Collaborative Use of KDOQI Guideline to Improve Chronic Kidney Disease Care

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An interprofessional team pilot project to improve identification and clinical outcomes of patients with CKD

Abstract

- The USRDS (2016) reported an estimated 14.8% of adults in the US are affected by CKD.
- Risk factors (RF) are common problems in primary care (PC): diabetes (DM) , hypertension (HTN), chronic use of NSAIDS, low socioeconomics, older age, and ethnic minority.
- The CDC (2017) reported one in three adults with DM and one in five with HTN have CKD.
- Costs in the US exceed $ 50 billion annually (CDC, 2017).
- The National Kidney Foundation (NKF) (2011) estimates one-half of people with one RF have CKD but few even know.

Research Shows

- Early detection and intervention saves lives and lowers costs (CDC, 2017).
- Use of the NKF Kidney Disease Outcomes Quality Initiative (KDOQI) evidence-based (EB) Guideline for Evaluation, Classification, and Stratification of CKD (KDOQI Guideline) is effective in early identification and in slowing progression and complications, especially in PC setting (Compton, 2007).

Purpose of Project

To implement a practice change in the way patients at risk for CKD were identified and managed in a PC population w/ known RF using the KDOQI Guideline.

Project Goals and Objectives

1. Increase provider knowledge/use of KDOQI guideline (ICD 9 coding).
2. Increase # of patients w/urine protein checks.
3. Decrease # of patients w/ poorly controlled B/P and NSAID use.
4. Increase eGFR in patients with known CKD.

Project Design

An interprofessional team at a PC clinic consisting of NPs, RNs, MAs, SW, IT support manager, and community resources director worked collaboratively to develop and initiate a clinical order set to guide a practice change in how patients were screened and evaluated for CKD based on the KDOQI Guideline. A pilot project was initiated following the development of the order set that would trigger the assessment for RF and markers of CKD in all patients scheduled for a routine office visit during a two month interval. Patients that were identified with evidence of CKD were asked to enter the pilot project.

Inclusion/Exclusion Criteria

- Inclusion: clinical evidence of CKD
- Exclusion: no clinical evidence of CKD

Clinical Indicators

- Estimated glomerular filtration rate (eGFR)
- Blood pressure
- Urine protein
- NSAID use
- ICD-9 coding for CKD

Pilot Project Cases and Process

- 200 patients screened in two months
- 56 identified with evidence of CKD
- 22 accepted enrollment in Pilot
- Enrolled patients managed per KDOQI Guideline for 5 months

KDOQI Guideline

Evaluation: Assess all individuals at health encounters for RF of CKD

RF	Evaluation	Selected Evaluation
FHX, older age, DM, HTN, AI, UTI, LUTO, drug toxicity, chronic use of NSAIDS	BP, eGFR, urine: protein, RBC, WBC	RUS (s/s obstruction, FHX PCD), electrolytes, urine SG or osmolality , pH

Classification: Type of CKD

Disease	Major Type
Diabetic CKD	Type 1, Type 2
Non-diabetic CKD	Glomerular disease (auto immune, systemic infection, drugs, neoplastic; vascular (HTN, large vessel), tubulointerstitial (UTI, obstruction, drug toxicity) polycystic

Stratification: Stage CKD

K/F-K/DOQI Classification and Prevalence Estimates for Chronic Kidney Disease

Stages	Description	GFR (mL/min/1.73m²)	Prevalence in US Population[a] (in millions)	Action
	At increased risk	≥90 (with CKD risk factors)	N/A	Screening, CKD risk reduction
1	Kidney damage with normal or ↑ GFR	≥90	5.9 (3.3%)	Diagnosis and treatment; Treatment of comorbid conditions; Slowing progression of CVD
2	Kidney damage with mild ↓ GFR	60-89	5.3 (3.0%)	Estimating progression
3	Moderate ↓ GFR	30-59	7.6 (4.3%)	Evaluating and treating complications
4	Severe ↓ GFR	15-29	0.4 (0.2%)	Preparation for kidney replacement therapy
5	Kidney failure	<15 (or dialysis)	0.3 (0.1%)	Replacement (if uremia present)

Note. Adapted from "K/DOQI Clinical Practice Guidelines for Chronic Kidney Disease: Evaluation, Classification, and Stratification, 2002, American *Journal of Kidney Diseases*, 39, (S2), p. S25. Copyright 2002 by The National Kidney Foundation.
[a] CKD is defined as either kidney damage or GFR< 60 mL/min/1.73m2 for ≥ months. Kidney damage is defined as pathologic abnormalities or markers of damage, including abnormalities on blood or urine test or imaging studies.
[b] includes actions from preceding stages.
Abbreviations: GFR, glomerular filtration rate; CVD, cardiovascular disease; Dx, diagnose; Tx, treatment; RRT, renal replacement therapy. Used with permission. (National Kidney Foundation, 2002b)**.**

Results

Indicator	Baseline N=22	Post Intervention N=20
ICD-9 codes	0 (0%)	16 (80%)
Urine protein checks	13 (59%)	18 (90%)
B/P >129/79	13 (59%)	8 (40%)
Use of NSAIDS	7 (32%)	1 (5%)
Mean eGFR	65.94ml/ min	76.23 ml/min

Discussion

Results show project goals/objectives met w/ expected improvements: increase in ICD-9 coding for CKD, improvement in BP control, increase in urine protein checks, decrease use of NSAIDS, and increase in eGFR.

Conclusion

CKD is a progressive disease that affects health outcomes across our nation. This project was designed to evaluate the effectiveness of the KDOQI guideline for evaluation, classification, and stratification of patients in the early stages of CKD in a primary care setting. The results show a positive practice change occurred by implementing the guideline and is also exemplified in this direct quote from one of the NP providers, "Our project has changed the way I practice; I use my GFR calculator every day now and I think twice before I prescribe an NSAID".

References

A reference list for the project is attached to this poster. A bound copy of the full project with references is available for review while the author is present.
Note: CKD staging was updated in 2014 but is not yet reflected in the KDOQI Guideline