

## AHRQ's Ambulatory Safety and Quality Program: Health IT Portfolio

The mission of AHRQ is to improve the quality, safety, efficiency, and effectiveness of health care by:

- Using evidence to improve health care.
- Improving health care outcomes through research.
- Transforming research into practice.

### Introduction

The purpose of the Agency for Healthcare Research and Quality's (AHRQ) Ambulatory Safety and Quality (ASQ) program is to improve the safety and quality of ambulatory health care in the United States. For the purpose of this program, AHRQ defines ambulatory care as health services provided by health care professionals in outpatient settings. These settings include practitioner offices, clinics, outpatient departments of hospitals, large or small group practices, community health centers (CHCs), emergency departments, diagnostic imaging centers, dialysis centers, home care, mental health centers, occupational health centers, and school health facilities.

The scope of ambulatory care has increased over the past decade, as the volume and complexity of interventions have expanded. Safe, high-quality ambulatory care requires complex information management and coordination across multiple settings,

### Key Acronyms

- CDS** - clinical decision support
- CHC** - community health center
- CHN** - community health network
- EHR** - electronic health record
- EMR** - electronic medical record
- Health IT** - health information technology
- HIE** - health information exchange
- PHR** - personal health record

especially for patients with chronic illnesses. The opportunity to turn the potential of health information technology (health IT) toward improving safety and quality in the ambulatory care setting, especially within care transitions, forms the cornerstone of the ASQ program. The program accentuates the role of health IT through the following funding opportunity announcements (FOAs):

- Enabling Quality Measurement Through Health IT (also includes a patient safety focus)



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- Improving Quality Through Clinician Use of Health IT
- Enabling Patient-Centered Care Through Health IT
- Improving Management of Individuals With Complex Health Care Needs Through Health IT

Overall, 65 health IT grants have been awarded, totaling approximately \$35 million.

### **Enabling Quality Measurement Through Health IT**

The purpose of this FOA is to develop safety and quality measures in ambulatory care settings, automate quality measurement, demonstrate the ability of electronic data systems (such as electronic health records [EHRs] or claims data merged with EHR data) to expand potential safety and quality measures, and demonstrate improved ability to export data for reporting performance on measures and improvement.

Applicants were encouraged to consider projects that focus on a variety of aspects of quality measurement. Some aspects of interest include process, data elements, value and accuracy, creation of meaningful information, and timeliness of data integration.

### **Enabling Quality Measurement Grants**

In total, 17 health IT grants were awarded under this FOA. Of these, four grants were funded through a patient safety set-aside. The projects described focus on common chronic illnesses and prevention. There is prominent involvement of national organizations and initiatives such as the American Medical Association, the National Committee for Quality Assurance, the

American Gastroenterological Association, and the Ambulatory Care Quality Alliance (AQA). A variety of ambulatory settings and organizations are addressed, from large integrated delivery systems to small provider practices and from urban settings to small rural communities.

### **Surveillance for Adverse Drug Events in Ambulatory Pediatrics**

**Estimated Total Funding: \$992,699**

Uses a computerized system to detect and report adverse drug events (ADEs) that occur in the outpatient setting, in the emergency department, and during the transitions of hospital admission and discharge.

Focus Area(s): ADEs for pediatric patients in ambulatory settings, emergency departments, and transitions of care

Type of Health IT: Operational decision support – quality of care

Principal Investigator: Thomas Bailey  
Grant No. 1R18HS017010

Applicant Institution: Washington University, St. Louis, MO

Estimated Dates: 9/20/2007–2/28/2011

### **Closing the Feedback Loop To Improve Diagnostic Quality**

**Estimated Total Funding: \$998,509**

Develops ways to close the loop of outpatient diagnosis in an effort to improve the quality of diagnostic and therapeutic decisionmaking in ambulatory settings.

Focus Area(s): Quantitative scale to determine quality of diagnosis in the clinical setting

Type of Health IT: Clinical decision support (CDS)

Principal Investigator: Eta Berner  
Grant No. 1R18HS017060

Applicant Institution: University of Alabama at Birmingham, Birmingham, AL

Estimated Dates: 11/27/2007–8/31/2011

**Colorado Associated Community Health Information Exchange (CACHIE)**

**Estimated Total Funding: \$986,302**

Designs, develops, implements, and evaluates an interoperable quality information system for a collaborative network of CHCs that permits real-time and synchronous quality reporting to inform patient care, quality interventions, and health policy and advocacy efforts.

Focus Area(s): Specific measures to be determined

Type of Health IT: Health information exchange (HIE), quality of care decision support

Principal Investigator: Arthur Davidson  
Grant No. 1R18HS017205

Applicant Institution: Denver Health and Hospital Authority, Denver, CO  
Estimated Dates: 9/30/2007–6/30/2010

**Automating Assessment of Asthma Care Quality**

**Estimated Total Funding: \$871,711**

Develops, validates, applies, and evaluates a scalable method for routine and comprehensive measurement of outpatient asthma care quality.

Focus Area(s): 19 asthma care quality measures from the RAND Quality Assessment Tools

Type of Health IT: Quality of care decision support, data electronic transform and load

Principal Investigator: Brian Hazlehurst  
Grant No. 1R18HS017022

Applicant Institution: Kaiser Foundation Research Institute, Portland, OR  
Estimated Dates: 1/31/2008–9/29/2010

**Developing and Using Valid Clinical Quality Metrics for Health IT With HIE**

**Estimated Total Funding: \$974,545**

Proposes to derive a set of quality metrics that can capture the effects of health IT with HIE and be retrieved electronically through the contributions of the Health Information Technology Evaluation Collaborative, the New York State Department of Health, and four regional health information organizations that are implementing health IT with HIE and focusing on the ambulatory setting.

Focus Area(s): Ambulatory quality metrics responsive to the effects of health IT and HIE

Type of Health IT: HIE

Principal Investigator: Rainu Kaushal  
Grant No. 1R18HS017067

Applicant Institution: Weill Medical College of Cornell University, New York, NY

Estimated Dates: 9/17/2007–3/31/2011

**Cardio-HIT Phase II**

**Estimated Total Funding: \$996,166**

Studies exception reporting to: (1) document the prevalence and patterns of exception reporting for performance measures for coronary artery disease and heart failure, (2) assess the feasibility and accuracy of exception reporting, and (3) analyze and address stakeholder concerns regarding exception reporting.

Focus Area(s): Coronary artery disease and heart failure measures

Type of Health IT: Operational decision support – quality of care

Principal Investigator: Karen Kmetik  
Grant No. R18HS017160

Applicant Institution: American Medical Association, Chicago, IL  
Estimated Dates: 9/26/2007–12/31/2009

**Electronic Support for Public Health - Vaccine Adverse Event Reporting System**

**Estimated Total Funding: \$999,995**

Seeks to improve the quality of vaccination programs by improving the quality of physician adverse vaccine event detection and reporting to the national Vaccine Adverse Event Reporting System.

Focus Area(s): Vaccine adverse effects

Type of Health IT: Registry (vaccination), clinical/medication reminders (provider-focused)

Principal Investigator: Ross Lazarus  
Grant No. 1R18HS017045

Applicant Institution: Harvard Pilgrim Health Care, Inc., Boston, MA

Estimated Dates: 12/07/2007–9/29/2010

**Medication Monitoring for Vulnerable Populations via IT**

**Estimated Total Funding: \$994,325**

Demonstrates the ability of health information interoperable exchange and EHRs to provide useful quality and safety measures for the vulnerable populations served by a CHC.

Focus Area(s): Medication safety monitoring for angiotensin converting enzyme inhibitors/angiotensin receptor blockers (ACEI/ARB), Digoxin, diuretics, and statins

Type of Health IT: System integration, quality of care decision support  
Principal Investigator: Christoph Lehmann

Grant No. 1R18HS017018

Applicant Institution: Johns Hopkins University, Baltimore, MD

Estimated Dates: 9/21/2007–5/31/2010

**Improving Quality in Cancer Screening: The Excellence Report for Colonoscopy**

**Estimated Total Funding: \$616,207**

Seeks to evaluate and improve the quality of screening and diagnostic colonoscopies in ambulatory care settings.

Focus Area(s): Colonoscopy pre-procedure, procedure, and post-procedure measures

Type of Health IT: Operational decision support – quality of care

Principal Investigator: Judith R. Logan  
Grant No. 1R18HS017017

Applicant Institution: Oregon Health & Science University, Portland, OR

Estimated Dates: 8/30/2007–8/31/2010

**Standardization and Automatic Extraction of Quality Measures in an Ambulatory EMR**

**Estimated Total Funding: \$889,681**

Establishes the standardization efforts necessary for data capture of quality measures in an ambulatory electronic medical record (EMR) system and demonstrates the efficiency and accuracy of using a data extraction and reporting expert to perform quality measurement in the ambulatory care setting.

Focus Area(s): Physician quality reporting initiative

Type of Health IT: Standards (semantic), data electronic transform and load

Principal Investigator: Denni McColm  
Grant No. 1R18HS017094

Applicant Institution: Citizens Memorial Hospital District, Bolivar, MO

Estimated Dates: 9/07/2007–8/31/2009

**Massachusetts Quality E-Measure Validation Study**

**Estimated Total Funding: \$995,575**

Evaluates the readiness of structured EHR data to support ambulatory clinical quality measurement by using the AQA ambulatory care measurement set to compare quality measurement based on a structured EHR data measurement method to two standard measurement methods.

Focus Areas: AQA starter set for primary care (26 measures)

Type of Health IT: System integration, quality of care decision support

Principal Investigator: Eric Schneider  
Grant No. 1R18HS017048

Applicant Institution: Harvard University (School of Public Health), Boston, MA

Estimated Dates: 9/12/2007–8/31/2011

**Feedback of Treatment Intensification Data To Reduce Cardiovascular Disease Risk**

**Estimated Total Funding: \$997,069**

Proposes to develop and evaluate a treatment intensification protocol using an EHR to identify patients in need of treatment intensification for systolic blood pressure.

Focus Area(s): Cardiovascular disease process and outcome measures

Type of Health IT: CDS (provider-focused)

Principal Investigator: Joe Selby  
Grant No. 1R18HS017031

Applicant Institution: Kaiser Foundation Research Institute, Oakland, CA

Estimated Dates: 9/01/2007–8/31/2010

**Using Electronic Records To Detect and Learn From Ambulatory Diagnostic Errors**

**Estimated Total Funding: \$873,108**

Uses data from EHRs to detect diagnostic errors in primary care, understand their causes, and lay groundwork for formulating future prevention strategies.

Focus Area(s): Measuring potential diagnostic errors in primary care

Type of Health IT: Operational decision support (quality of care)

Principal Investigator: Eric Thomas  
Grant No. 1R18HS017244

Applicant Institution: University of Texas Health Science Center at Houston, Houston, TX

Estimated Dates: 9/25/2007–9/29/2010

**Monitoring Intensification of Treatment for Hyperglycemia and Hyperlipidemia**

**Estimated Total Funding: \$533,431**

Develops and validates a new diabetes quality-of-care process measure and the technology for monitoring that measure using analysis of the text of physician notes in the EMR.

Focus Area(s): Development of new diabetes quality-of-care process measures

Type of Health IT: Quality of care decision support, data electronic transform and load

Principal Investigator: Alexander Turchin

Grant No. R18HS017030

Applicant Institution: Brigham and Women's Hospital, Boston, MA

Estimated Dates: 11/06/2007–9/29/2010



### **Crossing the Quality Assessment Chasm: Aligning Measured and True Quality of Care**

**Estimated Total Funding: \$812,237**

Identifies and quantifies the impact on quality assessment of real-world circumstances where the current cross-sectional measures of quality do not reflect the true quality of care being rendered. The result of the analysis will help to create a new set of quality measures that is more consistent with actual clinical care.

Focus Area(s): Diabetes care measurement techniques accounting for differences in patient populations  
Type of Health IT: Quality of care decision support

Principal Investigator: Mark Weiner  
Grant No. 1R18HS017099

Applicant Institution: University of Pennsylvania, Philadelphia, PA  
Estimated Dates: 9/18/2007–9/29/2010

### **Using IT To Improve the Quality of CVD Prevention & Management**

**Estimated Total Funding: \$605,862**

Uses EMRs in a large health care system to: (1) identify practice variations in delivery of key cardiovascular disease preventive and disease management services, (2) relate practice variation to outcomes among patients in the clinical practices, and (3) provide feedback to managers on how guidelines adherence relates to morbid and mortal events, and to costs of care.

Focus Area(s): Prevention index and disease management index

Type of Health IT: Quality of care decision support

Principal Investigator: Andrew Williams  
Grant No. 1R18HS017016

Applicant Institution: Kaiser Foundation Research Institute, Honolulu, HI

Estimated Dates: 9/25/2007–6/30/2010

### **Bringing Measurement to the Point of Care**

**Estimated Total Funding: \$694,961**

Enables measurement of the quality of care, with a focus on public health priority issues, disadvantaged populations, and small office practices. This project will design and test a “quality dashboard” suitable for small office practices that will integrate quality measurement and CDS at the point of care.

Focus Area(s): Ambulatory care screening measures

Type of Health IT: HIE, quality of care decision support

Principal Investigator: Winifred Wu  
Grant No. 1R18HS017059

Applicant Institution: New York City Health/Mental Hygiene, New York, NY  
Estimated Dates: 9/12/2007–9/29/2010

### **Improving Quality Through Clinician Use of Health IT**

The purpose of this FOA is to investigate novel methods or evaluate existing strategies for clinician use of health IT in ambulatory settings to improve outcomes through more effective CDS, medication management, or care delivery. Applicants were encouraged to demonstrate the ability of EHRs and medication management systems to effectively move evidence-based information to the point of care, including the development/utilization of machine-actionable, evidence-based clinical information to providers and participates in health information exchanges. Applicants were encouraged to consider projects that focus on:

- The impact of health IT on outcomes in ambulatory settings and across high-risk transitions of care

- The relationship between health IT and workflow redesign
- Systemic barriers to health IT adoption
- Care for patients with multiple chronic conditions
- Improved use of effective alert strategies for decision support

### **Improving Quality Through Clinician Use of Health IT Grants**

Twenty-four projects were funded under this FOA. The projects have a diverse range of interventions, using different health IT applications. Many applications target the primary care office as the setting of care while some address the home environment. Many of the projects addressed use effective alert strategies for decision support while others examine the impact of health IT on outcomes in ambulatory settings.

### **Using Precision Performance Measurement To Conduct Focused Quality Improvement**

**Estimated Total Funding: \$1,199,415**

Creates systems that improve quality data and seamlessly link this data to practice-level quality improvement programs and point-of-care interventions.

Focus Area(s): Impact of health IT on outcomes in ambulatory settings

Type of Health IT: Quality of care decision support, vocabulary/coding standards

Principal Investigator: David W. Baker  
Grant No. 1R18HS017163

Applicant Institution: Northwestern University, Chicago, IL

Estimated Dates: 9/30/2007–9/29/2010

**Enabling Electronic Prescribing and Enhanced Management of Controlled Medications**

**Estimated Total Funding: \$1,199,794**

Uses electronic prescribing (e-prescribing) for federally controlled medications in the ambulatory care setting, to improve medication management by ambulatory care clinicians at the point of care.

Focus Area(s): Impact of health IT on outcomes in ambulatory settings; systemic barriers to health IT adoption  
Type of Health IT: E-prescribing  
Principal Investigator: Grant M. Carrow  
Grant No. 1R18HS017157  
Applicant Institution: Massachusetts State Department of Public Health, Boston, MA  
Estimated Dates: 9/30/2007–9/29/2010

**Impact of Office-Based E-Prescribing on Prescribing Processes and Outcomes**

**Estimated Total Funding: \$1,199,007**

Evaluates the full spectrum of e-prescribing by partnering with the makers of an office-based, e-prescribing system that is already in widespread use and with multiple insurance companies and public programs who will provide claims data.

Focus Area(s): Impact of health IT on outcomes in ambulatory settings; improved use of effective alert strategies for decision support  
Type of Health IT: E-prescribing  
Principal Investigator: Michael A. Fischer  
Grant No. 1R18HS017151  
Applicant Institution: Brigham and Women's Hospital, Boston, MA  
Estimated Dates: 9/30/2007–9/29/2010

**Improving Otitis Media Care With EHR-Based Clinical Decision Support and Feedback**

**Estimated Total Funding: \$877,011**

Uses Children's Hospital of Philadelphia's EHR to integrate care across time and to supply physicians with the knowledge they need about how to treat a patient at the point of care to address the overuse of antibiotics for otitis media.

Focus Area(s): Impact of health IT on outcomes in ambulatory settings; improved use of effective alert strategies for decision support  
Type of Health IT: Clinical/operational decision support (provider-focused)  
Principal Investigator: Christopher B. Forrest  
Grant No. 1R18HS017042  
Applicant Institution: Children's Hospital of Philadelphia, Philadelphia, PA  
Estimated Dates: 9/30/2007–9/29/2010

**The BLUES Project: Improving Diabetes Outcomes in Mississippi With Health IT**

**Estimated Total Funding: \$1,163,573**

Demonstrates the effects of diabetes management practices at several ambulatory clinics throughout Mississippi when utilizing well-designed, comprehensive health information technology.

Focus Area(s): Impact of health IT on outcomes in ambulatory settings  
Type of Health IT: EMR  
Principal Investigator: Karen Fox  
Grant No. 1R18HS017233  
Applicant Institution: Delta Health Alliance, Inc., Jackson, MS  
Estimated Dates: 9/30/2007–9/29/2010

**eHealth Records To Improve Dental Care for Patients With Chronic Illnesses**

**Estimated Total Funding: \$996,737**

Conducts a randomized clinical trial to evaluate the effectiveness of an integrated EHR system that includes an EMR, eDental Record, and a personal health record (PHR) to improve the quality and safety of dental care for patients with chronic illnesses.

Focus Area(s): Improved use of effective alert strategies for decision support  
Type of Health IT: Systems integration, clinical/medication reminders (provider-focused)  
Principal Investigator: James R. Friction  
Grant No. 1R18HS017270  
Applicant Institution: Healthpartners Research Foundation, Minneapolis, MN  
Estimated Dates: 9/30/2007–9/29/2010

**Pharmaceutical Safety Tracking (PhaST): Managing Medications for Patient Safety**

**Estimated Total Funding: \$1,156,142**

Compares use of PhaST, an automated system for monitoring of medication adherence, side effects, and patient symptoms, to usual care in a large, urban, multispecialty mental health system serving a primarily Medicaid population.

Focus Area(s): Impact of health IT on outcomes in ambulatory settings  
Type of Health IT: Clinical/medication reminders (provider-focused), human/machine interface  
Principal Investigator: William P. Gardner  
Grant No. 1R18HS017258  
Applicant Institution: Children's Research Institute, Columbus, OH  
Estimated Dates: 9/30/2007–9/29/2010

**RxSafe: Shared Medication Management and Decision Support for Rural Clinicians**

**Estimated Total Funding: \$1,200,000**

Uses previously developed technology to support shared medication management for persons with chronic conditions.

Focus Area(s): Impact of health IT on outcomes in ambulatory settings; care for patients with multiple chronic conditions; improved use of effective alert strategies for decision support

Type of Health IT: Clinical/operational decision support (provider-focused)

Principal Investigator: Paul N. Gorman  
Grant No. 1R18HS017102

Applicant Institution: Oregon Health & Science University, Portland, OR

Estimated Dates: 9/30/2007–9/29/2010

**Improving Posthospital Medication Management of Older Adults Through Health IT**

**Estimated Total Funding: \$1,199,952**

Develops and evaluates the value of a health IT-based medication reconciliation system superimposed on the ambulatory EMR to improve the quality and safety of medication management, focusing particularly on the transition from the inpatient to the ambulatory setting for older adults with multiple comorbid conditions who are prescribed high-risk medications.

Focus Area(s): Impact of health IT on outcomes in ambulatory settings; care for patients with multiple chronic conditions; improved use of effective alert strategies for decision support

Type of Health IT: Quality of care decision support

Principal Investigator: Jerry H. Gurwitz  
Grant No. 1R18HS017203

Applicant Institution: University of Massachusetts Medical School

Worcester, Worcester, MA

Estimated Dates: 9/30/2007–9/29/2010

**STEPStools: Developing Web Services for Safe Pediatric Dosing**

**Estimated Total Funding: \$1,157,753**

Constructs, pilot tests, and evaluates generally available tools that provide medication-specific knowledge about rounding and extemporaneous formulations necessary for small children.

Focus Area(s): Impact of health IT on outcomes in ambulatory settings

Type of Health IT: Health IT architecture, CDS (provider-focused), electronic prescribing

Principal Investigator: Kevin B. Johnson  
Grant No. 1R18HS017216

Applicant Institution: Vanderbilt University, Nashville, TN

Estimated Dates: 9/30/2007–9/29/2010

**Electronic Prescribing and Electronic Transmission of Discharge Medication Lists**

**Estimated Total Funding: \$1,187,674**

Consists of three studies that will measure the impact of health IT on patient safety in the ambulatory setting.

Focus Area(s): Impact of health IT on outcomes in ambulatory settings

Type of Health IT: E-prescribing, quality of care decision support

Principal Investigator: Rainu Kaushal  
Grant No. 1R18HS017029

Applicant Institution: Weill Medical College of Cornell University, New York, NY

Estimated Dates: 9/30/2007–9/29/2010



**Evaluation of a Computerized Clinical Decision Support System and EHR-Linked Registry To Improve Management of Hypertension in Community-Based Health Centers**  
**Estimated Total Funding: \$1,132,569**

Analyzes the efficacy of office-based electronic decision support and provider feedback in improving hypertension control in CHCs.

Focus Area(s): Impact of health IT on outcomes in ambulatory settings

Type of Health IT: Registries (hypertension), CDS

Principal Investigator: Helene Kopal  
Grant No. 1R18HS017167

Applicant Institution: Primary Care Development Corporation, New York, NY

Estimated Dates: 9/30/2007–9/29/2010

**Optimizing Medication History Value in Clinical Encounters With Elderly Patients**

**Estimated Total Funding: \$1,199,989**

Conducts a randomized clinical trial to test geriatric specific algorithms and compliance triggers for improved medication management at the point of care.

Focus Area(s): Improved use of effective alert strategies for decision support  
Type of Health IT: E-prescribing, CDS (provider-focused)

Principal Investigator: Kate L. Lapane  
Grant No. 1R18HS017150

Applicant Institution: Brown University, Providence, RI

Estimated Dates: 9/30/2007–9/29/2010

**Improving Quality Through Decision Support for Evidence-Based Pharmacotherapy**

**Estimated Total Funding: \$1,198,429**

Seeks to improve care quality and safety in an ambulatory care setting through CDS for evidence-based pharmacotherapy delivered as point-of-care

reports to clinic-based practitioners and as population health-based alerts to care managers.

Focus Area(s): Improved use of effective alert strategies for decision support  
Type of Health IT: HIE, CDS (provider-focused)

Principal Investigator: David F. Lobach  
Grant No. R18HS017072

Applicant Institution: Duke University, Durham, NC

Estimated Dates: 9/30/2007–9/29/2010

**Using Health IT To Improve Ambulatory Chronic Disease Care**  
**Estimated Total Funding: \$1,192,603**

Conducts a phased implementation of selected ambulatory care health IT systems and functions to: (1) improve providers' access to information, allowing individual providers to compare and improve their clinical performance against standardized performance targets and peers' performance and (2) enhance patient-provider connectivity and communication to improve clinical decisionmaking, patient participation in the care process, and, ultimately, patient outcomes.

Focus Area(s): Impact of health IT on outcomes in ambulatory settings  
Type of Health IT: EMR, telehealth (patient-focused), quality of care decision support

Principal Investigator: David R. Mehr  
Grant No. 1R18HS017035

Applicant Institution: University of Missouri-Columbia, Columbia, MO  
Estimated Dates: 9/30/2007–9/29/2010

**VA Integrated Medication Manager**  
**Estimated Total Funding: \$594,582**

Studies a new technology called the Integrated Medication Manager that facilitates improved decisionmaking by helping clinicians to consider more relevant data and to better plan patient care.

Focus Area(s): Improved use of effective alert strategies for decision support

Type of Health IT: CDS

Principal Investigator: Jonathan R. Nebeker

Grant No. 1R18HS017186

Applicant Institution: Western Institute for Biomedical Research, Salt Lake City, UT

Estimated Dates: 9/30/2007–9/29/2010

**Medication Safety in Primary Care Practice - Translating Research Into Practice**

**Estimated Total Funding: \$1,183,549**

Develops a set of medication safety measures relevant for primary care, incorporates these measures in practice performance reports sent quarterly to participating practices, and assesses the impact of the intervention on the incidence of medication errors.

Focus Area(s): Relationship between health IT and workflow redesign; Improved use of effective alert strategies for decision support

Type of Health IT: Quality of care decision support

Principal Investigator: Steven M. Ornstein

Grant No. 1R18HS017037

Applicant Institution: Medical University of South Carolina, Charleston, SC

Estimated Dates: 9/30/2007–9/29/2010

**A Partnership for Clinician EHR Use and Quality of Care**

**Estimated Total Funding: \$1,184,765**

Studies the effectiveness of a partnership that shares resources and utilizes a data-driven approach to promote full clinician use of an EHR in three nurse managed health centers and three CHCs to improve the quality of care in areas of preventive care, chronic disease management, and medication management for vulnerable populations.



Focus Area(s): Improved use of effective alert strategies for decision support  
Type of Health IT: Quality of care decision support

Principal Investigator: Joanne M. Pohl  
Grant No. 1R18HS017191  
Applicant Institution: Michigan Public Health Institute, Ann Arbor, MI  
Estimated Dates: 9/30/2007–9/29/2010

**Harnessing Health IT To Prevent Medication-Induced Birth Defects**  
**Estimated Total Funding: \$1,199,370**

Develops and evaluates ways computers may be able to help doctors counsel women about preventing birth defects caused by use of certain medications.

Focus Area(s): Improved use of effective alert strategies for decision support  
Type of Health IT: CDS (provider-focused), human/machine interface  
Principal Investigator: Eleanor B. Schwarz

Grant No. 1R18HS017093  
Applicant Institution: University of Pittsburgh at Pittsburgh, Pittsburgh, PA  
Estimated Dates: 9/30/2007–9/29/2010

**Can Risk Score Alerts Improve Office Care for Chest Pain?**  
**Estimated Total Funding: \$687,539**

Implements and evaluates electronic risk alerts to risk stratify outpatients with chest pain and present this information to primary care clinicians within the context of an EHR.

Focus Area(s): Improved use of effective alert strategies for decision support  
Type of Health IT: Clinical/operational decision support (provider-focused)  
Principal Investigator: Thomas D. Sequist  
Grant No. 1R18HS017075  
Applicant Institution: Brigham and Women's Hospital, Boston, MA  
Estimated Dates: 9/30/2007–9/29/2010

**Improving Laboratory Monitoring in Community Practices: A Randomized Trial**

**Estimated Total Funding: \$990,640**

The Massachusetts e-Health Collaborative (MAeHC) will conduct a trial of computerized point-of-care alerts in the EHR to prevent errors related to laboratory monitoring at the initiation and continuation of drug therapy and a results management system to prevent errors related to the delay in followup of abnormal laboratory testing.

Focus Area(s): Improved use of effective alert strategies for decision support  
Type of Health IT: Community health network (CHN), results reporting, clinical/medication reminders (provider-focused)

Principal Investigator: Steven R. Simon  
Grant No. 1R18HS017201  
Applicant Institution: Harvard Pilgrim Health Care, Inc., Boston, MA  
Estimated Dates: 9/30/2007–9/29/2010

**A Systems Engineering Approach: Improving Medication Safety With Clinician Use of Health IT**  
**Estimated Total Funding: \$1,200,000**

Modifies and implements an IT-based Crew Resource Management tool called ACORN to examine the impact of the intervention on reducing selected adverse drug events among geriatric patients in a primary care setting; examines the impact of the intervention on improving monitoring for geriatric patients on Persistent Medications; and evaluates office staff use and application of the tool for improving geriatric medication safety by examining utilization of the IT tool and changes in safety attitude constructs.

Focus Area(s): Impact of health IT on outcomes in ambulatory settings  
Type of Health IT: Quality of care decision support

Principal Investigator: Gurdev Singh  
Grant No. 1R18HS017020-01  
Applicant Institution: State University of New York at Buffalo, Buffalo, NY  
Estimated Dates: 9/30/2007–9/29/2010

**Using Information Technology To Provide Measurement-Based Care for Chronic Illness**  
**Estimated Total Funding: \$1,196,703**

Tests the implementation of measurement-based care in an ambulatory care setting with an integrated CDS system and an EHR.

Focus Area(s): Improved use of effective alert strategies for decision support  
Type of Health IT: CDS (provider-focused)

Principal Investigator: Madhukar H. Trivedi  
Grant No. 1R18HS017189  
Applicant Institution: University of Texas Southwest Medical Center at Dallas, Dallas, TX  
Estimated Dates: 9/30/2007–9/29/2010

**Electronic Prescribing and Decision Support To Improve Rural Primary Care Quality**  
**Estimated Total Funding: \$1,181,866**

Examines whether, in rural ambulatory care settings, the use of an e-prescribing system with CDS related to medication management increases patient prescription adherence, improves health outcomes in hypertensive patients, and improves the medication management process.

Focus Area(s): Systemic barriers to health IT adoption; improved use of effective alert strategies for decision support  
Type of Health IT: CHNs (rural communities), e-prescribing, clinical/medication reminders (provider-focused)  
Principal Investigator: James Thomas Veline

Grant No. 1R18HS017149-01  
Applicant Institution: Avera Health,  
Sioux Falls, SD  
Estimated Dates: 9/30/2007–9/29/2010

## Enabling Patient-Centered Care Through Health IT

The purpose of this FOA is to investigate novel methods or evaluate existing strategies for using health IT to create or enhance patient-centered models of care in the ambulatory setting. Applicants were expected to demonstrate how patient-centered care can improve health outcomes, patient safety, and patients' reported experience with care. Applicants were encouraged to consider projects that focus on:

- Shared decisionmaking
- Patient-clinician communication
- Access to medical information
- Patient self-management of chronic conditions

The long-term goal of this effort is to improve the delivery of patient-centered care in ambulatory settings.

### Patient-Centered Care Grants

Sixteen grants were awarded under this FOA. The projects have a diverse range of interventions, using different health IT applications. Most applications target the primary care office as the setting of care while others address the home environment. Two projects address subspecialty care and one specifically focuses on transitions between the inpatient and ambulatory setting. While all areas of patient-centered care are addressed across the grants, most of the projects focus on patient self-management.

### Conversational IT for Better, Safer Pediatric Primary Care Estimated Total Funding: \$1,159,609

Develops and evaluates an integrated patient-centered health information system, the Personal Health Partner (PHP) that will use fully automated, interactive, conversations to gather personal health data and counsel parents before scheduled visits, exchange that data with the child's primary care clinician via the EHR, and offer personalized followup assessment and counseling after visits.

Focus Area(s): Patient self-management; access to medical information (clinicians)

Type of Health IT: Telehealth (patient-focused), PHR, human/machine interface

Principal Investigator: William G. Adams

Grant No. 1R18HS017248

Applicant Institution: Boston Medical Center, Boston, MA

Estimated Dates: 9/01/2007–8/31/2011

### Using a Telemedicine System To Promote Patient Care Among Underserved Individuals Estimated Total Funding: \$1,198,371

Seeks to advance care for hypertension for African Americans in North Philadelphia by enhancing an existing telemedicine system that supports the chronic care model by increasing access, incorporating hypertension treatment guidelines, quality measures, automating reminders and feedback for both patients and health care providers, and enabling the PHR to exchange data between other HL7-compliant EMR systems.

Focus Area(s): Patient self-management of chronic illness; access to medical information (patients and clinicians); shared decisionmaking; patient-clinician communication

Type of Health IT: Telehealth (patient-focused), data electronic transform and load, clinical/medication reminders (patient and provider-focused)  
Principal Investigator: Alfred Bove  
Grant No. 1R18HS017202  
Applicant Institution: Temple University, Philadelphia, PA  
Estimated Dates: 9/01/2007–8/31/2011

### Enhancing Self-Management of T2DM With an Automated Reminder and Feedback System Estimated Total Funding: \$1,166,243

Tests an Automated Self-Management Monitor (ASMM) with low-income housing sites and through primary care clinics to determine whether ASMM can improve self-monitoring of blood glucose and glycemic control in patients with type II diabetes mellitus.

Focus Area(s): Patient self-management of chronic illness

Type of Health IT: clinical/medication reminders (patient-focused), human/machine interface

Principal Investigator: Edith Burns

Grant No. R18HS017276

Applicant Institution: Medical College of Wisconsin, Milwaukee, WI

Estimated Dates: 9/01/2007–8/31/2011

### Personal Health Records and Elder Medication Use Quality Estimated Total Funding: \$1,199,999

Investigates the effect of a current PHR system among older adults on patient-reported medication therapy management behaviors, beliefs about medications, medication-use quality indicators, and on medication adherence.

Focus Area(s): Patient self-management; access to medical information (patients)

Type of Health IT: Human/machine interface, PHR, clinical/medication reminders (patient-focused)

Principal Investigator: Elizabeth Chrischilles

Grant No. 1R18HS017034  
Applicant Institution: University of Iowa, Iowa City, IA  
Estimated Dates: 9/07/2007–8/31/2011

**Ambulatory Care Compact To Organize Risk and Decisionmaking (ACCORD)**

**Estimated Total Funding: \$923,783**

Designs, develops, implements, and evaluates a model of care delivery that enables patients and primary care providers to agree upon shared, followup care plans that incorporate patient and provider preferences.

Focus Area(s): Patient self-management; shared decisionmaking

Type of Health IT: System architecture, PHR

Principal Investigator: Henry Chueh

Grant No. 1R18HS017190

Applicant Institution: Massachusetts General Hospital (MGH), Boston, MA  
Estimated Dates: 9/12/2007–8/31/2011

**Implementing a Low-Literacy, Multimedia IT System To Enhance Patient-Centered Cancer Care**

**Estimated Total Funding: \$1,198,839**

Tests whether a low-literacy-friendly, multimedia information and assessment system used in daily clinical practice enhances patient-centered care and improves patient outcomes for vulnerable populations.

Focus Area(s): Patient self-management of chronic illness; patient-clinician communication

Type of Health IT: Human/machine interface, clinical/medication reminders (patient focused)

Principal Investigator: Elizabeth Hahn

Grant No. 1R18HS017300

Applicant Institution: Evanston Northwestern Healthcare,  
Chicago, IL

Estimated Dates: 9/30/2007–9/29/2012

**Virtual Patient Advocate To Reduce Ambulatory Adverse Drug Events**  
**Estimated Total Funding: \$1,180,772**

Focuses on the transition between hospitalization and the first ambulatory visit; also tests a Virtual Patient Advocate to prepare patients for discharge and determines their degree of understanding of self-care, medications, and followup.

Focus Area(s): Patient self-management; access to medical information (patients and clinicians)

Type of Health IT: Clinical/medication reminders (patient-focused), human/machine interface

Principal Investigator: Brian Jack

Grant No. 1R18HS017196

Applicant Institution: Boston Medical Center, Boston, MA

Estimated Dates: 9/01/2007–8/31/2011

**An Interactive Preventive Health Record To Promote Patient-Centered Care**

**Estimated Total Funding: \$1,198,677**

Investigates whether an interactive preventive health record (IPHR), called MyPreventiveCare, increases the delivery of recommended preventive services and whether the IPHR increases shared decisionmaking and improves clinician-patient communication.

Focus Area(s): Shared decisionmaking; patient-clinician communication

Type of Health IT: PHR, clinical/medication reminders (patient- and provider-focused)

Principal Investigator: Alexander Krist

Grant No. 1R18HS017046

Applicant Institution: Virginia Commonwealth University, Richmond, VA

Estimated Dates: 9/01/2007–2/28/2011

**Tailored DVD To Improve Medication Management for Low Literate Elderly Patients**  
**Estimated Total Funding: \$1,199,014**

Uses an electronic medication history to develop tailored patient education DVDs and print materials for low-literate audiences to empower geriatric patients and their caregivers to participate in treatment decisions and negotiate acceptable medication regimens that are more amenable to followthrough.

Focus Area(s): Patient self-management; shared decisionmaking; patient-clinician communication

Type of Health IT: clinical/medication reminders (patient-focused), human/machine interface

Principal Investigator: Kate L. Lapane

Grant No. 1R18HS017281

Applicant Institution: Brown University, Providence, RI

Estimated Dates: 9/30/2007–9/29/2011

**Impact of a Wellness Portal on the Delivery of Patient-Centered Prospective Care**

**Estimated Total Funding: \$902,411**

Develops, tests, and refines an Internet-based patient wellness portal linked to the previously developed Preventive Services Reminder System (PSRS), to will facilitate preventive care in primary care practices.

Focus Area(s): Patient self-management; shared decisionmaking

Type of Health IT: Telehealth (patient-focused)

Principal Investigator: James Mold

Grant No. 1R18HS017188

Applicant Institution: University of Oklahoma Health Sciences Center, Oklahoma City, OK

Estimated Dates: 9/13/2007–8/31/2011



**Patient-Centered Informatics System To Enhance Health Care in Rural Communities**

**Estimated Total Funding: \$1,199,999**

Evaluates whether integrating the functions of an EMR, PHR, and communication system leads to more patient-centered care in rural communities in the Intermountain West.

Focus Area(s): Patient self-management; access to medical information (patients and clinicians); patient-clinician communication

Type of Health IT: CHN (rural), clinical/medication reminders (provider- and patient-focused)

Principal Investigator: Matthew Samore  
Grant No. 1R18HS017308

Applicant Institution: University of Utah, Salt Lake City, UT

Estimated Dates: 9/30/2007–9/29/2011

**Harnessing Health IT for Self-Management Support and Medication Activation in a Medicaid Health Plan**  
**Estimated Total Funding: \$1,130,769**

Tests the impact of the automated telephone self-management support on diabetes management and combine it with a medication activation communication strategy.

Focus Area(s): Patient self-management of chronic illness

Type of Health IT: Telehealth (patient-focused), human/machine interface, clinical/medication reminders (patient-focused)

Principal Investigator: Dean Schillinger  
Grant No. 1R18HS017261

Applicant Institution: University of California; San Francisco, San Francisco, CA

Estimated Dates: 9/04/2007–8/31/2011

**Enabling Sleep Apnea Patient-Centered Care Via an Internet Intervention**

**Estimated Total Funding: \$1,155,062**

Examines the effect of a Web-based intervention designed for patients with obstructive sleep apnea syndrome that integrates a telemetry treatment device and an Internet-based portal that tracks management of continuous positive airway pressure.

Focus Area(s): Patient self-management of chronic illness

Type of Health IT: Telehealth (patient-focused), PHR

Principal Investigator: Carl Stepnowsky  
Grant No. 1R18HS017246

Applicant Institution: Veterans Medical Research Foundation, San Diego, CA

Estimated Dates: 9/01/2007–8/31/2011

**Patient-Centered Online Disease Management Using a Personal Health Record System**

**Estimated Total Funding: \$1,158,401**

Evaluates a Customized, Continuous Care Management (CCCM) program for diabetes care and examines the CCCM's impact on HgA1C as well as self-management practices, better processes of care, lower cardiovascular risk, enhanced patient experience and satisfaction, and improved patient psychosocial well-being.

Focus Area(s): Patient self-management of chronic illness; access to medical information (patients and clinicians)

Type of Health IT: PHR, clinical/medication reminders (patient-focused)

Principal Investigator: Paul Tang  
Grant No. 1R18HS017179

Applicant Institution: Palo Alto Medical Foundation Research Institute, Palo Alto, CA

Estimated Dates: 9/13/2007–8/31/2011



### **Using an Electronic Personal Health Record To Empower Patients With Hypertension**

**Estimated Total Funding: \$1,181,369**

Examines the feasibility, acceptability, and impact of a health IT intervention (the ePHR) that has been modified to incorporate the experiences, perspectives, and insights of patients and family members actually using the system.

Focus Area(s): Patient self-management of chronic illness; access to medical information (patients); patient-clinician communication

Type of Health IT: PHR

Principal Investigator: Peggy Wagner

Grant No. 1R18HS017234-01

Applicant Institution: Medical College of Georgia, Augusta, GA

Estimated Dates: 9/01/2007–2/28/2011

### **Using IT for Patient-Centered Communication and Decisionmaking About Medications**

**Estimated Total Funding: \$1,199,997**

Develops and tests a multimedia program to help patients understand the importance of both giving and receiving accurate information about medications.

Focus Area(s): Patient self-management; shared decisionmaking; patient-clinician communication

Type of Health IT: CDS, medication management (patient-focused)

Principal Investigator: Michael Wolf

Grant No. 1R18HS017220

Applicant Institution: Northwestern University, Chicago, IL

Estimated Dates: 9/14/2007–8/31/2011

### **Improving Management of Individuals With Complex Health Care Needs Through Health IT**

The primary goal of this FOA is to identify, promote, and disseminate models of patient-centered care. This includes the use of personal health data and evidence-based information to support both providers and patients in managing health and illnesses and improve health outcomes in ambulatory care for patients with complex health care needs and across high-risk health care transitions.

Applicants were encouraged to demonstrate the ability of EHRs and/or PHRs to effectively move evidence-based information to the point of care, including the development and utilization of machine-actionable, evidence-based clinical information, and participation of both providers and patients/families in health information exchanges. In particular, examination of the role of workflow and effective use of clinical alerts and reminders, with an emphasis on prevention and chronic illness management was encouraged.

### **Management of Individuals With Complex Health Care Needs Grants**

Twelve projects were funded under this FOA. The projects described use innovative methods including interactive voice systems and other information systems as well as randomized trials to determine how health IT can improve patient self-management.

### **Chronic Mental Health: Improving Outcomes Through Ambulatory Care Coordination**

**Estimated Total Funding: \$1,199,871**

Develops and implements an HIE network focused on coordination of care for individuals with chronic mental illness.

Focus Area(s): Behavioral health

Type of Health IT: HIE

Principal Investigator: Wende M. Baker

Grant No.: R18HS017838-01

Applicant Institution: Southeast Nebraska Behavioral Health

Information Network, Inc., Lincoln, NE

Estimated dates: 9/30/2008-9/29/2012

### **Evaluation of Effectiveness of an HIT-based Care Transition Information Transfer System**

**Estimated Total Funding: \$1,155,371**

Develops and evaluates a care transition information transfer system that provides high-risk rural patients and their primary care providers with discharge information, particularly focused on medication management

Focus Area(s): Impact of health IT on outcomes in a rural ambulatory clinic

Type of Health IT: EHR, HIE

Principal Investigator: Elizabeth Ciemens

Grant No.: R18HS017864-01

Applicant Institution: Billings Clinic Foundation, Billings, MT

Estimated dates: 9/30/2008-9/29/2012

### **Enhancing Complex Care Through an Integrated Care Coordination Information System**

**Estimated Total Funding: \$1,155,147**

Creates, implements, and evaluates an integrated care coordination information system in a diverse set of clinics using certified EHRs and existing standards.

Focus Area(s): Impact of health IT on chronic illness outcomes in a rural ambulatory clinic

Type of Health IT: EHRs

Principal Investigator: David Dorr

Grant No.: R18HS017832-01

Applicant Institution: Oregon Health & Science University, Portland, OR

Estimated dates: 9/30/2008-9/29/2012

#### **An Electronic Personal Health Record for Mental Health Consumers**

**Estimated Total Funding: \$1,199,379**

Adapts an existing PHR to fit the needs of persons with a serious mental disorder and one or more chronic medical conditions.

Focus Area(s): Mental health

Type of Health IT: Web-based PHR

Principal Investigator: Benjamin Druss

Grant No.: R18HS017829-01

Applicant Institution: Emory University, Atlanta, GA

Estimated dates: 9/30/2008-9/29/2012

#### **Improving Care Transitions for Complex Patients Through Decision Support Ambulatory Care**

**Estimated Total Funding: \$1,198,254**

Develops and evaluates a decision support system that will augment the availability of information at ambulatory practices following three types of care transitions; hospital discharges, emergency department encounters, and specialty clinic evaluations.

Focus Area(s): Ambulatory clinics

Type of Health IT: HIE, CDS

Principal Investigator: Eric Eisenstein

Grant No.: R18HS017795-01

Applicant Institution: Duke University, Durham, NC

Estimated dates: 9/30/2008-9/29/2012

#### **Improving Medication Management Practices and Care Transitions Through Technology**

**Estimated Total Funding: \$1,199,998**

Conducts a randomized trial to assess the effectiveness and cost effectiveness of two CDS interventions aimed at improving medication management in home health care.

Focus Area(s): Home health patients at risk of medication problems due to the drugs they are taking and/or the complexity of their medication regimens

Type of Health IT: CDS

Principal Investigator: Penny Feldman

Grant No.: R18HS017837-01

Applicant Institution: Visiting Nurse Service of New York, New York, NY

Estimated dates: 9/30/2008-9/29/2012

#### **Using HIT To Improve Transitions of Complex Elderly Patients from SNF to Home**

**Estimated Total Funding: \$1,188,157**

Develops and evaluates an EMR-based medication reconciliation system for medication monitoring and followup of elderly patients discharged from a skilled nursing facility (SNF) to ambulatory settings.

Focus Area(s): Drug-induced injury in the ambulatory geriatric population

Type of Health IT: EMR

Principal Investigator: Terry Field

Grant No.: R18HS017817-01

Applicant Institution: University of Massachusetts Medical School, Worcester, MA

Estimated dates: 9/30/2008-9/29/2012

#### **A Longitudinal Telephone and Multiple Disease Management System To Improve Ambulatory Care**

**Estimated Total Funding: \$1,199,934**

Assesses the effectiveness of an interactive voice response system for providing hospital discharge followup of patients with complex health care needs.

Focus Area(s): Patients with multiple chronic diseases

Type of Health IT: Interactive voice response

Principal Investigator: Robert Friedman

Grant No.: R18HS017855-01

Applicant Institution: Boston Medical Center, Boston, MA

Estimated dates: 9/30/2008-9/29/2012

#### **Randomized Controlled Trial Embedded in an Electronic Health Record Ambulatory Care**

**Estimated Total Funding: \$1,199,928**

Assesses the effective of an electronic PHR for improved self-management and clinical outcomes in HIV/AIDS positive individuals.

Focus Area(s): HIV/AIDS

Type of Health IT: Web-based PHR

Principal Investigator: James Kahn

Grant No.: R18HS017784-01

Applicant Institution: University of California San Francisco, San Francisco, CA

Estimated dates: 9/01/2008-8/31/2012

#### **Improving Pediatric Cancer Survivorship Care Through SurvivorLink**

**Estimated Total Funding: \$1,199,998**

Develops, implements, and evaluates an electronic PHR to support improved self-management and clinical outcomes in pediatric cancer survivors.

Focus Area(s): Patient self-management

Type of Health IT: Web-based PHR

Principal Investigator: Ann Mertens

Grant No.: R18HS017831-01

Applicant Institution: Emory University, Atlanta, GA

Estimated dates: 9/30/2008-9/29/2012

**E-Coaching: IVR-Enhanced Care Transition Support for Complex Patients**

**Estimated Total Funding: \$1,199,999**

A randomized trial of the use of an interactive voice response system to facilitate post-hospital discharge transitions for patients with congestive heart failure or chronic obstructive pulmonary disease into the community.

Focus Area(s): Home health

Type of Health IT: Interactive voice response

Principal Investigator: Christine Ritchie  
Grant No.: R18HS017786-01

Applicant Institution: University of Alabama at Birmingham, Birmingham, AL

Estimated dates: 9/30/2008-3/31/2012

**Using Electronic Data To Improve Care of Patients With Known or Suspected Cancer**

**Estimated Total Funding: \$1,199,531**

Tests the use of health IT to identify patients experiencing delays in diagnosis and/or treatment of some types of cancer and to facilitate their movement through the health care system.

Focus Area(s): Integrated care network

Type of Health IT: EMRs

Principal Investigator: Hardeep Singh

Grant No.: R18HS017820-01

Applicant Institution: Baylor College of Medicine, Houston, TX

Estimated dates: 9/30/2008-9/29/2012

**For More Information**

For additional information on AHRQ projects on health information technology, please visit [www.healthit.ahrq.gov](http://www.healthit.ahrq.gov). or contact the health IT staff at [healthit@ahrq.gov](mailto:healthit@ahrq.gov).



[www.ahrq.gov](http://www.ahrq.gov)

AHRQ Pub. No. 12-P012  
Replaces AHRQ Pub. No. 10-P004  
July 2012