

## INTRODUCTION

### • PROBLEM HISTORY

- About 15% of adults, or 37 million people, have Chronic Kidney Disease (CKD) in the U.S. As many of 90% of these patients are unaware of their diagnosis (Centers for Disease Control and Prevention [CDC], 2021).
- CKD guidelines are based on the Kidney Disease: Improving Global Outcomes (KDIGO), released by the National Kidney Foundation-Kidney Disease Outcomes Quality Initiative (Kidney Disease: Improving Global Outcomes (KDIGO) CKD Work Group, 2012).

### • LITERATURE REVIEW

- CKD is underdiagnosed and undertreated in primary care. Most patients are undereducated about their diagnosis of CKD. Earlier diagnosis and management are associated with improved health outcomes. Provider education and system integration of guidelines improves diagnosis and treatment in earlier stages (Bissonnette et al., 2013; da Silva et al., 2016; Mold et al., 2014; Norton et al., 2017; Pefanis et al., 2018; Regan, 2017; Van Gelder et al., 2016).

### • PURPOSE STATEMENT AND PICOT

- Does educating APRN's and providing educational materials to patients in the primary care setting about the KDIGO 2012 guidelines improve patient understanding of CKD in adults according to the Kidney Knowledge Survey (KiKS) within 3 months?

### • OBJECTIVES

- 1. 10% improvement of patient scores using the Kidney Disease Knowledge Survey (KiKS) after the intervention.
- 2. Verbal CKD education documentation by PCP will increase by 10% in patients diagnosed with CKD.
- 3. CKD education brief will be given to at least 50% of patients seen at the clinic during the intervention phase that are diagnosed with CKD.

## ACKNOWLEDGEMENTS

A special thank you to the people who assisted with this project:  
Dr. Shelby Thomas, committee chair  
Dr. Gina Oliver, committee member  
Dr. Justin Puckett, committee member  
Complete Family Medicine in Kirksville, MO

## MATERIALS AND METHODS

• **Objective 1:** A descriptive pre-test, post-test design was used to evaluate this objective.

- Collection method for the pre-test post-test data was the KiKS (28 questions), administered prior to intervention and one week following intervention.
- Significance evaluated used a one-sample t-test of the improvement score between the pre-test and post-test.
- Sample: 39 adult patients with CKD were included at a family clinic using purposive, convenience sampling. Sample characteristics: male (n=21), female (n=18), Caucasian (n=33), Hispanic (n=1), Black (n=5), ages 40-49 (n=2), 50-59 (n=8), 60-69 (n=8), 70-79 (n=8), 80-89 (n=9), > or = 90 (n=4). Number of subjects determined using G power calculator.

• **Objective 2:** A retrospective chart review was completed one week prior to and one week following intervention time frame of 45 days.

- Collection method is electronic chart review at this project site.
- Sample: 80 charts were evaluated using systematic random sampling. Number of subjects determined per raosoft (5% margin of error, 95% CI, population 100, response distribution 50%).

• **Objective 3:** Staff nurse monitored diagnosis of CKD on incoming patients and documented whether the patient received an educational handout provided during this project.

• 2 providers were included in the intervention phase and interviewed at the conclusion of this project.

## RESULTS

Objectives:

- 1. 2 tailed, one sample t-test of improvement score was statistically significant ( $t=12.477$ ,  $df=38$ ,  $p=.000$ ).
  - Met. The improvement of patient scores using KiKS was greater than 10% post-intervention (18% total).
- 2. 2 tailed, paired t-test of chart reviews was mildly statistically significant ( $p=.045$ ,  $df=79$ ,  $t=.296$ ).
  - Not met. The improvement of PCP documentation of verbal CKD education is less than 10% post-intervention.
- 3. Staff nurse documented that 80% of CKD patients seen in clinic were provided with educational handout.
  - Met. Greater than 50% of CKD patients seen during the intervention phase were given the educational handout.

## CONCLUSIONS

- Strengths: able to obtain recommended number of participating patients, providers state that the educational handout is convenient to use, patients state that handout is easy to understand.
- Limitations: short time frame leaving sustainability unknown, patients state survey too long, providers state additional education can be time consuming.
- Feedback: providers stated that education materials were too time consuming on busy days, but that slow days the education is easy to implement. Another comment was that the provider had a certain method/order to their charting and did not always remember to document the education that was provided. Patients stated that the survey was too long.
- Sustainability: adding the educational handout to the sites available patient education documents to be sent home can sustain changes and improve patient understanding of CKD diagnosis and management.

## REFERENCES

1. Bissonnette, J., Woodend, K., Davies, B., Stacey, D., Knoll, G. A. (2013). Evaluation of a collaborative chronic care approach to improve outcomes in kidney transplant recipients. *Clinical Transplantation: The Journal of Clinical and Translational Research*, 27(2), 232-238. doi: 10.1111/ctr.12068.
2. Centers for Disease Control and Prevention. (2021). Chronic Kidney Disease in the United States, 2021. Retrieved from <https://www.cdc.gov/kidneydisease/publications-resources/ckd-national-facts.html#:~:text=CKD%20is%20Common%20Among%20US%20Adults&text=More%20than%201%20in%207,are%20estimated%20to%20have%20CKD.&text=As%20many%20as%209%20in,not%20know%20they%20have%20CKD.>
3. da Silva, L. S., Cotta, R. M. M., Moreira, T. R., da Silva, R. G., Rosa, C. O. B., Machado, J. C., . . . Bastos, M. A. P. (2016). Hidden prevalence of chronic kidney disease in hypertensive patients: the strategic role of primary health care. *Public Health*, 140, 250-257. doi: 10.1016/j.puhe.2016.02.029.
4. Kidney Disease: Improving Global Outcomes (KDIGO) CKD Work Group. (2013). KDIGO 2012 clinical practice guideline for the evaluation and management of chronic kidney disease. *Kidney International Supplements*, 3(1) 1-150. Retrieved from [https://kdigo.org/wp-content/uploads/2017/02/KDIGO\\_2012\\_CKD\\_GL.pdf](https://kdigo.org/wp-content/uploads/2017/02/KDIGO_2012_CKD_GL.pdf).
5. Mold, J. W., Aspy, C. B., Smith, P. D., Zink, T., Knox, L., Lipman, P. D., . . . Cohen, R. (2014). Leveraging practice-based research networks to accelerate implementation and diffusion of chronic kidney disease guidelines in primary care practices: a prospective cohort study. *Implementation Science*, 9(169). doi: 10.1186/s13012-014-0169-x.
6. Norton, J. M., Newman, E. P., Romancito, G., Mahooty, S., Kuracina, T., & Narva, A. (2017). CE: Improving outcomes for patients with chronic kidney disease: part 1. *American Journal of Nursing*, 117(2), 22-32. doi: 10.1097/01.NAJ.0000512272.33956.8b.
7. Pefanis, A., Botlero, R., Langham, R. G., & Nelson, C. L. (2018). eMAP: CKD: electronic diagnosis and management assistance to primary care in chronic kidney disease. *Nephrology Dialysis Transplantation*, 33(1), 121-128. doi: 10.1093/ndt/gfw366.
8. Regan, M. E. (2017). Implementing an evidence-based clinical decision support tool to improve the detection, evaluation, and referral patterns of adult chronic kidney disease patients in primary care. *Journal of the American Association of Nurse Practitioners*, 29(12), 741-753. doi: 10.1002/2327-6924.12505.
9. Van Gelder, V. A., Haan, N. D. S., De Grauw, W. J. C., Vervorrt, G. M. M., Weel, C. V., Biermans, M. C. J., . . . Wetzels, J. F. M. (2016). Quality of chronic kidney disease management in primary care: a retrospective study. *Scandinavian Journal of Primary Health Care*, 34(1), 73-80. doi: 10.3109/02813432.2015.1132885.