

# **Implementation and Evaluation of a Compact CKD Guideline Reference Guide for Primary Care Providers**

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## **PROBLEM/BACKGROUND**

Chronic kidney disease (CKD) is marked by an estimated glomerular filtration rate (eGFR)  $< 60$  mL/min/1.73m<sup>2</sup> with or without markers of kidney damage for at least 3 months. CKD affects 30 million people (Brown and Gilliland, 2020). The south has more adults with CKD than any other region of the U.S. However, the Alabama Kidney Foundation (n.d.) reports that 48% of people with severely reduced kidney function not on dialysis are not aware of having CKD and 96% of people with kidney damage or mildly reduced function are not aware of it. Sperati et al. (2019) found primary care providers (PCPs) have often failed to recognize and appropriately manage patients with CKD with 45% of PCPs admitting they do not follow CKD guidelines. Lack of familiarity with accurate CKD diagnosis and extensive guidelines was cited as the cause. In response, nephrotoxic medications are frequently being prescribed to patients with CKD and nephrology referrals are being under-utilized.

## **PROJECT PURPOSE**

The purpose of this project was to implement and evaluate the effectiveness of a compact, user-friendly reference guide on renal function guidelines for use by nurse practitioners in a primary care clinic with the goals of a) decreased incidence of prescribed nephrotoxic medications in patients with an eGFR  $< 60$  and b) increased number of appropriate nephrology referrals.

## **THEORETICAL FRAMEWORK**

The ACE Star Model of Knowledge Transformation guided the project. Each point of the star is a step in integrating evidence-based knowledge into practice. Framework elements including discovery research, evidence summary, translation to guidelines, practice integration, and process outcome evaluation, were applied to develop and implement this DNP project.

## **METHODOLOGY**

A compact, user-friendly reference guide for CKD diagnosis and treatment was created based on existing evidence-based guidelines. Clinical usefulness was evaluated by 7 providers in a private internal medicine clinic with the target population of adults, aged 18 or older with a calculated eGFR  $< 60$ . Retrospective data was collected after an 8-week implementation period.

## **IMPLEMENTATION**

This project was implemented at a private internal medicine primary care practice in northwest Alabama. PCPs completed a pre-implementation survey upon receipt of the reference guide, entitled *Reference Guide for Evidence-Based Care of the Patient with CKD*. After using the reference guide for 8 weeks, the PCPs completed a post-implementation survey. These surveys provided feedback on the usefulness of the reference guide from the users' perspective. Data was collected for patients meeting inclusion criteria during 2-week pre-implementation and 8-week implementation periods. Data collected included the patients' age, gender, current eGFR, and currently prescribed nephrotoxic medications as well as whether the patient has a current nephrologist, new nephrology referrals made during the visit, and any discontinuation or adjustment of nephrotoxic medication dosages during their office visit.

## EVALUATION

Pre- and post-implementation data was compared to determine if there was a decreased incidence of prescribed nephrotoxic medications in patients with an eGFR < 60 and increased appropriate nephrology referrals. The pre- and post-implementation surveys completed by the nurse practitioners included 5 questions that utilized a 5-point Likert scale to evaluate the usefulness of the proposed reference guide from the users' points of view as well as 1 open-ended question to receive feedback for potential improvements to the reference guide.

## RESULTS

Five hundred encounters met inclusion criteria. The average number of nephrotoxic medications decreased from 1.25 pre-implementation to 1.05 post-implementation. However, the number of new nephrology referrals and nephrotoxic medication discontinuations and dosage adjustments did not increase. Pre-implementation surveys showed 6 of 7 providers agreed that the reference guide was organized logically and seemed useful for identifying CKD and criteria for nephrology referrals as well as understanding nephrotoxic medication dosage adjustments in CKD patients. However, only 3 of 6 providers agreed that the guide was useful to them on the post-implementation surveys. One provider was neutral about its usefulness and 2 providers disagreed that it was useful due to their usage of other sources.

## IMPLICATIONS FOR PRACTICE

Feedback indicated the reference guide could be helpful for new nurse practitioners. One recommendation for future projects is the use of a provider log of nephrology referrals and reference guide usage during implementation due to the lack of documentation during chart reviews. Also, an even smaller pocket cue card is recommended for providers to quickly reference and identify nephrotoxic medications that must be adjusted in CKD patients. Providers may also need a longer period of implementation time to become accustomed to using the reference guide in daily practice, and a mid-implementation check-in with providers is suggested to address providers' concerns with the reference guide so potential changes can be made earlier in the process.

## REFERENCES

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*Keywords:* chronic kidney disease, CKD, nephrotoxic medications, nephrology referrals, CKD guidelines

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