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Optimizing asthma care through physician and patient engagement in a remote monitoring platform

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BACKGROUND:

COVID19 ushered in the implementation of many forms of digital health aimed to improve patient care between visits for several diseases and chronic conditions. Examples include electronic patient-reported symptom monitoring during routine cancer care, technology-enabled diabetes self-management education, and support. Very few of these pilots remote patient monitoring (RPM) projects provide a direct electronic link between providers and patients to engage both. This study assesses the feasibility of an RPM solution including a patient-facing mobile app with a provider-facing portal to improve care for patients with Asthma.

Keva health is a start-up based in MA that has developed a unique RPM platform to monitor patient's in-between visits to the doctor. The platform includes a front-facing app that patients can use to track their health, Bluetooth-connected devices to measure their respiratory rate, and a monitoring service to provide alerts to the physician's office. This study was done as part of a remote patient monitoring program for asthma patients at a large health care center in MA.

Keva health app featuring for patient's- YouTube link.

STUDY POPULATION:

100 eligible asthma patients seen at a local health center were asked to participate in a 3-month pilot study. Patient consent was obtained. At-home spirometers were provided to document peak-flow readings that sync directly with the mobile application using Bluetooth technology. A respiratory therapist provided training on the use of the spirometer by phone. Twenty-five of the patients, recruited through in-app messaging, were asked to participate in a 30-minute qualitative in-depth interview. Patients were compensated for participating in the interview with a $15 cash card.

METHODS

An interview guide was developed to guide the conversation and allow patients to provide spontaneous feedback to capture the feasibility, usefulness, and importance of the functions within the application. Objective patient and clinician engagement data was collected through the platform, e.g., number of patients who engage with the app, percentage of patients who filled out a validated asthma questionnaire, number of provider logins, and duration of use by physician/nurse.

OPEN-ENDED GUIDE:

A. Do you find the Asthma Advisor app easy or difficult to use?

i. If easy – What do you find easy about it?

ii. If difficult – What do you find difficult?

iii. Is the app easy to navigate?

iv. What issues, if any, did you run into while using the app?

B. Tell me about what it was like for you to connect the spirometer to the Asthma Advisor application?

i. Was it easy or difficult to connect the spirometer to the Asthma Advisor application?

1. If easy – What do you find easy about it?

2. If difficult – What do you find difficult about it?

C. What do you like or dislike about the Asthma Advisor application?

i. Are there specific features you like? Why?

ii. Are there any specific features that you do not like?

D. Did you receive regular notifications from the Asthma Advisor application to "check-in?"

i. If yes, how often did you get a notification?

ii. What do you think about the notifications?

iii. Do you find the notifications helpful?

iv. What did you do when you received a notification?

v. What encourages you to use the app regularly?

RESULTS:

Of the 16 patients who enrolled in the program, 9 patients agreed to the interview. One patient was provided a written guide and responded on paper. Interviews were audio-recorded in the zoom or by phone.

Patients engaged with the app both when they were experiencing symptoms and when they were not. The app includes a daily notification to remind patients to enter their symptoms; however, patients are able to enter information in the app at any time and multiple times per day if they wish.

Patients reported they were very receptive to the app, their spirometer device and that it was an easy way to track their asthma. The treating physician was able to see the remote patient monitoring report to allow him/her to optimize care for the patient and receive alerts if the patient's condition worsens.

During the interviews, most patients were comfortable using the check-in feature for the app and many of these patients were able to connect via Bluetooth to their devices as well. Some patients required more explanation of the functions of the app but indicated that they were happy with the extra training and would use them going forward. Patients were satisfied and pleased with the onboarding sessions that were provided to them by a licensed respiratory therapist. Patients expressed the need for getting additional help to enter their medication in the app. Once they understood how to use the app to remove or add the medications, they felt comfortable doing it. Patients recorded 760 spirometry sessions with their device. There were 1000 plus unique check-

ins in the app, over 400 alerts were triggered. Of these alerts, 7 were escalated to the physician's office for follow-up.

EXEMPLARY PATIENT QUOTES:

Patient responses were categorized into 4 sections - app usage, monitoring, tracking, and device (spirometer)usage.

App Feedback

"The platform lets me see how I'm doing over a course of time, which is always helpful because you figure out what your triggers are and how bad you really feel. so it corroborates that evidence whether you feel good or you don't feel good."
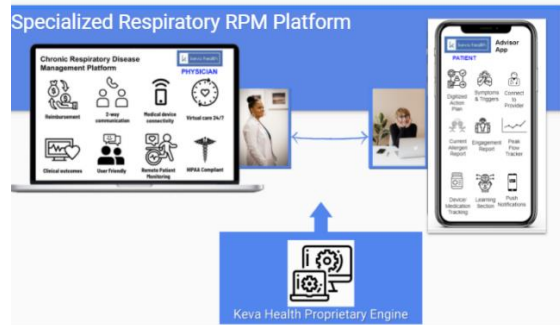
Patient 1
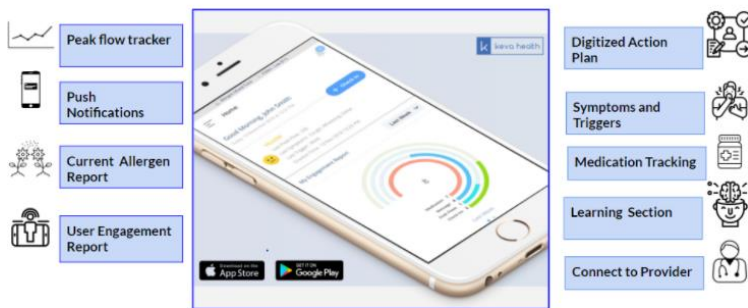
Monitoring Feedback

"Evidently, I wasn't doing too well. I had a spell when all the smoke was coming from the fires in the west. I was having a bad time with that so I actually used my rescue inhaler and the office physician assistant called me to see how I was."

Patient 2

Tracking Feedback

"I see the benefit in it and I like the tracking, you know? Because sometimes I myself don't always have that awareness. I'm so "in the day." I'm very busy with my job and my life that sometimes I'm not always aware of how I'm feeling. So it gives me that moment to check in with myself and be like, "so, how are you?" and I appreciate that."

Patient 3

Continuous monitoring

Device Feedback

"When I used to use a spirometer, it was one of those old ones with the numbers on it and I had to track it in an Excel sheet, so this has been really nice, actually. It's been good to not have to try to read the numbers on the old ones, you know? Sometimes they get worn off and stuff. So this has been cool because it just links to your phone and you have the data."

Patient 4

"I liked the fact that the Keva app can be connected with my spirometer like my doctor can look at it even if I'm not having an appointment for a while. I love that feature a lot."

Patient 5

CONCLUSIONS:

Interventions that allow both the physician and patient to be engaged in remote care in-between visits to the doctor can be helpful for managing chronic illnesses.

Digital platforms for remote monitoring should focus on both provider and patient engagement to optimize care through meaningful interpretation of data collected via app and devices.

Patient feedback through the qualitative interview is essential to obtain while conducting validation studies for digital platforms. This allowed us to understand the user experience and helped to design a better UI (user interface) for the health care technology platform. Feedback from the patients to the app developers was often used to make real-time modifications to improve the patient experience.

This pilot study had a small sample size but the results suggest that with further development in a larger study with more sites, these specialized RPM programs could definitely benefit patients with respiratory illnesses as well as provide optimized patient care for pulmonologists and allergists.

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5. Keva health app featuring for physicians - https://youtu.be/krpFp7_JmpY KEVA Health Remote Patient Monitoring Platform for Respiratory Health - Physician

Keva health is a remote monitoring solution company that has built a SaaS Platform for monitoring patients with respiratory illness Contact: 1888-527-KEVA(5382) or info@kevahealth.com