BreathEasy: A Smartphone App to Manage Asthma in an Underserved Population

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Abstract

Asthma is a common, chronic illness, affecting over 23 million U.S. adults who face daunting challenges in managing their disease conditions on a daily basis. RTI and the Virginia Commonwealth University developed and piloted a smartphone app, built on the latest clinical guidelines for treatment and self-monitoring of individuals with asthma, to assist adults with asthma to better manage their care and disease condition.

BreathEasy, part of RWJF's Project HealthDesign, was developed through a user-centered design approach with iterative development and feedback cycles. Patients used an Android-based smartphone to record their observations of daily living (ODLs), including asthma and mental health symptoms, medication use, symptom triggers, physical activity, and activity limitations, among others. Clinicians (physician/nurse pairs) used a Web-based dashboard to review patient data and visualize trends and patterns in the ODL data on a regular basis, in accordance with a disease management approach.

Six months of fielding with 30 patients in two urban practices has shown the app to be generally well accepted by both patients and clinicians, and findings indicate that collection and review of ODL data has resulted in positive changes in communication and care management. Changes in medication compliance and management, referrals to specialists, and diagnoses of comorbid conditions were attributed to use of the app. Patients reported using the ODL information in many ways, including recognizing when symptoms had become problematic, being more aware of symptom triggers, and better following recommendations made by their doctor.

These findings indicate early success of this smartphone and dashboard app to manage asthma. Further studies should focus on an evaluation including a control group and more closely approaching a controlled clinical trial. By providing a novel method of reporting patient-generated data to clinicians between office visits, this app shows promise for improving the quality of care of asthma patients.