</sup> patient compliance, and outcomes.<sup>4</sup>

- > Manage diabetes patients more effectively
- > Improve workflow in office or clinic
- > Simplify management of diabetes testing in decentralized settings
- > One of just two HbA1c analyzers that meet NGSP performance criteria<sup>1</sup>
- > Used by three out of four physicians who perform HbA1c testing in their office<sup>5</sup>

- ➔ Use Diabetic diagnosis codes when ordering POC HbA1c testing.
- ➔ Test does not need to be done fasting
- ➔ Order HbA1c POC using **(POC1007) order code**
- ➔ For POC A1c testing, use **CPT Code 83036**
- ➔ A1c results may be inaccurate with patients with ESRD, who have recently given or received blood, or who have anemia.
- ➔ Call 877-229-3711 Toll free in the USA for 24/7 Service & support or [www.usa.siemens.com/diagnostics](http://www.usa.siemens.com/diagnostics).

## TIPS

- ✓ **Medicare reimburses for HbA1c testing every 3 months** whether it is done for persons with diabetes in the office or lab. Please consider this when ordering HbA1c whether POC or through Mercy or an outside lab.
- ✓ While the HA1c POC testing is helpful for monitoring and making in the moment changes to diabetes care plans for persons diagnosed with diabetes, it can also be helpful in screening for prediabetes.
- ✓ HCC coding standards encourage identification of prediabetes. Please refer to **Mercy's Screening, Diagnosis, and Treatment protocols** that can be accessed on your provider dashboard in Epic.
- ✓ **DO NOT** use the **Pre-Diabetes diagnosis code (R73.03)**, for patients you are screening for prediabetes or it will result in non-payment. **USE Impaired Fasting Glucose diagnosis code (R73.01) OR Insulin Resistance diagnosis code (E88.81)** that is covered.

