



Diabetic Nephropathy Screening in a Residency Clinic: Improvements Also Reveal Limits of Healthcare Effectiveness Data and Information Set (HEDIS) Metric

Rebecca L. Curran,^{1,2} Jason M. Lippman,¹ Hanna Raber,¹ Ken Gondor,³ Marlana Li,¹ and Katherine T. Fortenberry¹

Quality Improvement Success Stories are published by the American Diabetes Association in collaboration with the American College of Physicians, Inc., and the National Diabetes Education Program. This series is intended to highlight best practices and strategies from programs and clinics that have successfully improved the quality of care for people with diabetes or related conditions. Each article in the series is reviewed and follows a standard format developed by the editors of *Clinical Diabetes*. The following article describes a resident-led initiative that improved diabetic nephropathy screening in a primary care clinic. It also highlights the challenges of complex metrics, as well as the potential unintended consequences of emphasizing one dimension of a care process over another.

Describe your practice setting and location.

The Madsen Family Clinic, located in Salt Lake City, UT, is a university-affiliated academic family medicine clinic

with 25 primary care providers, including 6 attending physicians, 4 advanced practice clinicians, and 15 family medicine residents and fellows. The clinic population is 29.7% Medicare/Medicaid recipients.

Describe the specific quality gap addressed through the initiative.

This project focused on improving the clinic's compliance with the Medicare Healthcare Effectiveness Data and Information Set (HEDIS) measure for "medical attention to nephropathy" (1). This multicomponent measure gives credit for medical attention to nephropathy if a patient with diabetes who is 18–75 years of age receives an annual urine microalbumin screening, has evidence of nephropathy treatment with an ACE inhibitor or an angiotensin receptor blocker (ARB), or has a nephrology referral. We particularly emphasized nephropathy screening with urine microalbumin during this project.

How did you identify this quality gap? In other words, where did you get your baseline data?

Our institution collects information regarding HEDIS measure compliance and provides monthly reports to each clinic, using patients established with primary care providers within the clinic as the baseline population.

A few months before the start of this project, our clinic had implemented a previsit planning process through which the clinic nurse queued up orders to be completed by the medical providers for overdue quality-related tasks before each appointment. Monthly quality metrics showed that this new process had improved many quality metrics such as vaccinations and A1C measurements—all tasks that could be completed by a single team member at the point of care. However, urine microalbumin screening remained a low-performing metric that was also trending in the wrong direction, making it an excellent target for team-based quality improvement (QI).

¹Department of Family and Preventive Medicine, University of Utah, Salt Lake City, UT; ²Department of Biomedical Informatics, University of Utah, Salt Lake City, UT; ³Medical Group Operations, University of Utah, Salt Lake City, UT

Corresponding author: Rebecca L. Curran, rebecca.curran@hsc.utah.edu

This article contains supplementary data online at <https://clinical.diabetesjournals.org/lookup/suppl/doi:10.2337/cd19-0059/-/DC1>.

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<https://doi.org/10.2337/cd19-0059>

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Summarize the initial data for your practice (before the improvement initiative).

At the start of our screening process, 79.5% of our eligible patients with diabetes had received appropriate medical attention to nephropathy. This meant that 91 of our 443 patients with diabetes were still eligible for urine microalbumin screening.

What was the time frame from initiation of your QI initiative to its completion?

This project began in August 2018 and ended in March 2019.

Describe your core QI team. Who served as project leader, and why was this person selected? Who else served on the team?

Our entire clinic staff meets monthly to discuss our continuous QI efforts, with new cycles starting every 3 months. For this QI cycle, two senior residents led an interdisciplinary team, with two faculty members giving direct feedback to resident leaders each month on their leadership and scholarly progress.

Our kickoff clinic meeting included 31 participants from all areas of the clinic staff, including residents, attending physicians, advanced practice clinicians, patient relations specialists (i.e., front desk staff), medical assistants, nurses, pharmacists, and care managers.

After this initial planning session, the clinic was divided evenly into two QI core teams, with one team assigned to the diabetic nephropathy project. This core team met monthly for 6 months to design and implement the intervention. Resident leaders continued data analysis for another 3 months. Brief updates were provided to the entire clinic at monthly meetings, with a full report provided by resident leaders at the end of 9 months. This timing allowed for a rolling process through which four QI projects could be completed each year.

In the initial full-clinic session, we mapped out our clinic process with the large group (Supplementary Materials, Supplement 1) and then brainstormed barriers in small groups. We had stations set up for different barrier categories, including personnel factors, workflow, technology, and other. Small groups rotated to a new station every 3 minutes to brainstorm barriers (Supplementary Materials, Supplement 2).

Finally, we used a multi-voting method that allowed team members to each apply three voting stickers to the barriers they felt were most significant.

Describe the structural changes you made to your practice through this initiative.

The top-voted barrier was a lack of understanding of the nephropathy guidelines. Our team expressed confusion over the complex guidelines, particularly regarding how the three separate actions that meet the HEDIS measure (i.e., screening, prescribing an ACE inhibitor or ARB, or referring to a nephrologist) are not mutually exclusive. Prior research has described that the HEDIS formula for measuring compliance in medical attention to nephropathy has likely led to some patients who take an ACE inhibitor or ARB for hypertension being completely missed for a diabetic nephropathy screening (2).

To address these concerns, we created an information board in the laboratory waiting area of our clinic. Guideline flowsheets and QI metric data were displayed at eye level for passing clinic employees, and plain-language information was displayed at chair level for waiting patients.

In addition to posting on this information board, we distributed both a simplified and a more complex provider “cheat sheet” flowchart (Supplementary Materials, Supplement 3) to help providers understand how care recommendations fit within the HEDIS metric. We also added water to our waiting area so that both our front desk staff and rooming medical assistants could more easily offer water to our patients to facilitate later urine collection.

Describe the most important changes you made to your process of care delivery.

Although addressing the top-voted barrier as described above was important, we also addressed clinic processes so that the full team could be involved in the QI work. Our ultimate goal was to prompt the team to act during points in the existing clinic flow that maximized the chance of collecting urine from eligible patients.

Our clinic nurses and front desk staff felt that modifying the previsit planning workflow could accomplish this goal. The nurses had already initiated the previsit planning process described above, which was a one-step process in the electronic health record (EHR) system. To improve nephropathy screening, they added the additional step of placing a note in the EHR schedule under “reason for visit” stating that the patient needed urine collected at the visit. For example, where prior scheduling notes would have stated, “Reason for visit: diabetes checkup” the new display on the schedule would say, “Reason for visit: diabetes checkup. NEEDS URINE, please offer water.” With this highly visible alert, all staff encountering the

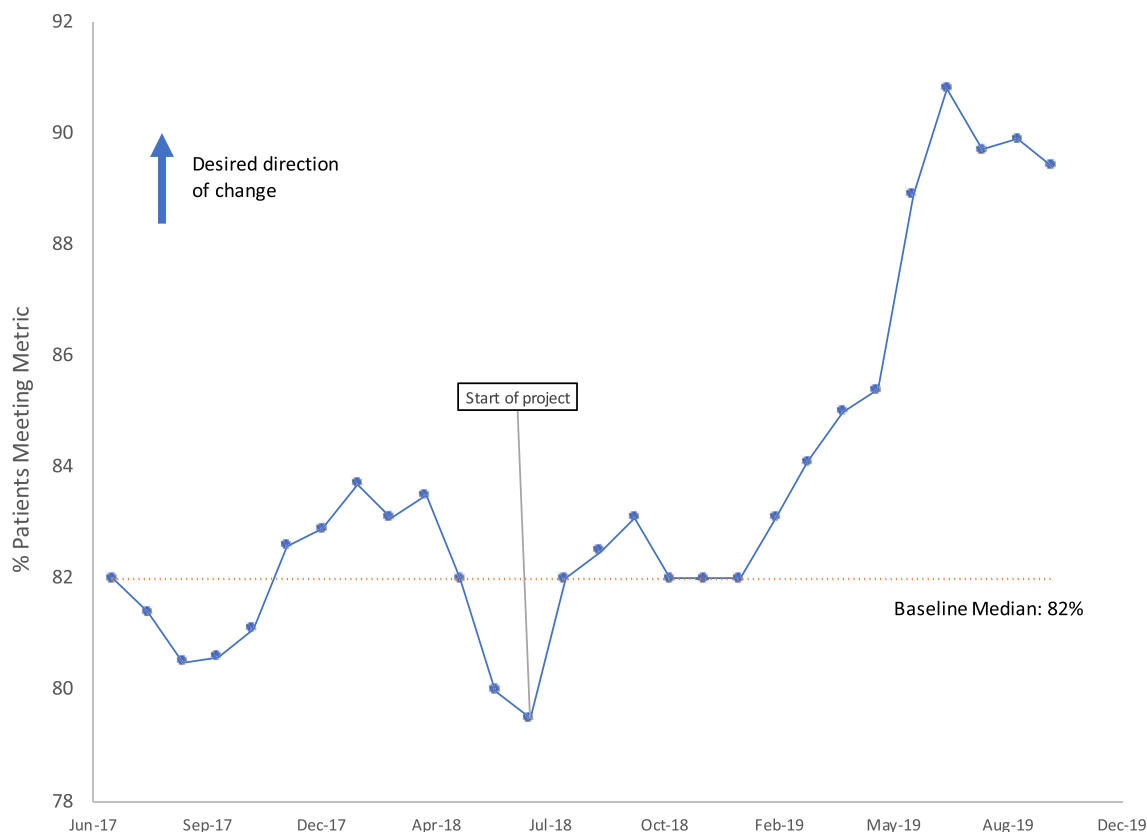


FIGURE 1 Clinic trend in appropriate medical attention to nephropathy. Solid line and markers represent clinic data. The dashed line represents the baseline median of 82%.

patient would be reminded to offer the patient water and ultimately to ask for the urine sample.

After 2 months of this new process, our data review revealed a subset of “missed opportunities” in which some patients were not being automatically identified during this previsit planning. Chart review revealed that this problem arose because of the algorithm running the EHR alerts used to flag overdue screening orders.

The HEDIS metric can be interpreted to allow any patient with a documented diagnosis of nephropathy to count as fulfilling the metric, regardless of whether the patient actually receives appropriate attention to their documented nephropathy. Therefore, our computer system was not triggering actionable alerts for patients with nephropathy diagnoses anywhere in the record, including billing records. The utilization of billing diagnoses codes to exclude patients was particularly problematic because providers had no reasonable way to view patients’ prior billing records. Thus, these patients were easy to miss by any provider or process that depended on the automated alert system to identify patients due for screening.

We submitted an error report to the Clinical Decision Support Committee, which then removed billing diagnoses from the algorithm for our entire health system so these patients could be appropriately identified as needing screening.

Summarize your final outcome data (at the end of the improvement initiative) and how they compared with your baseline data.

At the project’s conclusion, 84.3% of eligible patients successfully met the HEDIS metric for appropriate medical attention to nephropathy. This was an increase of 5 percentage points from baseline and the highest rate achieved in our clinic in 2 years. This trend has continued to be sustained in the last year (Figure 1).

We also performed a manual chart review of all positive microalbumin tests to identify whether increased testing actually led to a change in diabetes management. In the year before our intervention, 24 patients had positive screening results, which per guidelines would require further action. Of these, only five patients (21%) had that action taken. After the intervention, which included education on the

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entire care pathway, appropriate actions were taken on 9 of 21 (43%) of patients with positive screens.

What are your next steps?

Although appropriate follow-up for positive screening results has increased from 21 to 43% since the start of this project, we are still reaching fewer than half of our patients who require further medical management after screening positive for nephropathy. We are now advocating with the Clinical Decision Support Committee for the EHR alerts to dynamically respond to patients' health needs during different stages of diabetes nephropathy care rather than turning off whenever the HEDIS metric has been achieved. Most notably, when a patient with diabetes has a urine nephropathy screening done, an ideal alert would recognize positive results and recommend confirmation or prescription of an ACE inhibitor or ARB rather than simply marking a patient as "appropriate attention given" for the year.

What lessons did you learn through your QI process that you would like to share with others?

The complexity of nephropathy screening requires a multimodal approach to improvement. A key component of the success of this project was the effort of team members from multiple fields. By brainstorming as a group, we identified several barriers to the screening process. For example, we recognized that a key challenge to nephropathy screening in patients with diabetes was that patients were often unable to provide an on-demand urine sample at the visit's conclusion, when the provider reviewed pending orders in the EHR. By involving all clinic staff, starting with the front desk greeters, who could offer water to patients, we were able to increase screening.

Additionally, our creation of both simple and detailed guides helped providers to understand the nephropathy care pathway and the HEDIS measure's relationship to that pathway (Supplementary Materials).

The HEDIS measure for attention to nephropathy is a complex measure that has been criticized for its multicomponent numerator that gives credit for either screening or treatment. Prior work suggests this can lead to a "checkbox mentality" wherein appropriate nephropathy screening and management are disregarded once the metric is satisfied (2). Our work confirms that providers were often completing the step required to comply with the HEDIS measure (running a urine microalbumin test), but then not continuing the next

step for patients with positive results of confirmation and treatment of the identified nephropathy.

It is important to acknowledge, however, that expecting health care workers to bear the full cognitive load for multiple complex measures is impractical in the existing system of overburdened schedules and competing priorities. Thus, it was important to evaluate the existing EHR alert settings and identify gaps, which were fixed for our entire health system. Such system-level approaches combined with clinic-level interventions made it possible for us to create a sustainable solution for improvements in diabetic nephropathy screening.

ACKNOWLEDGMENTS

The authors thank Drs. Susan Pohl and Sonja Van Hala for their contributions to the resident-led QI education program.

FUNDING

Work on this project was partially funded by National Institutes of Health grant R38 HL 143605 "Utah Stimulating Access to Research in Residency."

DUALITY OF INTEREST

No potential conflicts of interest related to this article were reported.

AUTHOR CONTRIBUTIONS

R.L.C. co-led this project, including planning, execution, data analysis, and manuscript writing. J.M.L. co-led the project, including planning, execution, data analysis, and manuscript editing/review. H.R. contributed significantly to project execution and design of supplemental materials, as well as editing/reviewing the manuscript. K.G. contributed to design, data analysis, and manuscript review. M.L. and K.T.F. served as faculty advisors for the project, contributing to planning, execution, and manuscript editing/review.

PREVIOUS PRESENTATION

Early results of this project were presented in poster format and summarized in an abstract at the Society for Teachers in Family Medicine annual spring conference in Toronto, Canada, 26 April to 1 May 2019.

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