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A Personalized Mobile Health App to Improve Diabetes Outcomes:

A health informatics approach to designing mHealth tools for patient self-care

NEW ORLEANS – Sept. 30, 2015 – A novel use of health informatics to create patient-specific mobile health (mHealth) applications based on medical claims data may improve management of chronic disease, according to information presented today at the [American Health Information Management Association's \(AHIMA\) 87th Annual Convention and Exhibit](#).

“As healthcare systems move from volume-based to value-based reimbursement models, providers are looking for new ways to engage patients as active participants in the management of their care,” said Scott Sittig, MHI, RHIA, head, department of allied health, University of Louisiana at Lafayette.

“Hospitals and managed care organizations have large quantities of health information residing in their medical claims databases. Traditionally, the data are used for administrative functions, such as predicting hospital readmissions. Through the use of advanced analytics and data mining, we’ve shown that the data also can be used to develop personalized mHealth self-care tools to help patients manage their disease,” Sittig said.

Sittig and his colleagues chose patients with Type II diabetes to design the first case history demonstrating the technique. They queried a hospital medical claims database for ICD-9 codes related to a diagnosis of the disease, tested assumptions about diabetes care and identified targets for behavior changes that can improve outcomes. Their analysis found that among patients with Type II diabetes:

- Medication adherence was suboptimal.
- Most patients did not have HbA1c blood tests for diabetes as often as recommended by evidence-based standards of care.

The researchers also conducted focus groups among providers and patients and incorporated behavior change theory and evidence-based recommendations for optimal diabetes care into their mHealth prototype. The resulting application for use by patients on mobile devices includes personalized information in three areas:

Medication adherence

- Reminders to take and refill prescribed medications
- Ability to record medication intake
- Personalized information on the importance of taking medications

Glucose monitoring

- Reminders to check blood glucose (BG)
- Journaling for BG levels
- Historical BG values
- Personalized information on the importance of BG checks

Diabetic self-care

- Reminders to follow diet plans recommended by health care team
- Establishing goals for self-care behaviors, such as weekly exercise goals
- Personalized messages about the importance of self-care

The application also provides modules for problem solving; targeted self-efficacy training to improve patients' confidence in their ability to have a positive impact on their care; and the ability to set goals and view videos appropriate to the needs of the individual patient.

The application is currently being tested by 99 patients with initial results expected by the beginning of 2016 "By taking this approach, healthcare providers can develop mHealth solutions that target a specific population prospectively rather than retrospectively," Sittig said. "We are hopeful that our research can be replicated for use with other chronic health conditions and diseases, which affect nearly half of the U.S. adult population."

"The innovative use of health informatics to create mobile health applications is just one example of the increasingly important role played by health information professionals in creating real-life solutions to meet the needs of patients and providers," said AHIMA CEO Lynne Thomas Gordon, MBA, RHIA, CAE, FACHE, FAHIMA.

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About AHIMA

The American Health Information Management Association (AHIMA) represents more than 101,000 health information professionals in the United States and around the world. AHIMA is committed to promoting and advocating for high quality research, best practices and effective standards in health information and to actively contributing to the development and advancement of health information professionals worldwide. AHIMA's enduring goal is quality healthcare through quality information. www.ahima.org