Urine Albumin Testing Necessity for Diabetic and High-Risk Patients

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Executive Summary

Main Points

- Data completeness for Urine Albumin collection almost doubled (33.8% → 66.6%).
- Electronic medical record (EMR) dot phrases and training improved fidelity and workflow adherence.
- Results supported sustained improvements in the quality of chronic kidney disease (CKD) surveillance data, enabling earlier detection and intervention.
- Adoption varied across clinicians and shifts; partial fidelity underscores the need for targeted reinforcement.
- Barriers to implementation included time constraints, change fatigue, and information technology (IT) or access issues. Facilitators comprised leadership support, clinical champions, education, and audit–feedback.
- Ongoing fidelity monitoring and reinforcement are essential for sustainability.

Background and Purpose

- Rationale: CKD risk is elevated in adults with diabetes and other high-risk conditions. Routine urine albumin testing supports early detection, risk stratification, and timely intervention (Chang, 2021).
- Gap: In a high-volume primary care clinic, staff did not collect annual urine albumin tests and documented them inconsistently, hindering risk stratification and timely care.
- Intervention aim: Improve the completeness and reliability of urine albumin data in the EMR to enhance CKD surveillance and enable timely management.
- Intervention components included EMR dot phrases and templates for standardized documentation, a pre-populated Standard Operating Procedure (SOP), targeted staff education, and iterative Plan-Do-Study-Act (PDSA) cycles to ensure fidelity.

- Intended audiences: Primary care clinicians, physicians, nurse practitioners (NPs), physician assistants (PAs), nursing and medical assistants, clinic leadership and quality improvement staff, health informatics/IT personnel, and patients at risk for CKD.
- Intended use of results: Sustain improvements in CKD surveillance data quality; guide broader EMR-driven documentation efforts; support adherence to screening guidelines; provide a scalable model for implementation at additional sites within the health system.
- The Healthy People 2030 goal for Urine Albumin Collection is 66.4%
- Triple Aim and quadruple aim agree that the Urine Albumin testing is a highly effective, highly efficient, low-cost screening tool for early detection of CKD (Sassen, 2023).

Methodology

Design framework: This quality improvement study utilized the RECIPE framework (Rationale, Evidence, Context, Input, Process, Evaluation) and Plan-Do-Study-Act (PDSA) cycles. The approach was aligned with the Donabedian structure–process–outcome model and Quadruple/Triple Aim objectives (Sassen, 2023).

- Setting: High-volume rural primary care clinic within a regional health system; data de-identified for analysis. This practice is a hub for a large community, as well as the surrounding communities, for their primary care.
- Population: Adults with diabetes or equivalent high-risk status. High-risk patients, such as those with hypertension or comorbidities. This office delivers care to an estimated 25K-35K patients annually. With five providers, five full-time nursing staff, and several float pull-fill-ins.
- Data sources: Central EMR data extracts for urine albumin documentation, chart audits, and staff training logs; all data drawn from a single, consistent EMR source.
- Intervention scope: Role-specific EMR dot phrases/templates, SOP, targeted staff education provided bi-weekly over 12 weeks from August 2025 to November 2025, and four PDSA cycles

to aid in standardizing documentation and improving consistency in electronic medical record efficiency and promptness.

- Data collection: Weekly extractions and audits; de-identified data stored on secure servers with governance oversight.
- Ethics: Quality assurance (QA)/quality improvement (QI) activity with de-identified data; governance via site policies and data-use agreements; no formal IRB approval required for this single-site improvement project.
- Fidelity and sustainability: Regular audit feedback; identification of barriers and facilitators; planning for ongoing reinforcement and potential multi-site scale-up.

Results

- Primary aim and magnitude: The completeness of urine albumin data increased substantially, rising from 33.8% at baseline to 66.6% at the end of follow-up. This represents an absolute increase of 32.8 percentage points.
- Drivers of improvement: The introduction of EMR dot phrases/templates and targeted staff training improved data-entry consistency and accuracy.
- Adoption: Dot phrases and the standardized workflow were widely adopted across the clinic, improving documentation quality and speed.
- Fidelity and variability: Gains were generally sustained, but adoption varied across clinicians and shifts, reflecting partial fidelity.
- Sustaining mechanisms: Ongoing PDSA cycles, leadership support, and clinical champions helped sustain new practices.
- Barriers and implications: Time pressures and IT or computer access issues limited the ability to audit the use of Dot Phrase consistencies for full uptake. Verbal weekly audits became

beneficial. Continued monitoring and targeted reinforcement are necessary to sustain improvements and facilitate replication at additional sites.

Strengths and Limitations

Strengths

- Real-world QA/QI setting enhances external validity for similar clinics.
- Clear, measurable outcome with substantial improvement in data completeness.
- A multicomponent approach aligns with best practices in QA/QI (templates, SOPs, education, and PDSA cycles) (O'Donnell, 2023).
- Demonstrated wide adoption and improved documentation reliability.
- Included sustainability planning aimed at long-term maintenance and scale-up.

Limitations

- Findings from this single-site QI project may have limited applicability to different settings or populations, though the interventions could be adapted in comparable environments.
- Variation in adoption suggests incomplete fidelity and potential inequities in impact.
- A short follow-up (12 weeks) may not capture long-term sustainability or delayed benefits.
- Data relied on a single EMR source; care outside the system could create gaps.
- External factors (other quality initiatives, staffing changes) could confound observed improvements.

Implications and Conclusion Implications

- For patients: More complete and accurate urine albumin collection and documentation enable better CKD risk stratification, earlier intervention, closer monitoring, and potentially improved renal and cardiovascular outcomes.
- For the project partner: EMR-based documentation improvements create a scalable, standardized workflow that supports routine screening, efficient reporting, and safer care

transitions; leadership can leverage gains to meet quality metrics and value-based care goals (Anabtawi & Mathew, 2013).

- For health systems: The multi-component approach provides a practical blueprint for enhancing data integrity and guideline adherence in busy primary care settings, with the potential to reduce downstream costs associated with late detection of CKD.
- Equity and access: Standardized documentation supports equitable CKD surveillance across diverse patient groups, including historically underserved populations.
- Sustainability and scalability: Ongoing fidelity monitoring and reinforcement are essential; the model is designed to scale to multiple sites with minimal modification within existing QA/QI structures.
- Contextual note: Findings come from a single-site QA/QI project; replication at other sites is needed to confirm generalizability and identify site-specific adaptations (Holmgren et al., 2024).

Conclusion

- EMR-based documentation improvements, combined with targeted education and audit–feedback, resulted in meaningful and sustained gains in the quality of CKD surveillance data within a real-world primary care setting. These enhancements facilitate timely risk assessment and intervention for diabetic and high-risk patients. To maximize impact, ongoing fidelity monitoring, reinforcement, and phased expansion to additional sites are recommended, with emphasis on workflow integration and clinician engagement to maintain improvements over time (Fichadia et al., 2024).

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