

Putting Kidney Diet Apps to the Test

A growing effort is under way to produce evidence-based kidney disease nutrition apps

By Bridget M. Kuehn

Diet and other health tracking mobile applications have become a part of everyday life for many people, and patients with kidney disease are no exception. Patients can choose from numerous kidney nutrition apps available in app stores, but experts warn many contain misleading or inaccurate information and few have undergone rigorous testing to ensure they are safe and effective.

A growing number of clinicians are trying to change that by developing and rigorously testing apps that help kidney patients make dietary choices to optimize their health. In September 2018, the American Association of Kidney Patients (AAKP), the Veterans Transplantation Association, ASN, and the US Department of Veterans Affairs (VA) began recruiting patients to test the MyKidneyNutrition app. The testing collected feedback from kidney patients to ensure the app truly addresses the needs of kidney patients and serves as a resource to track daily activities including nutrition, fitness, and medication information. The MyKidneyNutrition app will become publicly available in early 2019, and was jointly developed by ASN and the VA.

“The MyKidneyNutrition app will raise awareness of patients’ day-to-day activities and the impact they have on their care,” said Edward V. Hickey, III, chair of AAKP’s Veterans Health Initiative.

Avoiding pitfalls

Nutritionist Kelly Lambert, MSc, a renal dietician at the University of Wollongong in Australia, and her colleagues decided to take a look at the nutrition apps available on the market after getting numerous queries from patients and their families about diet tracking apps. In their review (1), they assessed the accuracy and usability of the information provided in 21 renal diet apps available for sale in Australian app stores. More than half of the apps reviewed contained inaccurate information.

“Apps shouldn’t replace health professionals,” Lambert said.

Lambert explained that many apps simply did not use reliable sources of information on food content, if they disclosed their source of information at all. Often apps presented information that was misleading or that might have suggested a more restrictive kidney diet than was necessary for patients with earlier stages of kidney disease. For example, an app would suggest avoiding bananas, which may be important for patients on dialysis, but isn’t always necessary for other patients with CKD.

“Often it was restricting foods unnecessarily,” she said. “The dietary restrictions are hard enough.”

That’s concerning because unnecessary food restrictions may cause frustration for patients or make it harder for them to comply. She noted that nutritionists help patients navigate food choices that are appropriate for their disease stage. Sometimes it’s a matter of sticking with smaller portions of certain foods, she said.

“Patients want black and white, but dietitians work in gray,” she said.

Another potential pitfall with nutrition apps is that they may provide inaccurate or outdated information about the nutritional content of foods. Lambert noted

that food composition may be different in Australia compared with the United States because of differences in the way food is grown or made. For example, in the United States, many products contain significantly more phosphate than the Australian products. Also, the composition of food products changes often and databases of nutrition information may not keep up. For example, many US food producers are reducing salt in products like bread and adding potassium chlorate.

A few apps stood out for providing good information, including the National Kidney Foundation’s My Food Coach app and H2O Overload. Lambert suggested that savvy patients who want to use a dietary app check who made the app and where they get their information, and then ask their clinicians about the app they are interested in.

“A good clinician should be able to recommend an app,” she said.



Building a better app

In light of the limitations of some of the commercially available apps, many clinicians are working to build better ones that have been carefully designed to meet patients’ needs and tested in clinical trials to ensure they work.

Deborah Zimmerman, MD, associate professor of medicine in the Division of Nephrology at the Ottawa Hospital and University of Ottawa in Canada, built the OkKidney app to help her patients better manage their serum phosphate levels. She noted that it can be confusing to patients to track the phosphate content of foods.

“Despite all of our dietitians’ efforts to educate

them, some of them just find it completely overwhelming,” she said.

Without clear information on how much phosphate patients are consuming at each meal, Zimmerman also wasn’t sure if she was prescribing the appropriate amount of phosphate binding medications. So, she designed an app that would help patients count the phosphate content of their food and provide them an appropriate prescription. In her small pilot (2), she found patients’ phosphate control didn’t change much after using the app, but they were able to reduce the amount of phosphate binders they took. Since most Canadian patients are prescribed calcium-based binders, reducing their exposure is helpful, she noted.

“It decreases pill burden, which is huge for our patients, but may also, in the long term, perhaps have an impact on vascular calcifications,” Zimmerman said. In the US, she noted use of non-calcium phosphate binders is more common, so calcifications may be less of a concern.

Now, she’s begun recruitment for a larger trial. If the trial verifies the benefit of her app, it would only be available by prescription.

“We’re actually asking people to use it over a longer period of time,” she said. “Will they actually continue to be engaged and use it, and is it actually effective?”

Lambert has also created a free app called Easy Diet Renal, which is available only in Australia and Asia. She noted that it is very important for clinicians developing apps to involve patients in the process, and also to work with app designers and others who can make them easy to use.

The MyKidneyNutrition app

Veterans and other patients were involved in the development of the MyKidneyNutrition app, noted AAKP Past President Paul Conway. The veterans who participated saw it not only as a way to help manage their care between visits, but also as a continuation of their service to their fellow veterans, noted Hickey.

“The entire development process involved patients,” Conway said. “If we’re going to do it right it needs to reflect not only the needs, but the individual preferences that vets may have.”

While the experts are optimistic that a growing array of evidence-based digital tools for patients are on the horizon, they are also quick to note the currently available apps aren’t a replacement for working with a dietician or other clinicians.

“When it comes to our nutrition, I rely very heavily on our registered dietitians,” said Zimmerman, who hasn’t yet recommended any of the apps currently available. ■

References

1. Lambert K, et al. Should we recommend renal diet-related apps to our patients? An evaluation of the quality and health literacy demand of renal diet-related mobile applications. *J Renal Nutr* 2017; 27:430–438.
2. Imtiaz R, et al. A pilot study of OkKidney, a phosphate counting application in patients on peritoneal dialysis. *Perit Dial Int* 2017; 37:613–618.