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, 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)
• 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.

**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: 9/14/2007–8/31/2010

**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**
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

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: Peter Kilbridge
Grant No. 1R18HS017010
Applicant Institution: Washington University, St. Louis, MO
Estimated Dates: 9/01/2007–8/31/2010

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

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

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: Christopher Lehmann
Grant No. 1R18HS017018
Applicant Institution: Johns Hopkins University, Baltimore, MD
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

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

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

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

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

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: Thomas Vogt
Grant No. 1R18HS017016
Applicant Institution: Kaiser Foundation Research Institute, Honolulu, HI
Estimated Dates: 9/05/2007–2/28/2010

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

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

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 participants 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

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. 1R18 HS017157
Applicant Institution: Massachusetts State Department of Public Health, Boston, MA

**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

**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

**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

**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. Fricton
Grant No. 1R18HS017270
Applicant Institution: Oregon Health & Science University, Portland, OR

**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

**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
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

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

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

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

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

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

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: Jonathan R. Nebeker
Grant No. 1R18HS017186
Applicant Institution: Western Institute for Biomedical Research, Salt Lake City, UT

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

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

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
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

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

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. 1R18HS017202-01
Applicant Institution: State University of New York at Buffalo, Buffalo, NY

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

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

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 follow-up assessment and counseling after visits.

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

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: 9/01/2007–8/31/2010

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 and clinicians); shared decisionmaking; patient-clinician communication

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

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

**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

**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: 9/01/2007–8/31/2010

**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 My Preventive Care, 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: 9/01/2007–8/31/2010

**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: James Mold
Grant No. 1R18HS017188
Applicant Institution: University of Oklahoma Health Sciences Center, Oklahoma City, OK
Estimated Dates: 9/01/2007–8/31/2010

**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

**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: 9/01/2007–8/31/2010
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: 9/01/2007–8/31/2010

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 Stepnowski
Grant No. 1R18HS017246
Applicant Institution: Veterans Medical Research Foundation, San Diego, CA

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

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: 9/01/2007–8/31/2010
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 Wolff
Grant No.: 1R18HS017220
Applicant Institution: Northwestern University, Chicago, IL

Improving Management of Individuals With Complex Health Care Needs Grants

Management of Individuals With Complex Health Care Needs

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 Baker
Grant No.: R18HS017838-01
Applicant Institution: Southeast Nebraska Behavioral Health Information Network, Inc., Lincoln, NE

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 Siemens
Grant No.: R18HS017864-01
Applicant Institution: Billings Clinic Foundation, Billings, MT

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

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
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

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

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

Randomized Controlled Trial Embedded in an Electronic Health Record Ambulatory Care
Estimated Total Funding: $1,199,928
Assesses the effectiveness 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

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: David Lobach
Grant No.: R18HS017795-01
Applicant Institution: Duke University, Durham, NC

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

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

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

**For More Information**

For additional information on AHRQ projects on health information technology, please visit www.healthit.ahrq.gov. or contact the health IT staff at healthit@ahrq.gov.