

Development of a novel mobile health platform for surveillance of kidney stone formers: a first look

Jenny N. Guo¹, Mark A. Assmus², Nicholas S. Dean¹, Jessica Helon¹, Amy E. Krambeck¹

¹ Northwestern University Department of Urology, Chicago, IL ² University of Calgary Division of Urology, Calgary, AB

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INTRODUCTION

- Usage of mobile health (mHealth) applications in management of urolithiasis is becoming increasingly more prevalent
- Although there is clear interest from patients to utilize mHealth to be more proactive in medical management of stone recurrences, technology has not been optimized for targeted stone prevention
- We developed a comprehensive stone prevention mobile care plan that addresses the current lapses in dietary/medical adherence and misinformation to improve stone-related quality of life (QOL)

OBJECTIVES

- **Hypothesis:** Usage of a mHealth platform increases patient quality of life (QOL) and satisfaction in preventative stone care
- **Primary objective:** To improve patient QOL and quality of stone management
- **Secondary objectives:** Improvement in objective clinical measures for stone risk and objective measures of recurrent stone disease

METHODS

- Prospective RCT comparing usage of GetWell Loop, a mHealth platform, with a standard office-based follow-up plan for follow-up of kidney stone formers over the course of 12 months
- Inclusion criteria: First-time or recurrent stone formers over 18 years of age
- Exclusion criteria: Patients without mobile phone capability to utilize GetWell Loop or physical/cognitive impairment precluding usage of a mobile device or answering of questionnaires

MOBILE CARE PLAN DESIGN

- The plan incorporates 24-hr urine collection results to provide custom recommendations regarding dietary management, fluid intake, medications for each individual patient
- Main features: Check-in surveys every 3 months regarding medical management of stones, patient satisfaction, stone-related health, and Wisconsin QOL (WISQOL) questionnaires
- Other unique features: Monthly fluid reminders, medication adherence notifications, activity feed where patients can review custom-created stone handouts, secure messaging chat for questions

RESULTS

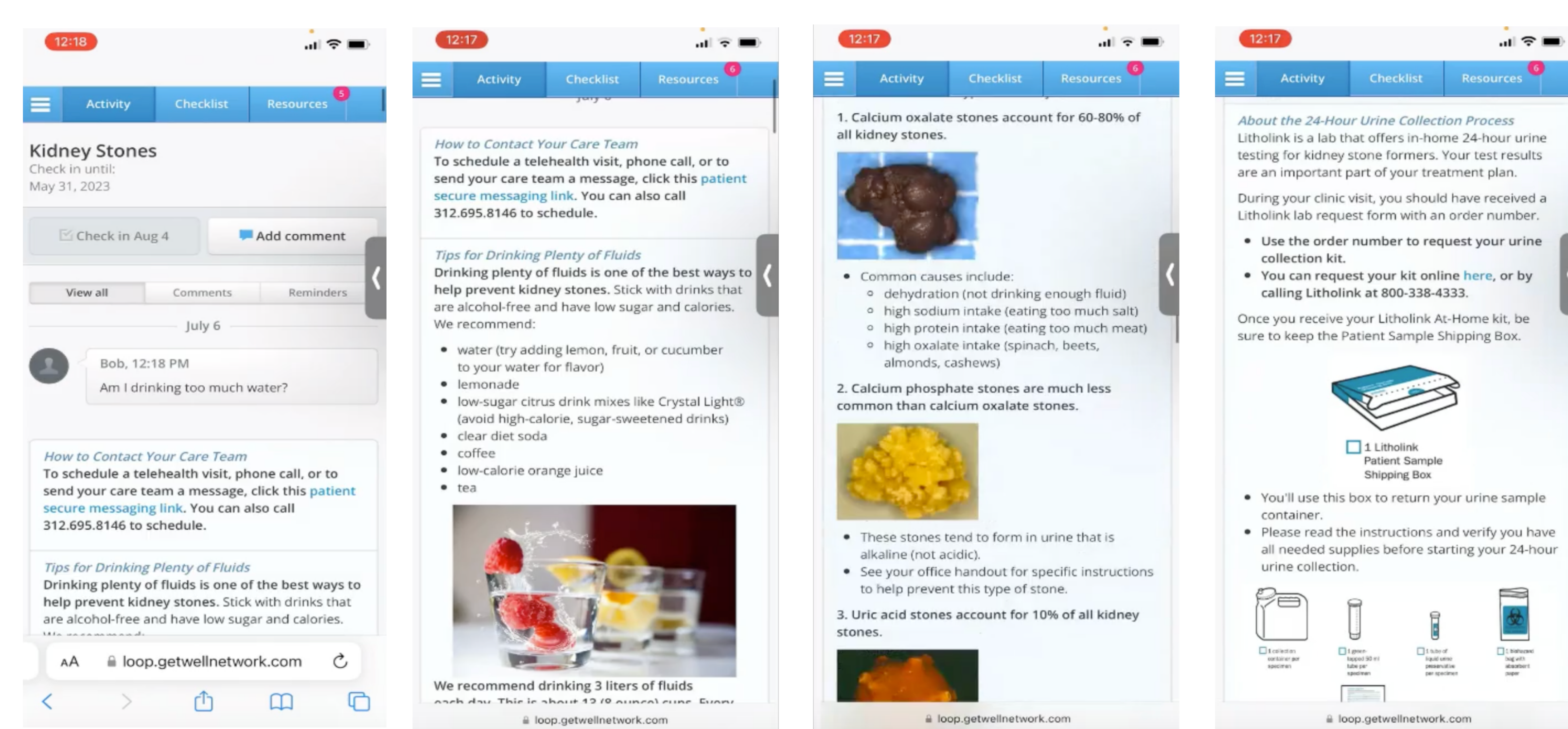


Figure 1: GetWell Loop Stone Prevention Care Plan Activity Feed

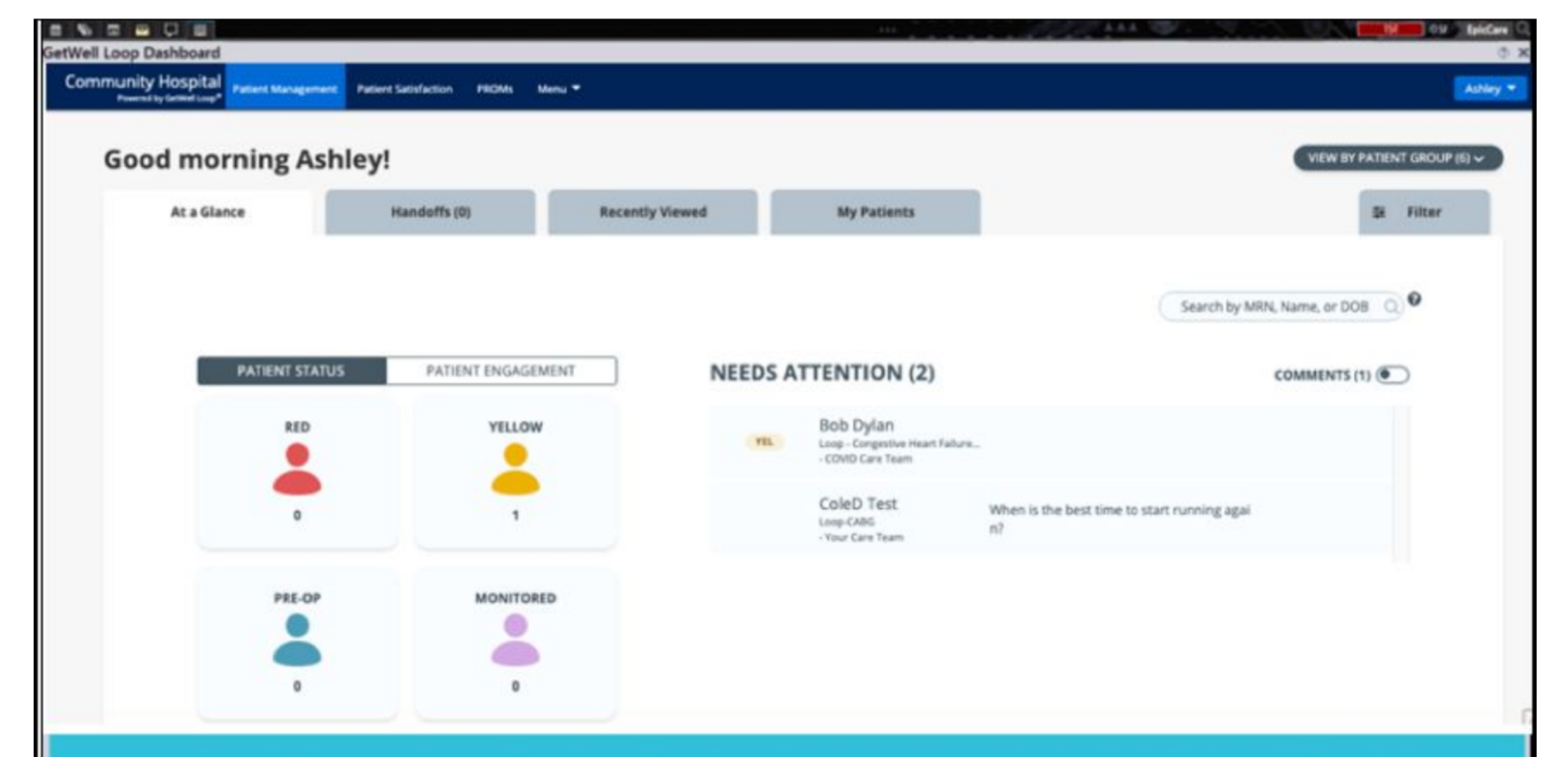


Figure 3: Streamlined Epic Integration of GetWell Loop Dashboard for Providers

- A total of 153 patients have been deemed eligible for the study so far
- 46 patients have been enrolled into the application (34.5% enrollment rate)
- Mean patient age is 55.5 years (range 24-81)
- 50% of patients enrolled were female

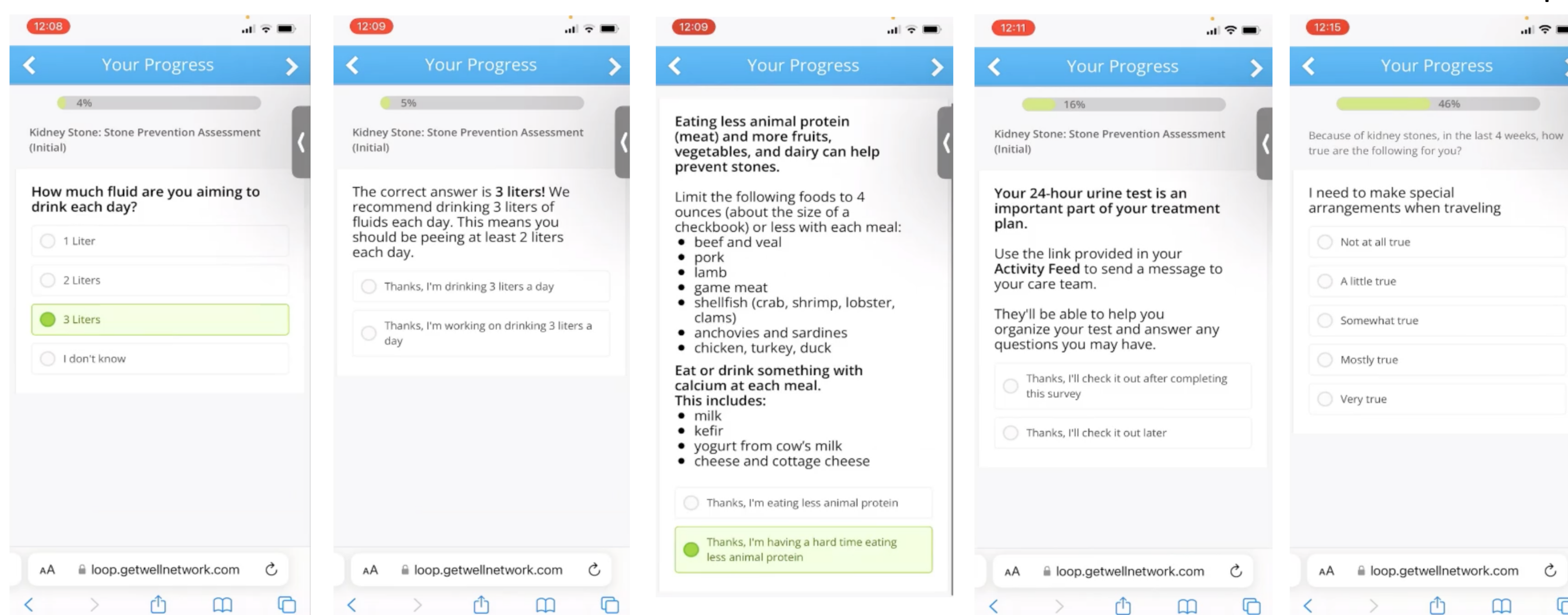


Figure 2: Example of 3-month Check-In Stone Prevention Assessment

- Feedback received include that that care plan is “streamlined,” “easy to use,” and “not too lengthy”
- Patients report that they enjoy having access to resources at their convenience and feel that the app has helped them remain more compliant with provider recommendations

CONCLUSIONS

- We designed a novel kidney stone mobile health care plan that incorporates patient-specific data to reinforce dietary management, fluid intake, and medication adherence in chronic stone formers
- Usage of this application may improve patient QOL and compliance with recommendations. Current participants appear to be either of younger age or highly motivated to prevent future stone recurrences
- Further studies are needed to determine if the app is helpful across multiple demographics