RESEARCH LETTER

Improving CKD Patient Knowledge and Patient-Physician Communication: A Pilot Study of a CKD Report Card

To the Editor:

Chronic kidney disease (CKD) affects approximately 1 in 7 US adults and is associated with premature morbidity, mortality, and reduced quality of life. Avoiding negative outcomes of CKD progression, such as cardiovascular events and kidney failure, requires patients to achieve aggressive lifestyle and medical management. However, many patients lack understanding of the tasks required to prevent CKD progression. This knowledge gap, the complexity of kidney disease information, and the challenge of CKD self-management demand effective communication between physicians and their patients.

Wright Nunes et al found that use of a physician-delivered educational worksheet was associated with increased patient CKD knowledge in a predominately white population. This work, although important, was physician led, required physician training and acceptance, and included few racial minorities. The CKD Report Card, an investigator-developed 2-sided educational worksheet modified from National Kidney Disease Education Program materials, was designed to increase CKD knowledge and encourage patient-centered communication by facilitating discussion of clinical status (eg, laboratory values and CKD stage) and patient-led goal setting. We assessed the effects of the CKD Report Card at an urban predominantly African American nephrology clinic.

We recruited adult patients from the University of Chicago Nephrology Clinic. Patients enrolled during the first 4 weeks formed the control group; those during the second 4 weeks formed the intervention group. The intervention group was provided the CKD Report Card immediately before the clinic visit. Patient knowledge was assessed before and after the clinic visit using a 30-item CKD Knowledge Tool, modified from the Kidney Disease Knowledge Survey. Paired-sample t tests were performed to analyze the change in CKD knowledge scores from pre- to postvisit. Difference-in-difference analysis was performed to examine the relative magnitude of improvement for the intervention group compared with controls. Intervention group and control group postvisit scores were compared using multivariable regression analysis adjusting for previsit scores and patients’ age, race, sex, education level, visit status (ie, new vs returning patient), CKD stage, years seeing nephrology, and physician status (ie, fellow vs attending). All statistical calculations were performed using Stata Statistical Software, version 14 (StataCorp). Additional methods are included in Item S1.

Patients varied in both the method and extent of CKD management. Furthermore, our educational intervention may facilitate physician-patient communication by empowering patients to ask questions that pertain to their personal health goals.

There were several limitations to this study, including a small sample size and single-institution research design. Patients varied in both the method and extent of CKD Report Card use during the clinic visit. Additionally, because this was not a randomized study, residual confounding cannot be ruled out. Planned next steps are to test the CKD Report Card in a larger randomized intervention with longer follow-up and then, if findings are robust, incorporate the tool into routine clinical care.

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SUPPLEMENTARY MATERIAL

Supplementary File (PDF)

Item S1: Supplementary methods
Welcome to the Nephrology Clinic!
You are here to see a Nephrologist, a doctor who takes care of kidney problems.

What do my kidneys do?
- Filter your blood to get rid of waste
- Help control blood pressure
- Remove extra fluid from your body
- Help make red blood cells
- Keep your body’s chemicals in balance
- Help keep bones healthy

Do I have kidney disease?
Chronic Kidney Disease (CKD) is when your kidneys are damaged and have some of their function. Your doctor can test this with a blood test and a urine test.

Blood test for GFR (Glomerular Filtration Rate) measures how well your kidneys are working.
Urine test looks for proteins leaking in the urine, which can be a sign of kidney damage.

You have a higher risk for kidney disease if you:
- have diabetes
- have high blood pressure
- have lupus
- are 60 or older
- are an African American, Hispanic American, Asian and Pacific Islander, or American Indian
- have a family member with kidney disease

What can I do about my kidney problem?
Chronic Kidney Disease cannot be cured, and without treatment it can get worse and lead to kidney failure, also called End Stage Renal Disease (ESRD). You should follow these guidelines to prevent your kidney problem from getting worse and leading to ESRD.

NOTE: “Renal” is another word for kidney
- Check your blood pressure at home.
- If you have diabetes, check your blood sugar. Work with your doctor to keep your numbers under control.
- Eat less than 2 grams of salt per day and Exercise 20 minutes a day, 3 times a week.
- Take prescribed medications and Quit smoking.

Your Lab Values...
What is your creatinine? ______________
What is your GFR? ______________
What CKD Stage are you? ______________

Other Important Lab Values...
Blood pressure: Today’s ______________ Goal ______________
Glucose (sugar) A1c, if you have diabetes: ______________
Anemia: Hemoglobin (Hgb) is ______________
Bone Health: Includes Calcium, Phosphorous, Vitamin D and PTH ______________
Proteinuria (Leaking Protein in Urine): ______________

Set and Reach Your Goals!

Goals (What are some things you want to improve?):

Date to Reach Goals:

Action Plan (How are you going to reach your goals?):

Notes: ____________________________
Causes of CKD: What can cause CKD?

| Question Topic                                                                 | Control Group (n = 25) | Intervention Group (n = 25) | Mean Difference (95% confidence interval) |
|--------------------------------------------------------------------------------|------------------------|----------------------------|------------------------------------------|
| Functions of the kidney: The kidney filters and cleans the blood                | Previsit Postvisit     | % Difference               | Previsit Postvisit % Difference          |
|                                                                              | 22 (88%) 21 (84%)      | −4% (−12% to 4%)           | 23 (92%) 23 (92%) 0% (−12% to 12%)       | +4 (−10 to 18) |
| helps keep bones healthy                                                      | 4 (16%) 7 (28%)        | +12% (−2% to 26%)          | 10 (40%) 15 (60%) +20% (−4% to 43%)       | +8 (−19 to 34) |
| helps keep red blood cell counts normal                                        | 12 (48%) 12 (48%)      | 0% (−24% to 24%)           | 13 (52%) 20 (80%) +28% (3% to 53%)        | +28 (−6 to 62) |
| helps keep phosphorus levels in the blood normal                               | 7 (28%) 10 (40%)       | +12% (−6% to 30%)          | 9 (36%) 12 (48%) +12% (−2% to 26%)        | 0 (−22 to 22) |
| Causes of CKD: What means CKD?                                                |                        |                            |                                          |
| High blood pressure                                                           | 21 (84%) 22 (88%)      | +4% (−4% to 12%)           | 22 (88%) 25 (100%) +12% (−2% to 26%)      | +8 (−8 to 3) |
| Diabetes                                                                      | 23 (92%) 23 (92%)      | 0% (0% to 0%)              | 23 (92%) 25 (100%) +8% (−3% to 19%)       | +8 (−3 to 19) |
| General CKD knowledge                                                         |                        |                            |                                          |
| GFR = glomerular filtration rate                                              | 16 (64%) 14 (56%)      | −8% (−32% to 16%)          | 18 (72%) 22 (88%) +16% (−4% to 35%)       | +24 (−6 to 54) |
| There are 5 stages of CKD                                                      | 8 (32%) 11 (44%)       | +12% (−2% to 26%)          | 7 (28%) 15 (60%) +32% (12% to 52%)        | +20 (−3 to 43) |
| CKD patients should avoid ibuprofen                                           | 14 (56%) 14 (56%)      | 0% (−12% to 12%)           | 16 (64%) 18 (72%) +8% (−3% to 19%)        | +8 (−8 to 24) |
| Mean score (SD)                                                               | 60 (15) 64 (19)        | +4% (−1% to 9%)            | 63 (14%) 73 (15%) +10% (5% to 15%)        | +6 (−0.6 to 13) |

Note: Values expressed as number (percent correct) unless otherwise noted. Abbreviations: CKD, chronic kidney disease; SD, standard deviation.

Table S1: Overall Patient Characteristics Associated With Patient Chronic Kidney Disease

Table S2: Complete CKD Knowledge Tool Results by Question (percent of individuals answering correctly) for Control and Intervention Groups

ARTICLE INFORMATION

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