

MyMediHealth: A Paradigm for Children-Centered Medication Management

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Organization:	Vanderbilt University
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Summary: Medication management of children with chronic conditions is complex because of the need to tailor dosages based on a child’s age and development, and because of the likelihood that such children have multiple caregivers. To improve care of children with chronic disease, a team at Vanderbilt University Medical Center in Tennessee, led by Dr. Kevin Johnson, is working to address medication management in the pediatric population through further development of MyMediHealth, a mobile personal health application for medication management that is built to interface and share information with a personal health record (PHR). The overarching goal of this project is to investigate ways in which PHRs and supported applications can improve the safety and quality of medication delivery.

The study is evaluating the impact of the MyMediHealth application on medication adherence in children ages 12-to-18 who have asthma and are patients at the Vanderbilt Primary Care Clinic. The control group is receiving education on asthma management, while the intervention group is receiving education and training about asthma management and the use of MyMediHealth. The application provides medication information and reminders to children by cell phone. Patients are able to create medication schedules, schedule alerts to mobile devices, and examine medication administration information. The PHR provides laboratory results, relevant medical literature, email for direct communication with providers, and direct appointment scheduling.

The project team developed a knowledge base of common pediatric asthma medications that have been incorporated into MyMediHealth and will be part of the evaluation of the application on medication adherence. In addition to medication adherence, study measures include effect on family dynamics, disease control, and impact on caregivers outside the home, such as school caregivers and health care providers. The results of this study will have important implications for understanding how to further patient-centered care and medication adherence in the pediatric population. Some findings may also be applicable to chronic disease management in the adult population.

Specific Aims:

- Develop an information and scheduling knowledge base for common pediatric asthma medications (including allergy medications). **(Achieved)**
- Adapt MyMediHealth in its current prototype form to patients diagnosed with asthma. **(Achieved)**
- Integrate MyMediHealth into the Vanderbilt patient portal to support medication scheduling and the creation of medication reminders. **(Unlikely to achieve)**

- Evaluate the impact of MyMediHealth on medication adherence. **(Ongoing)**

2011 Activities: Due to security concerns from the risk management team at the University, Dr. Johnson was unable to have MyMediHealth integrated into Vanderbilt's PHR, "My Health at Vanderbilt". The risk management team felt that further research is needed to understand and protect patient data before the interface between these tools can be made available. As a result, the project team has developed MyMediHealth with the ability to interface with any PHR and thus it is not tailored to work specifically with My Health at Vanderbilt.

The project team completed the adaptations and modifications to MyMediHealth and plans to begin the evaluation in January 2012. In the last quarter of 2011, the project team developed and finalized the evaluation tools. The team has developed all of their measures for the evaluation and will be submitting the final protocol to their institutional review board.

All patient enrollment will be done by phone. The enrollment tools are currently being pilot tested. The evaluation will begin with the English-speaking patients; thereafter the team will begin translating the tools to Spanish. The MyMediHealth Web site has been undergoing testing using a "think aloud methodology" with community engagement groups established on the Vanderbilt campus. The Web site is where families will enter information on the child's asthma dosing regimen, and it includes a place to input the child's asthma action plan. The families can also use the Web site for data tracking after they have begun using the application.

As last self-reported in the AHRQ Research Reporting System, project progress and activities are on track and project spending is on target.

Preliminary Impact and Findings: An important finding of the project is how people use reminders. The project team initially planned to pilot the medication reminders for 9 months, but have obtained a good understanding of usage of the reminder system in a much shorter period of time (2 weeks).

A second finding is that there is quite a bit of cost associated with bi-directional texting to confirm compliance with medications. This is especially true if a patient is taking four-to-five medications. Some of the study participants have unlimited texting plans, and others do not. Despite the potential cost, the project team decided not to make unlimited texting a requirement for inclusion in the evaluation.

Target Population: Asthma, Chronic Care*, Medicaid, Pediatric*, Teenagers

Strategic Goal: Develop and disseminate health IT evidence and evidence-based tools to improve the quality and safety of medication management via the integration and utilization of medication management systems and technologies.

Business Goal: Knowledge Creation

** This target population is one of AHRQ's priority populations.*