

Screening for Chronic Kidney Disease and Connection to Care in a Workplace Wellness Setting: A Cost Effectiveness Analysis

Background

- Chronic kidney disease (CKD) is estimated to affect 15% of the US population.¹ Early identification of patients with CKD and referral to care can slow the disease, but patients are often asymptomatic during early stages.
- Individuals who may have CKD can be identified by kidney function testing that estimates the glomerular filtration rates (eGFR).
- Employee wellness programs offer a way to routinely assess eGFR and to connect individuals who are at increased risk with appropriate resources. However, the benefits of such programs are uncertain.^{2,3}
- **Objective:** The investigators examined the potential health and economic benefits of a CKD outreach program initiated at employee wellness events.

Methods

- The investigators used a model-based cost-effectiveness analysis to evaluate a CKD outreach program paired with an employee wellness program that reports eGFR.
- Participants in an annual employee wellness event with eGFR <60 mL/min/1.73 m² in the first year were invited to participate in the CKD outreach program the second year; those whose eGFR remained <60 mL/min/1.73 m² the following year were referred to care.
- Most model inputs were obtained from published literature and some were obtained from the CKD outreach program (eg, fraction of patients with diabetes mellitus or self-referred for CKD). Cost inputs were obtained from governmental fee schedules.
- The default scenario of the CKD outreach program assumed 40% of individuals invited to participate agreed to be referred to care. Guideline-supported prescription of angiotensin-converting enzyme (ACE) inhibitors was assumed.
- Five-year health outcomes, expressed as quality-adjusted life-years (QALYs), and costs from the perspective of a self-insured employer were simulated in Markov models.
- Separate models were run for diabetic patients and all patients.

Results

- For 1,000 potential CKD patients who were diabetic and invited to participate in the CKD outreach program, the model estimated a gain of 2.6 QALYs and a cost savings of \$593,504 in 5 years. Cost savings occurred by year 2 and were most affected by:
 - Fraction of outreach invitations accepted
 - Cost of treatment of end-stage renal disease (ESRD)
 - Efficacy of ACE inhibitors at preventing or delaying ESRD
 - Progression from and prevalence of macroalbuminuria
- For 1,000 potential CKD patients invited to participate in the CKD outreach program regardless of diabetes status, the model estimated a gain of 0.8 QALYs and a cost savings of \$75,820. Cost savings occurred by year 4.

Conclusions

- The CKD outreach program paired with employee wellness events was predicted to improve health outcomes of patients with CKD, regardless of diabetes status, and be cost effective for payers.

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Webpage

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References

1. United States Renal Data System. 2016 Annual Data Report. Available from: https://www.usrds.org/2016/view/v1_01.aspx. Accessed March 5, 2019.
2. Gaitonde DY, Cook DL, Rivera IM. *Am Fam Physician*. 2017;96:776-783.
3. Gheewala PA, Zaidi STR, Jose MD, et al. *J Nephrol*. 2018;31:27-36.