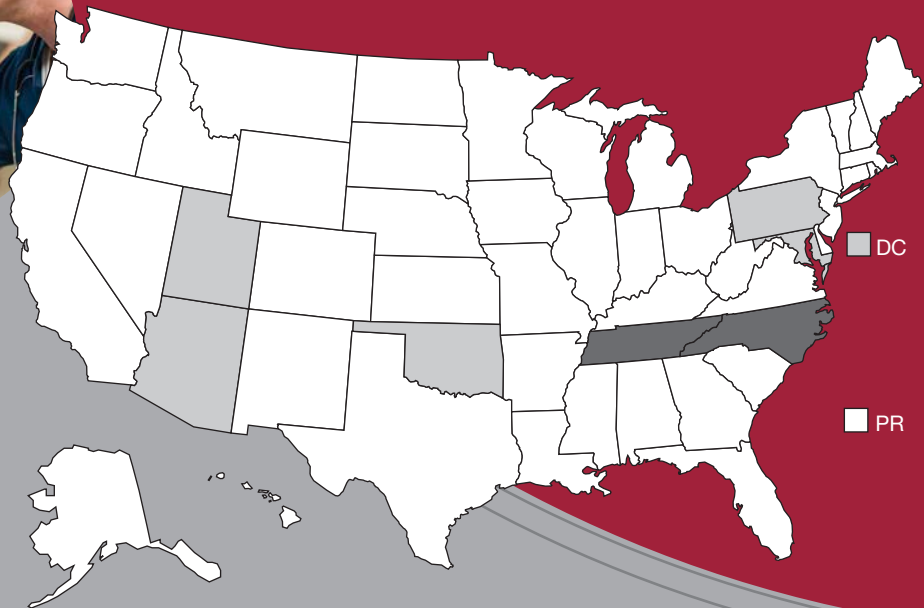




Evaluation of Stage 3 Meaningful Use Objectives: North Carolina and Tennessee



Final Contract Report

Evaluation of Stage 3 Meaningful Use Objectives: North Carolina and Tennessee

Prepared for:

Agency for Healthcare Research and Quality
U.S. Department of Health and Human Services
540 Gaither Road
Rockville, MD 20850
www.ahrq.gov

Contract No. HHSA 290-2010-00024I

Prepared by:

RTI International
Research Triangle Park, NC

Authors:

Jonathan S. Wald, M.D., M.P.H.^a
Saira Haque, M.H.S.A, Ph.D.^a
Katherine Treiman, Ph.D., M.P.H.^a
Jacqueline Bagwell, M.M.C.i., M.S.^a
Stephen Brown, M.S.^a
Shellery Cunningham, M.S.P.H.^a

Carlton Moore, M.D., M.S.^b
Arlene Chung, M.D., M.H.A, M.M.C.i.^b
Christopher Shea, Ph.D., M.P.A.^b
Debra Travers, Ph.D., R.N.^b
S. Trent Rosenbloom, M.D., M.P.H.^c
Ann Olsen, M.B.A., M.A.^c

a. RTI International

b. University of North Carolina, Chapel Hill, NC

c. Vanderbilt University Medical Center, Nashville, TN

**AHRQ Publication No. 15-0022-EF
February 2015**

This document is in the public domain and may be used and reprinted without permission except those copyrighted materials that are clearly noted in the document. Further reproduction of those copyrighted materials is prohibited without the specific permission of copyright holders.

Suggested Citation:

Wald JS, Haque S, Treiman K, et al. Evaluation of Stage 3 Meaningful Use Objectives: North Carolina and Tennessee. (Prepared by RTI International under Contract No. HHSA 290-2010-00024I). AHRQ Publication No.15-0022-EF. Rockville, MD: Agency for Healthcare Research and Quality. February 2015.

None of the investigators has any affiliations or financial involvement that conflicts with the material presented in this report.

This project was funded by the Agency for Healthcare Research and Quality (AHRQ), U.S. Department of Health and Human Services. The opinions expressed in this report are those of the authors and do not reflect the official position of AHRQ or the Department of Health and Human Services.

Preface

This project was one of four task order contracts awarded under the Evaluation of Stage 3 Meaningful Use (MU) Objectives request for task order (RFTO). The purpose of the RFTO was to fund rapid cycle evaluation studies of the implementation of Stage 3 MU proposed objectives of the Medicare and Medicaid Electronic Health Record (EHR) Incentive Programs. Specifically, the evaluations were to yield—

- Proposed strategies for improving the objectives at the policy level.
- Proposed EHR innovations that would better enable providers to meet the proposed objectives.
- Suggestions for hospitals and/or ambulatory practices on how to increase the value to them of MU objectives.

About ACTION II

This project was funded as an Accelerating Change and Transformation in Organizations and Networks (ACTION) II task order contract. ACTION II is a model of field-based research designed to promote innovation in health care delivery by accelerating the diffusion of research into practice. The ACTION II network includes 17 large partnerships and more than 350 collaborating organizations that provide health care to an estimated 50 percent of the U.S. population.

For more information about this initiative, go to <http://www.ahrq.gov/research/findings/factsheets/translating/action2/index.html>

Contents

- Executive Summary ES-1
- Introduction..... 1
- Methods and Analysis..... 3
 - Evaluation Design..... 3
 - Site Recruitment..... 4
 - Overview of Participating Sites 5
 - University of North Carolina Healthcare System Sites 5
 - Vanderbilt University Medical Center Sites 8
 - Regional Extension Center Sites..... 11
 - Data Collection 11
 - Changes in Proposed Objectives Since Project Initiation..... 12
 - Data Analysis 12
 - Coding..... 13
- Results and Recommendations 14
 - Patient and Family Engagement Objectives 14
 - Clinical Summaries (SGRP 205) 14
 - Patient-Specific Educational Resources (PSER, SGRP 206) 17
 - Secure Electronic Messaging (SGRP 207) 20
 - View, Download, Transmit (SGRP 204A) 22
 - Patient-Generated Health Information (PGHI, SGRP 204B) 24
 - Request Amendment to Health Records (SGRP 204D) 26
 - Care Coordination Objectives..... 28
 - Medication Reconciliation (SGRP 302) 28
 - Care Summaries for Consults and Referrals (SGRP 303) 30
 - Notification of Significant Events (SGRP 308)..... 33
- Discussion 35
 - Overarching Themes 35
 - The Need for Common Measures, Standards, and Vocabularies Across
Multiple Initiatives..... 35
 - Concern about the Pace of Change 35
 - Role Definition..... 35
 - Primary Care Focus..... 35
 - Clear Language in the Standards 36
 - Time and Workflow Burden 36
 - Implicit Assumptions for Certain Objectives 36
 - Small Provider Organizations 37
 - Care Coordination Themes 37

Radiology	37
Ability to Routinely Extract Information from EHRs	37
Patient and Family Engagement Themes.....	38
Need to Meet Usability Requirements for Patient-Facing Resources	38
Time Tradeoffs between Documentation and Patient Interaction During the Visit	38
Concern about Provider Measures Based on Patient Behaviors.....	38
Focus on High-Impact Areas	38
Interdependencies Across Multiple Objectives	38
Limitations	39
Conclusions.....	40

Tables

Table 1. UNCHC sites	5
Table 2. Numbers and types of stakeholders interviewed at UNCHC	6
Table 3. VUMC sites	8
Table 4. Numbers and types of stakeholders interviewed at VUMC sites	9
Table 5. Focus group participants.....	10

Figures

Figure 1. Evaluation design overview	4
Figure 2. Analysis plan	12

Appendixes

Appendix A. Recommendations for PFE and CC Proposed Objectives for Stage 3	
Meaningful Use.....	A-1
Appendix B. Consent Form to Participate in Focus Group	B-1
Appendix C. Consent Form to Participate in Clinic Staff Interview	C-1
Appendix D. Focus Group Discussion Guide.....	D-1
Appendix E. Care Coordination Interview Guide.....	E-1
Appendix F. Patient and Family Engagement Interview Guide	F-1

Executive Summary

The Medicare and Medicaid Electronic Health Record (EHR) Incentive Program (i.e., the Meaningful Use (MU) program) mandated under the 2009 American Recovery and Reinvestment Act was intended to broaden the use of electronic health records (EHRs) to advance patient quality, safety, and health care affordability across the United States. Following the finalization of Stage 1 (2011) and Stage 2 (2014) objectives and metrics, proposed Stage 3 objectives are being considered in important areas such as care coordination and patient and family engagement.

This report presents the findings from a year-long project that began in September 2013 to assess the nine proposed patient and family engagement and three proposed care coordination objectives for Stage 3 MU based on interviews with key stakeholders including providers, clinical staff, health information technology (IT) implementation experts, and senior leaders in practice settings at two organizations, Vanderbilt University Medical Center and the University of North Carolina Healthcare system, plus staff from health IT regional extension centers in North Carolina and Washington, DC.

The specific aims of this project were to answer three research questions (RQs) for each objective:

1. How can the evaluated MU objective be improved at the policy level?
2. What EHR innovations would support meeting the evaluated MU objective?
3. What will increase the value for hospitals and/or ambulatory practices of implementing the proposed Stage 3 MU objective?

The study team identified (see Methods and Analysis) 10 clinical sites for individual semistructured interviews and two regional extension centers for focus groups, which were held between December 2013 and February 2014. Transcribed recordings from those sessions and research notes were coded and analyzed to extract themes to address the three RQs. Findings were tabulated for each objective (see Results and Recommendations) and cross-cutting findings were summarized (see Discussion).

The study team developed a total of 25 recommendations to improve the objectives, suggest helpful EHR innovations, and increase the value to stakeholder organizations to help to inform discussions and deliberations as the Stage 3 MU objectives and associated metrics are prepared for the final rule.

Introduction

As the Federal Government prepares to finalize the Stage 3 Meaningful Use (MU) objectives, feedback through public comments, Federal advisory committees, and sponsored research is intended to help inform policymakers how best to craft objectives that will—

- Be both practical and impactful
- Promote better quality care
- Improve communication of health data between appropriate parties
- Enhance engagement of patients and families
- Build upon the MU objectives specified in Stages 1 and 2

The Medicare and Medicaid Electronic Health Record (EHR) Incentive Program (i.e., the MU program) is mandated under the 2009 American Recovery and Reinvestment Act (ARRA) through \$19 billion in stimulus money for advancing the use of health information technology (IT) under the Health Information Technology for Economic and Clinical Health (HITECH) Act. Under HITECH, objectives were developed for Stage 1 (2011) and Stage 2 (2014) MU, with Stage 3 MU objectives currently in development (anticipated 2016).

Two important areas of focus for proposed Stage 3 MU objectives are patient and family engagement (PFE) and care coordination (CC), since these areas can broadly affect quality improvement, cost containment, and care processes in general. They are also challenging areas for implementation. In public comment, some providers and hospitals raised concerns about their ability to successfully meet the proposed objectives, especially those related to patient-generated health information and CC. The Agency for Healthcare Research and Quality (AHRQ) and its Federal partners seek to improve these objectives in a way that is grounded in experience and responsive to providers' concerns. Since implementation success is best analyzed and understood as a complex interplay of users, technologies, and tasks taking place within a physical, social, and policy environment, qualitative research methods including semistructured interviews at multiple sites and thematic analysis are useful for capturing factors important to implementation of the proposed objectives.

RTI International partnered with Vanderbilt University Medical Center (VUMC) and the University of North Carolina Healthcare (UNCHC) system to perform a rapid-cycle evaluation study to provide detailed analyses and recommendations drawn from real-world experience. Tapping into the experience of hospital and practice staff working with patients and one another to improve CC and PFE is intended to ensure that the Stage 3 objectives are valuable to both patients (and their families and other caregivers) and providers as they seek improved quality, safety, efficiency, and effectiveness of care, and sensitivity to provider concerns about its implementation.

This project focuses on the evaluation of six PFE objectives (SGRP 204A, 204B, 205, 206, 207, and 208) and three proposed CC objectives (SGRP 302, 303, 308) as shown in Table A-2 using qualitative methods to systematically study activities in 10 care delivery sites including hospital departments and ambulatory care settings, and two health IT regional extension centers (RECs) that work with multiple care delivery sites in several States. Several additional CC proposed objectives were dropped from consideration for Stage 3 MU while this project was under way and were not discussed during interviews with stakeholders.

The specific aims of this project were to answer three research questions (RQs) for each objective:

1. How can the evaluated MU objective be improved at the policy level?
2. What EHR innovations would support meeting the evaluated MU objective?
3. What will increase the value for hospitals and/or ambulatory practices of implementing the proposed Stage 3 MU objective?

Following the Introduction, the Methods section of this report describes the methods for the evaluation, including background information on the sites that were visited, the stakeholders who were interviewed, the data collected, and the analysis procedures. Results and Recommendations presents the findings based on interviews and focus group meetings for six PFE objectives and three CC objectives. The Discussion section then identifies cross-cutting themes, and is followed by the Conclusion. Appendix A contains detailed information about the objectives and a summary table that displays the results and recommendations.

Methods and Analysis

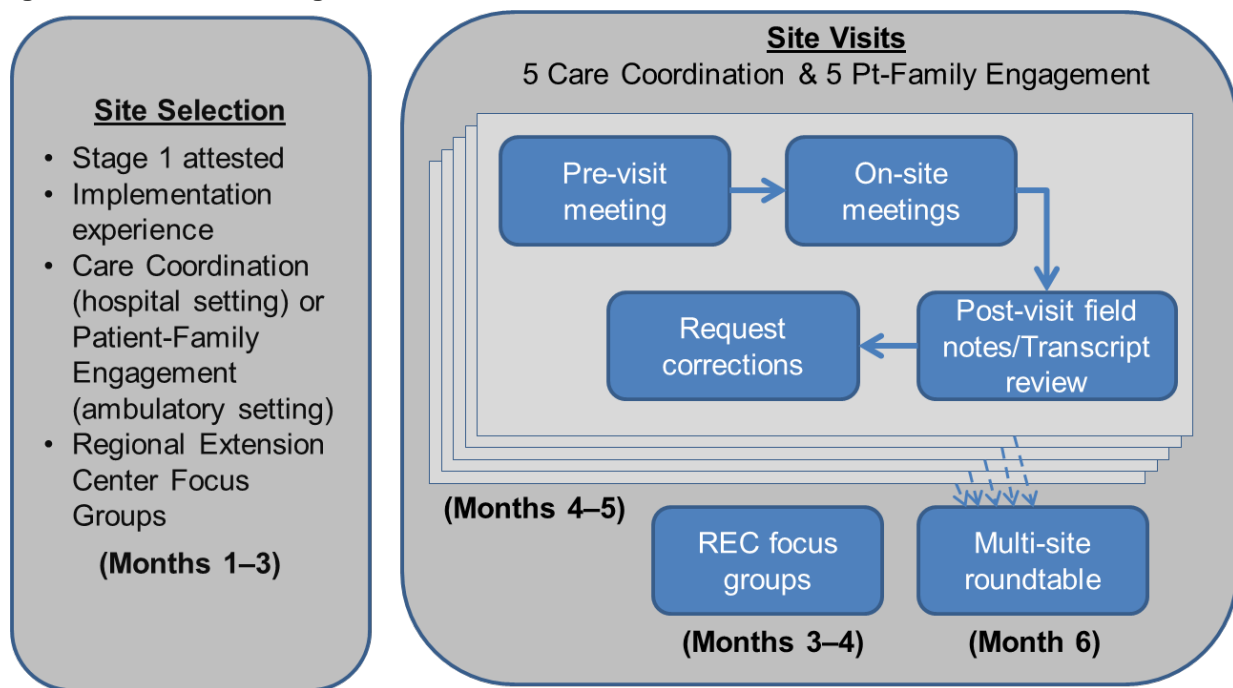
Evaluation Design

RTI used a multisite, qualitative case study approach in which each individual site was considered a case that received in-depth focus. Individual semistructured interviews with appropriate clinical staff, administrative staff, IT staff, and site leadership were conducted to explore topics relevant to the site, proposed objective, and individual role of the participant. Particular focus was placed on the successes and challenges of each site's implementation to identify potential ways to improve the MU objective, to better design and use EHRs and other health IT tools to support the MU objective, and to improve the value to the organization and key participants including medical professionals, patients and personal or family caregivers, and other important stakeholders in CC and PFE areas. Figure 1 provides an overview of the evaluation design.

This qualitative study of 10 sites and two RECs was performed to: (a) identify and recruit sites with experience implementing selected proposed Stage 3 MU objectives, (b) evaluate implementation experiences through stakeholder semistructured interviews, including demonstration where appropriate, (c) review and validate preliminary findings with site participants, and (d) analyze results to identify themes, issues, and recommendations for each evaluation question. As shown in Figure 1, a pre-site visit introductory meeting was arranged to preview the objectives of the site visit and the specific proposed MU objectives being evaluated, to identify the individuals to interview during the site visit, and to set a visit date. On the day of each site visit, in-person meetings took place with a minimum of two evaluation staff, and the audio for each interview was recorded with a digital voice recorder. Each interview was transcribed verbatim from the digital recordings. Following each visit, a post-visit review of field notes and notes summary were provided to the site contact and participants with a request for corrections or additions to the notes. Two focus groups were also conducted, one focusing on PFE objectives and the other on CC objectives with REC implementation experts having multiple site experience and perspective. Finally, two multisite roundtable meetings were conducted after the data collection period in which preliminary findings were presented and discussed among participating sites—one roundtable focused upon CC objectives and one roundtable focused on PFE objectives.

The research design was submitted for Institutional Review Board review and approval at RTI, UNCHC, and VUMC. Each organization granted approval prior to any data collection. Consent forms for the focus groups are provided in Appendix B and for individual interviews in Appendix C. Interview guides for the focus groups, care coordination interviews, and patient and family engagement interviews are provided in Appendixes D, E, and F. In addition, group and individual meetings were conducted on nine or fewer individuals using differing interview guides for different objective topics, enabling data collection that would inform the research team about Stage 3 objectives but would also satisfy an exclusion from review under the Paperwork Reduction Act.

Figure 1. Evaluation design overview



Site Recruitment

Each evaluation site was selected to highlight CC or PFE capabilities that matched the selected proposed MU objectives and were implemented before September 2013, ensuring the Task Order objective and timeline to “put into effect and evaluate” proposed Stage 3 MU objectives will be met. Through flexible and site-tailored interviewing of clinical staff, IT experts, site leadership, and other identified stakeholders, the evaluation team captured a breadth of information covering different roles, technologies, workflows, health IT, and organizational policies and priorities that impact the site’s implementation experience.

Initial site selection for data collection was based on recommendations from the subcontracting partners, VUMC and UNCHC. Sites were chosen to represent a variety of clinical settings and specialties that focused on either CC or PFE activities. Sites included two emergency departments, and inpatient services and outpatient clinics representing varied specialties. A prerequisite for participation was attestation for Stage 1 MU. In addition to the clinical sites, individuals involved at the UNCHC and VUMC health systems level were interviewed to provide a broad view on the MU measures and objectives.

After initial identification and AHRQ approval, a representative from each site—typically a clinical or practice manager—participated in a study introductory call with RTI, UNCHC, and/or VUMC. The introductory calls served to confirm participation and understanding of the evaluation objectives and identify potential interviewees for each site visit. Following the introductory calls, site visits were coordinated and scheduled.

The UNCHC site visits focused on both the proposed CC and PFE objectives while VUMC site visits focuses on the proposed CC objectives, although substantial crossover occurred given the interrelated nature of the objectives. In one UNCHC clinic, we intentionally covered both areas.

Overview of Participating Sites

Ten sites were visited during the evaluation, seven affiliated with UNCHC and three affiliated with VUMC. In the next section we provide an overview of UNCHC and the project sites.

University of North Carolina Healthcare System Sites

We conducted interviews at seven clinical sites that are part of the UNCHC system (see Table 1). As noted above, UNCHC site visits focused primarily on the proposed PFE objectives.

Table 1. UNCHC sites

University of North Carolina Healthcare	MU objective domain
Emergency Department	Care coordination
General Internal Medicine Clinic at the Ambulatory Care Center	Care coordination and patient and family engagement
Carolina Advanced Health (CAH)	Patient and family engagement
Chapel Hill North Internal Medicine and Pediatric Clinic	Patient and family engagement
Chatham Crossing Internal Medicine and Pediatrics Clinic	Patient and family engagement
UNCHC Lineberger Comprehensive Cancer Center Multi-disciplinary Genitourinary Oncology Clinic	Patient and family engagement

The missions of the UNCHC system include education, research, and patient care. UNCHC’s goals are to improve the health of the public, advance the state of medical knowledge, and care for individuals with diseases or disabilities. On-campus components of the UNCHC system include: NC Memorial Hospital; a Neuroscience Hospital; the UNCHC Women’s Hospital and the UNCHC Children’s Hospital (both opened in early 2002); the Ambulatory Care Center; UNCHC Student Health Services; a clinical cancer center; and a burn center. The NC Memorial Hospital is a 684-bed tertiary care facility with a focus on adult medical-surgical care.

In State FY 2013 (6/12–5/13), 31,507 unique patients were hospitalized at the UNCHC hospitals. Approximately 10 percent of these patients were Latino and 55 percent were female; 15,777 patients were 19 to 59 years of age and 7,506 patients were 60 years and older. In State FY 2013 (6/12–5/13), 154,224 unique patients were seen at UNCHC ambulatory centers for 973,122 visits. Approximately 10 percent were Latino and 58 percent were female; 97,851 were 19 to 59 years of age, while 34,862 were 60 years and older.

At the time of data collection, UNCHC used a combination of legacy EHR systems described below. In April 2014 during the data collection process, an off-the-shelf EHR system, Epic, was in the preparation phase for go-live implementation.

Table 2 presents the roles of participants interviewed at UNCHC. Participants may have had multiple roles within the organization and are listed according to their primary responsibility area.

Table 2. Numbers and types of stakeholders interviewed at UNCHC

Main role	Number
Physician	20
Resident physician	2
Physician assistant	1
Nurse practitioner	1
Nurse	9
Certified medical assistant	2
Pharmacist	3
Nutritionist	2
Social worker	3
Nurse manager	2
Practice manager	5
Quality improvement	2
Public affairs	1

UNCHC General Internal Medicine Clinic. Outpatient clinical care, quality improvement work, and research are conducted at the UNCHC General Internal Medicine Clinic in the Ambulatory Care Center (ACC), located on the southern end of the main UNC Chapel Hill campus. The ACC practice cares for over 14,000 patients and generates \$3.1 million in outpatient charges annually. The practice includes attending and resident physicians, advanced practitioners, dietician, social workers, counselors, and pharmacists working together in a shared clinical practice. The ACC cares for a wide range of adult patients from throughout North Carolina. Most patients live in one of the four surrounding counties: Orange, Durham, Alamance, and Chatham. This practice is a certified National Committee for Quality Assurance Patient-Centered Medical Home, and provides enhanced care services in diabetes, hypertension, anticoagulation, chronic pain, heart failure, depression, and hospital followup. Additionally, the clinic provides travel clinic services and same-day clinic services and has a number of quality improvement initiatives. The practice uses the same legacy EHR, WebCIS, that most of UNCHC uses. Most of the patient educational materials were developed in-house through research grants or by professional societies and are paper handouts rather than electronic. The legacy patient portal available featured only appointment scheduling and bill payment functionalities.

Carolina Advanced Health (CAH). CAH is a fairly new primary care physician practice that is a collaborative effort between Blue Cross and Blue Shield of North Carolina (BCBSNC) and UNCHC. This medical practice embraces a holistic approach that enhances efficiency and quality of care by coordinating patients' health care under one roof. Doctors, nurses, and other health professionals at CAH work together to manage every aspect of patient care to help improve the patient experience. Onsite access to nutritionists, pharmacy consultations, and mental health support allows patients to obtain support for all of their health needs in one place. The practice also streamlines the medical process, allowing patients to schedule multiple appointments on the same day, ask BCBSNC Customer Service claims questions onsite, answer pre-visit electronic questionnaires, as well as pay bills and schedule appointments online. CAH

treats eligible BCBSNC customers who are living with the following chronic illnesses: coronary artery disease, hypertension, hyperlipidemia, diabetes, chronic obstructive pulmonary disease, chronic heart failure, and asthma. Patients receive a range of services, including primary care, medication management, and preventive care.

The practice team consists of two physicians, a physician assistant, a clinical pharmacist, a social worker, and a nurse. The practice uses the same legacy EHR, WebCIS, that most of UNCHC uses. The practice has a patient portal that patients use for secure messaging to their providers and scheduling appointments.

UNCHC Emergency Department. The Emergency Department (ED) at UNC Chapel Hill is an integral partner in UNCHC's mission to serve the people of North Carolina. In 2013, the ED saw 63,000 patients from every county in the State plus neighboring counties in Virginia and South Carolina. The ED uses many resources to ensure excellent patient care, including a Level 1 trauma center, a comprehensive burn center, and AirCare, an aero-medical and ground transport service. As a referral center for trauma, burns, neurological, and cardiovascular diseases, the acuity level is high with an admission rate of 30 percent and an ICU admission rate of 4.5 percent. The ED is responsible for 52 percent of all hospital admissions.

The UNCHC ED contains 94 treatment spaces in different areas. The main ED has 36 treatment spaces with three trauma rooms and numerous rooms dedicated to resuscitation. Both attending physicians and residents with multiple shifts staff the ED. The ED uses an EHR called T-System (T-System Inc.). Patient educational materials are developed in-house or by professional societies.

Chapel Hill North Internal Medicine and Pediatrics Practice. Chapel Hill North is an UNCHC-affiliated, community-based primary care practice that serves adult and pediatric patients. The practice is located approximately 3 miles from the main UNC campus. The Internal Medicine section of the practice is staffed by four physicians who are board-certified in Internal Medicine, and the Pediatrics section has four physicians who are board-certified in Pediatrics. The practice uses the same legacy EHR, WebCIS, that most of UNCHC uses.

Chatham Crossing Internal Medicine and Pediatrics Clinic. Chatham Crossing is an UNCHC-affiliated, community-based primary care practice that serves both adult and pediatric patients. The practice is located about 15 minutes from the UNCHC main campus. The practice has eight staff physicians who are all board-certified in both Internal Medicine and Pediatrics. Resident physicians (supervised by staff physicians) from UNCHC also see patients at the practice. The practice uses the same legacy EHR, WebCIS, that most of UNCHC uses. Patient educational materials were developed by professional societies and are paper handouts rather than electronic.

UNCHC Lineberger Comprehensive Cancer Center Multi-Disciplinary Genitourinary Oncology Clinic. The Genitourinary Oncology clinic is part of the UNCHC Lineberger Comprehensive Cancer Center. Lineberger Comprehensive Cancer Center has approximately 1,200 staff and treats patients from every county in North Carolina and has over 135,000 patient visits each year. The Center offers more than 250 clinical research trials from protocols developed at UNCHC or through affiliation with national clinical trials groups.

The genitourinary multidisciplinary clinic provides comprehensive care to patients with prostate, bladder, urethral, kidney, and testicular cancers. The staff consists of a multidisciplinary

team that includes urologic oncologists, medical oncologists, radiation oncologists, a fertility preservation specialist, pathologists, geneticists, nurse practitioners, and nurse navigators. The practice uses the same legacy EHR, WebCIS, that most of UNCHC uses. Patient educational materials were developed in-house or by professional societies and are paper handouts rather than electronic. Several clinicians use patient-reported outcomes questionnaires in paper format during clinical care, and the patient portal available to all UNCHC patients offers only billing and scheduling features.

Vanderbilt University Medical Center Sites

Interviews were conducted at three clinical sites that are part of VUMC as shown in Table 3. As noted above, the VUMC site visits focused primarily on the proposed CC objectives.

Table 3. VUMC sites

Vanderbilt University Medical Center	MU objective domain
VUMC Department of Cardiac Surgery	Care coordination
VUMC Riven Hospital Medicine Services	Care coordination
VUMC Department of Emergency Medicine	Care coordination

VUMC, a comprehensive health care facility dedicated to patient care, research, and the education of health care professionals, serves patients in middle Tennessee and provides referral services to patients throughout the region.

The VUMC incorporates four freestanding hospitals at its main campus location: the Vanderbilt University Hospital, the Monroe Carell, Jr. Children’s Hospital, the Vanderbilt Psychiatric Hospital, and an 80-bed joint venture-owned rehabilitation hospital. Supported by respected, research-based medical and nursing schools, the VUMC delivers both routine inpatient care and highly specialized medical treatment and surgical procedures. The campus is also home to the region’s only Level I trauma center, the region’s only burn center, and the most comprehensive Level III neonatal intensive care unit. Co-located on the main medical campus, with additional sites throughout middle Tennessee, the VUMC comprises more than 95 outpatient specialty practices. Altogether, these clinics provide over 1.4 million clinic visits annually and have cared for over 2 million distinct patients. The VUMC is also a world leader in education, research, and practice in biomedical informatics, housing the largest Department of Biomedical Informatics (DBMI) in the country.

Together, the VUMC and the DBMI have developed and deployed numerous locally developed health information technologies over the past two decades. These include a computerized provider order entry system, an EHR system, a heavily used patient portal, and a robust research informatics infrastructure. All clinical sites in the VUMC network use a comprehensive EHR system called StarPanel. StarPanel was developed at Vanderbilt as a Web-based front end and integrated user interface to give users a standardized view that supports the clinical workflow and integrates the functions needed for clinical practice. All of Vanderbilt’s inpatient and outpatient practices are supported by advanced health information technologies. StarPanel includes a variety of documentation options to allow complete capture of clinical encounter data. Documentation options range from support for handwritten documents and outside transcription of dictated documents to semistructured template-based notes to fully structured documentation tools. Communication tools supporting secure provider-to-provider

and patient-to-provider messaging, reminders, alerts, management of work queues, and notification of new results are integrated in one seamless user interface that uses a highly hyperlinked visual metaphor to give clinicians the flexibility to initiate any task from anywhere in the workflow. The StarPanel system is used universally at Vanderbilt, with peak usage routinely exceeding 8,000 concurrent sessions. Within StarPanel clinical users communicate with other team members via secure electronic messaging that is closely integrated with the electronic patient chart. A message may include information from patient calls, referral information, requests for laboratory or other studies, pharmacy requests, notifications to patients of study results, or other content. StarPanel also supports electronic prescribing, generates after-visit clinical summaries, and maintains a longitudinal list of clinical problems, allergies, and medications. These technologies allowed the VUMC to comply with Stage 1 MU regulations, and are currently being modified to support Stage 2. Table 4 includes roles of participants interviewed at VUMC. Participants may have multiple roles within the organization and are listed according to their primary responsibility area.

Table 4. Numbers and types of stakeholders interviewed at VUMC sites

VUMC sites	
Main role	Number
Physician	7
Nurse	2
Pharmacist	1
Social worker	2
Case manager	3
Care coordinator	3
Surgery scheduler	1
Administrator/director	5
Program/project manager	3
Information technology	1
System support	1

VUMC has several ongoing initiatives to improve CC, including daily multidisciplinary patient transition huddles for most units of Vanderbilt University Hospital. The three sites for interviews for this project were chosen to take advantage of experience gained through this work and efforts to improve transitions of care for patients with selected diagnoses under VUMC’s CMS Innovation Award and participation in the CMS Bundled Payments for Care Improvement initiative for patients needing repair or replacement of a heart valve. In addition to clinicians, administrators, and other staff of each of the three sites, interviewees also included key executives able to provide a VUMC system-level perspective on MU, transition management, and CC. The three sites studied at VUMC are detailed in the following section.

VUMC Cardiac Surgery. The Department of Cardiac Surgery at Vanderbilt provides comprehensive surgical services for adult and pediatric patients with cardiovascular diseases. Areas of specialty include coronary revascularizations, traditional and minimally invasive valve surgery, aortic surgery, congenital heart disease, and a robust ventricular assist device/transplant

program. Vanderbilt was a trial site for the Core Valve transcatheter valve and also has extensive experience with other percutaneous valve implantation technology. In addition, Vanderbilt is recognized nationally as a pioneer in “hybrid” coronary artery revascularization. The Department of Cardiac Surgery’s adult surgical outcomes are ranked third best in the country according to recent University HealthSystem Consortium data, and the pediatric program is certified as a Heart Transplant Center of Excellence. Annual surgical volumes average 1,220 to 1,300 adult cases and 480 to 500 pediatric cases.

VUMC Riven Hospital Medicine Services. The Riven Hospital Medicine Services provide acute care for patients admitted through Vanderbilt’s ED as well as from the Vanderbilt Medical Group Primary Care Clinics and transfers from outside facilities. Riven Services care for a diverse adult patient population with a variety of acute and chronic disease processes. Riven Services has four distinct teams, each averaging 12 to 14 patient encounters daily and during team hospital “rounds” on a variety of inpatient nursing units. Three of the Riven services are staffed independently by an attending physician, and one is staffed by a nurse practitioner with attending oversight daily. Vanderbilt’s Section of Hospital Medicine includes 24 physicians and 3 nurse practitioners, most of whom have clinical and nonclinical responsibilities outside of Riven Services. Riven Hospital Medicine Services also provides coverage for one of the general medicine house staff teams and the Medicine consult service at Vanderbilt, as well as services at the VA Tennessee Valley Healthcare System, Vanderbilt Stallworth Rehabilitation Hospital, and Vanderbilt Psychiatric Hospital. Hospitalists are engaged in Vanderbilt’s education and research missions, in addition to a number of institutional quality improvement initiatives, many of which relate to improving care transitions.

VUMC Emergency Department (ED). VUMC’s Department of Emergency Medicine is a leader in clinical care, education, and research. VUMC’s combined EDs treat more than 103,000 patients annually. Presenting patients may be very critically injured or ill, requiring tight coordination of care, given VUMC’s distinguished services and capabilities. In 1988, Vanderbilt became the first hospital in middle Tennessee designated as a Level 1 trauma center, and to this day remains the area’s only hospital that meets the standards required to care for the most acute patients. VUMC offers LifeFlight, the only nonprofit air medical service in middle Tennessee. VUMC also operates the region’s only burn center. The Vanderbilt Burn Center is a Level 1 unit, offering the highest level of burn care possible for Tennessee and surrounding States. Vanderbilt is also a comprehensive stroke center, the very highest level of distinction for stroke care, and the International Society of Chest Pain Centers has named VUMC an accredited chest pain center.

Regional Extension Center Sites

The study team conducted focus groups with individuals from two RECs, one in the mid-Atlantic and one in the South. Study team members conducted the focus groups in December 2013 and January 2014. Table 5 provides an overview of the focus group participants.

Table 5. Focus group participants

REC sites		
REC staff	# of participants	MU objective domain
REC 1—South	6	Patient and family engagement
REC 2—Mid-Atlantic	7	Care coordination

The first group focused primarily on the proposed Stage 3 PFE objectives. The six focus group participants were technical assistance specialists and practice support coordinators in the REC. Participants had been working with the REC for 2 to 3 years. Prior to joining the REC, they had worked in hospital and clinic administration, IT, and health informatics; one had been employed as a health IT instructor. Several also had clinical backgrounds. They supported a range of providers, including many in smaller practices in rural areas that serve lower socioeconomic status patients.

The second group consisted of seven individuals who supported a REC in the mid-Atlantic. These individuals ranged in breadth and depth of experience; all had at least a bachelor's degree. While all focus group participants supported providers in their work for the REC, they did it differently. Some focused on provider outreach, while others focused topical areas such as security or measurement. The providers served by the REC include solo practitioners, multispecialty groups, federally qualified health centers, and hospitals. The REC served providers in both urban and suburban environments. Table 5 shows the number of REC staff who participated in each focus group and the domains of focus.

Data Collection

Each practice-based site visit and focus group was staffed by three individuals, including an RTI site lead with subject matter expertise in PFE or CC objectives, an additional RTI representative for logistics and documentation, and a qualitative research expert from our partner institution UNCHC or VUMC. Prior to the focus groups and interviews, participants signed a consent form (see Appendixes B and C). Practice-based interviews lasted approximately 1 hour. Focus group discussions lasted roughly 90 minutes and were conducted with site individuals who had some role related to the MU objective in focus. Practice-based site interviews were conducted individually, in dyads, and in small groups. Semistructured questions were asked based on an RTI-developed moderator guide that addressed topics appropriate to the individual's role and areas of responsibility; the plan was that the guide would help elicit rich descriptions of workflow steps, health IT components, organizational motivation, and related topics helpful to the evaluation (see focus group and interview guides in Appendixes D, E, and F). When participants chose to offer examples from their work, demonstrate the use of health IT, or facilitate other direct observations by evaluators, the evaluation team captured the information that was shared, as long as it did not conflict with HIPAA protections against the unauthorized use of personal health information.

Each interview included (1) role description, (2) explanations of how the CC or PFE MU objectives are implemented, (3) perspectives about what works well and what did not, (4) strategies for dealing with surprises, and (5) recommendations for changes. Probing questions were used to encourage participants to think and talk more about topics of interest. Interviews were conducted and audio recorded in private, in facility offices. Transcriptions of the interviews were distributed to the respective participants for review. Written feedback from participants was requested 1 month after the onsite interview via email in response to notes prepared after each interview. One participant provided minor corrections.

In the final month of data collection, preliminary themes were prepared based on the approved data analysis plan, and two multisite roundtable meetings were conducted—one for the CC sites and one for the PFE sites. Each meeting, lasting approximately 60 minutes, allowed the

evaluation team to receive feedback from the sites after presenting to them a preliminary analysis.

Changes in Proposed Objectives Since Project Initiation

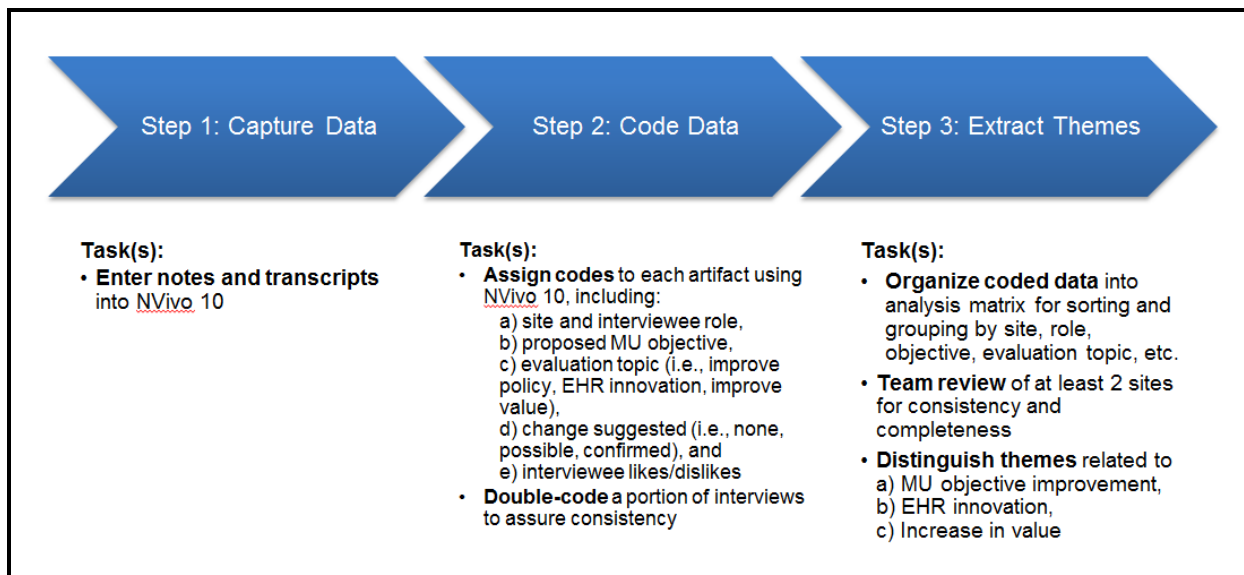
Proposed Stage 3 MU objectives first available during this project (as of September 2013) were later revised through the work of the Office of the National Coordinator for Health IT, Health IT Policy Committee before site visits and interviews began. Changes to the objectives and measures were made in both PFE and CC domains, by the Policy Committee. In the CC domain, the Summary of Care for Transfers of Care objective was modified to include types of transitions and information included in the summary of care. No changes were made to the Medication Reconciliation or the Notifications objectives. The Care Plan objective was not evaluated. Changes to the PFE measures included adding a specific timeframe for information availability to the View Online, Download, and Transmit objective. The Secure Messaging objective was modified to include an indication of whether patients expect a response to a message they initiate and to track the response to a patient-generated message. Changes to the Clinical Summary criteria and core measure were as follows: the summary reports would provide relevant, actionable information related to a visit and certified EHR technology (CEHRT) would allow provider organizations to configure the summary reports. The objective for recording the patient’s communications preference was not evaluated. The list of objectives reviewed with participants is found in Appendix A.

Data Analysis

Data analysis consisted of three steps (see Figure 2).

In the first step, an onsite evaluation team member took notes electronically (e.g., using a laptop or tablet, such as an iPad) and transcribed audio recordings of each semistructured interview with a key informant. The team member then entered this information into NVivo 10 for central storage and data analysis along with any documents furnished by sites.

Figure 2. Analysis plan



In step 2, the team coded the notes and transcriptions to align captured information with the research questions and key attributes such as site, interviewee role, and proposed objective. To maintain quality, Drs. Wald and Haque reviewed data from two sites for consistency and completeness before finalizing the codebook.

In the third step, the team extracted themes by running reports using NVivo 10 functionality to review the coded elements from step 2. Information was sorted, grouped, and analyzed to identify emergent themes, including themes by evaluation question, by MU objective, role, and site. Analysts from RTI and partners used this information to systematically identify opportunities for improvement or innovation in the policy objective, the EHR capability, and/or the value to the organization—the three main evaluation questions.

Coding

All interviews and focus group discussions were transcribed for coding and analysis. A total of 12 site visits (10 clinical sites and 2 REC sites) yielded an extensive textual data that were uploaded into the qualitative analysis software program (NVivo 10) to be categorized and sorted by relevant concepts and codes. A codebook with definitions and examples of each code (e.g., EHR innovations, or policy recommendations) based upon the study's research questions was pilot tested by three team members who independently and concurrently coded 10 percent of the interviews to assess inter-rater reliability. The three coders achieved an average kappa coefficient of 0.875 on codes for the double-coded interviews.

After coding, the project team ran coding reports to highlight the findings for each CC and PFE objective, focusing on the research question themes of improving the objective, the EHR functionality, or the value to providers and value to patients and families. The team then reviewed the reports using a deductive approach for common findings across individual objectives. Next, team members reviewed common findings and used them to identify and refine themes within and across objectives. Differences were resolved by discussion among team members.

Results and Recommendations

Findings from interviews with research participants about nine proposed objectives are described below, along with cross-cutting themes. A complete description of each objective is found in Appendix A.

Patient and Family Engagement Objectives

Six proposed Stage 3 PFE objectives were assessed:

- Clinical Summaries
- Patient-Specific Educational Resources
- Secure Electronic Messaging
- View/Download/Transmit
- Patient-Generated Health Information (PGHI)
- Request Amendment to Health Records

The first four objectives are refinements of Stage 2 PFE objectives. The final two proposed objectives—PGHI and request amendments to the record—are new objectives for Stage 3. For each objective, described below are themes related to the objective that addresses the RQs:

1. How can the evaluated MU objective be improved at the policy level?
2. What EHR innovations would support meeting the evaluated MU objective?
3. What will increase the value for hospitals and/or ambulatory practices of implementing the proposed Stage 3 MU objective?

Recommendations are included in each section, where appropriate.

Clinical Summaries (SGRP 205)

The proposed Stage 3 MU rule calls for clinical summaries that provide “relevant, actionable information and instructions pertaining to the office visit.” The stakeholders interviewed generally supported the intent of the clinical summaries objective and agreed with the proposed Stage 3 focus on actionable information relevant to the clinic visit. However, many of the stakeholders have found that implementing the clinical summary in a way that truly engages patients and families has been challenging.

Stakeholders’ Experiences with the Clinical Summaries Objective

Providers face workflow challenges with the clinical summary. Stakeholders said it was challenging for providers to complete documentation during the clinic visit, a precursor to producing a more meaningful clinical summary for the patient at the end of the visit. Providers and stakeholders felt that focusing more on documentation during the clinic visit took away from their direct interaction with the patient. Simple issues, such as where the summaries print, also presented a barrier for patient-provider review of the summaries at the end of the visit. For example, with UNCHC’s recent commercial EHR implementation, the workflow due to printer

mapping requirements limits providers to print to a limited number of networked printers or limits printing of summaries only at the front desk.

Without significant time and effort spent tailoring the clinical summaries, they are of limited benefit to patients and families. Providers reported needing to spend significant time creating clinical summaries that are useful to patients, which is a challenge given the time constraints of a busy practice. The standard automated clinical summary had limitations such as being too long, including outdated information (e.g., old medication and problem lists), using medical jargon rather than patient-friendly language, and not being formatted in a way that made it easy to find information.

Some providers feel they must provide the clinical summary (“check the box”) despite its limitations. As a result of these challenges, providers sometimes “check the box” to meet this objective but question the value of producing and sharing the clinical summaries if adequate time and effort are not devoted to creating useful and accurate documents to share with the patient. The medical director of one clinic, who is very committed to PFE, thought many providers were “taking shortcuts” rather than providing meaningful clinical summaries.

How Could the Clinical Summaries Objective Be Improved?

Consider revising the objective to focus on specific types of clinic visit. In the experience of some stakeholders, clinical summaries are not equally valuable across all types of clinic visits. They are likely more important for certain clinic visits, such as those that involve a new diagnosis, a complex clinical condition, or changes in the care plan. In addition, they may be more valuable for elderly or impaired patients who rely on family members or other caregivers. One provider gave the example of Medicare wellness visits as a good fit for clinical summaries:

I do so many things during that visit because there are so many required elements. You can’t expect the patient to remember all those things.—Physician, UNCHC

Effective medication reconciliation will improve the clinical summary. The clinical summary objective is closely tied to the medication reconciliation objective, as outdated medication lists are one of the primary complaints about the clinical summary. One provider gave the following example:

If anybody had an antibiotic 2 years ago but nobody ever took that off the list, that’s still on the clinical summary.—Physician, UNCHC

Effective implementation of the proposed medication reconciliation objective will address this type of problem. (See discussion of medication reconciliation in Section 4.1.9)

Overall, clinical summaries are much more useful if they are tailored and personalized to the needs of each patient for a particular visit—a human task that is not easily automated. Automatically generated clinical summaries may be problematic because of (1) missing, inaccurate, or out-of-date information; (2) too much information; (3) mistakes; (4) poor organization or formatting; (5) poor understanding by the reader with limited literacy; and (6) lack of careful review by patients and providers or their delegates. Poor timing of the clinical summary, either too early (before important information is ready to be included) or too late (after the patient/care team needed it) may also lead to problems.

Recommendation 1. The clinical summary objective should promote flexibility in content and timing to allow clinical judgment and situational context to drive its use.

What EHR Innovations Would Support Meeting the Clinical Summaries Objective?

Greater automation and functions that eliminate duplication of work and save time. Stakeholders would like to see the clinical summary process automated to a greater degree; for example, to automatically pull in standard text about a health condition based on the problem list. Currently, providers often have to duplicate work, such as entering information in the clinical summary care plan/instructions and essentially the same information in their note. Some stakeholders recommended that the clinical summary care plan should be automatically imported into the note.

Medical terminology translated into plain English. One of the challenges with the clinical summary is it imports language based on diagnoses entered into the EHR, such as the ICD-9 terminology and generic names versus brand names used for prescriptions. Stakeholders would like this type of language automatically translated into plain English for the clinical summary (e.g., “take two times each day” instead of “b.i.d.”).

Easily tailored. Stakeholders say it is important that the clinical summary be easy to tailor; for example, to eliminate outdated or less relevant information, organize or format information such that it is easier for the patient to find relevant information, and to highlight important patient instructions. They support the proposed certification criteria stating that the CEHRT should allow provider organizations “to configure the summary reports to provide relevant, actionable information related to the visit.”

User-friendly format and content. Stakeholders shared various recommendations for an easy-to-use format, including beginning with the most important information (rather than height, weight, vitals), using clear headings and graphics to delineate sections that contain different types of information, making the “care plan/ instructions” section prominent, limiting the length, and using large, clear font, and appropriate white space.

Easily linked health education resources. The clinical summary should easily link to relevant patient education resources, so they can either be automatically printed with the clinical summary or included as links for patients who access the clinical summary online via the patient portal.

User-tested clinical summaries. Stakeholders urged thorough testing of the clinical summary with a wide range of patients, including patients with limited education, literacy, and health literacy. Testing should focus on both content and presentation to ensure that clinical summaries are easy for patients and their families to use.

Recommendation 2. EHR certification should support improvements in the creation and tailoring of a clinical summary through features such as favorites, opt-out sections, improved formatting and organization, and easy adjustments to the content, format, and level of detail of information.

Some representative quotes from stakeholders are as follows:

Providers are [using] the [EHR-generated] clinical summaries “as is,” and there are certain EHRs that generate very painful clinical summaries... [such as a summary]...for a visit that includes every lab [the] patient [ever] had with the practice, which can make it dozens of pages.—Physician, UNCHC

When I see a printout of the clinical summary that just has the patient’s demographics, meds, allergies, and problems... and that’s it... it’s just to fulfill a requirement; it doesn’t have any utility for the patient.... If it would have a visit summary [instead], I think that would be great because it would actually have a meaning rather than just checking a box.—Physician, UNCHC

What Would Increase the Value of the Clinical Summaries Objective?

Most of the stakeholders view the clinical summaries as potentially valuable. An accurate and user-friendly clinical summary is anticipated to help patients to understand and remember important information, share information with family members or others involved in their care, and serve as a reference for followup (e.g., when they should call the provider, what to do at home, setting future appointments).

Ideally, the provider should review the clinical summary with the patient during the clinic visit. Most stakeholders say that best practice is for the providers to go over the clinical summary with the patient and/or family at the end of the visit to ensure understanding and highlight important action steps. The clinical summary can be an educational tool, and some providers use the clinical summary as part of a “teach back” approach with patients. However, because of workflow issues and time constraints, many stakeholders find it challenging to meet this ideal, such as when the clinical summary is delivered to the patient at checkout by administrative staff at the front desk, or is only available via the patient portal after the visit. Although these options could offer more convenience, they are often less valuable to the patient and opportunities for review and discussion are missed.

Recommendation 3. The value of the clinical summary is enhanced with its use as an information and communication tool to support patient-provider dialogue, shared decisionmaking, and information needs. This should be a focus of individuals and organizations promoting its use.

Patient-Specific Educational Resources (PSER, SGRP 206)

Stakeholders support the importance of providing patients with accurate and up-to-date educational resources and support the proposed Stage 3 objective to provide materials to patients in languages other than English. They also support the idea that educational resources should be in the patient’s preferred form and media. As noted previously, at the time of our site visits, UNCHC was preparing for implementation of a new commercial EHR with patient education resources from a leading vendor, which, in the view of stakeholders, will cover a wider range of topics than currently available resources. In addition to print materials, providers also like to direct patients to videos and interactive Web-based tools (e.g., decision aids and self-management tools).

Stakeholders' Experiences with PSER

The educational resources currently available to the provider through the EHR often do not meet their needs or the needs of their patients/caregivers. Resources are not available on some health conditions (especially less common health conditions) are too generic, are not suitable for patients with lower literacy and health literacy levels, and are not available in other languages. More engaging materials with high-quality visuals are frequently available from other sources, including professional associations and health-related organizations (e.g., American Diabetes Association).

Providers use many resources from outside the CEHRT. To meet their needs, providers use resources from a variety of sources including professional associations, self-developed materials, and crowd-sourced materials from variety of Web sites including YouTube, Pinterest, and others.

How Could the PSER Objective be Improved?

Allow provision of educational resources from sources outside the CEHRT. To meet this proposed objective, stakeholders believed that providers should be allowed to “count” some educational resources from outside the CEHRT. They recognize the value of vetted, standardized resources, but they say that providers will always have a need to supplement what is available through the CEHRT. Many EHR suppliers are not experts in educational resources, and this is a quickly evolving area.

Include exemption for patient education resources in other languages. Include an exemption for practices that serve a very small number of non-English-speaking patients.

Recommendation 4. The PSER objective should allow educational resources from multiple sources, not just CEHRT, because excellent content can be self-developed, crowd-sourced, and tailored to improve patient understanding and to mirror provider recommendations to the patient and family.

Recommendation 5. The PSER objective should allow an exemption for practices with few patients who speak languages other than English.

What EHR Innovations Would Support Meeting the PSER Objective?

Easy to incorporate additional resources or modify materials. Adding materials to the system should be easy for providers and health systems—including materials they have developed or those they have identified from other sources—that can be counted toward the MU objective. Another important capability is to enable providers to modify materials, such as deleting sections that are not relevant or adding personalized notes for the patient, to improve the relevance of the materials.

Improved resource identification and selection. Stakeholders would like to see a more automated, facilitated process for identifying appropriate patient education resources, with materials suggested based on the problem list, medication list, and other information in the record. Educational resource links or identifiers should also be automatically pulled into the clinical summary and into the provider’s note to make it easy for providers to track what they have identified for the patient currently and in the past, with reminders if necessary to prompt providers to give patients resources.

Clearly match non-English and English resources. Some stakeholders expressed concern about providers giving resources to patients in a language the provider does not understand, and requested that EHRs should be able to ensure that resources in languages other than English are easily selected and match their English equivalent.

Recommendation 6. Certified EHRs should support access to educational resources from a wide variety of resources including self-developed content, enhanced selection and tailoring, matching corresponding English and non-English resources, and a history of resources provided to the patient.

What Would Increase the Value of the PSER Objective?

Access to more trusted content to serve the diverse needs of patients and providers. Content producers and suppliers should ensure that patient education resources are up to date, evidence-based, and meet the needs of diverse populations of patients and different types of providers.

Improvements in the usability and usefulness of resources for patients with different literacy levels, preferences, and learning styles. Stakeholders say it is important to have patient educational resources in a variety of formats, such as simple paper handouts, videos, and interactive Web-based tools to support decisionmaking and self-management. Materials with high-quality visuals and audio are particularly important for patients with lower literacy levels. Patients also need resources at different levels, ranging from an overview of the health condition to more detailed information about treatment and self-management. User testing of educational content should focus on both the content and its presentation to ensure that educational resources are easy for patients and families to understand.

Recommendation 7. The value of the PSER objective is enhanced with a greater variety of high-quality resources that are widely accessible for use with patients and families, including the testing of resources for suitable content, format, and user understanding.

Some representative quotes from stakeholders are as follows:

Something the vendors could do to help is [allowing] the provider... to add their two cents in that piece of education. Some EHRs allow them to do that, but some they can't change; it comes as something you can just print and that's all.—Physician, UNCHC

If you really want us to use it a lot it should be slick. If a person's got hypertriglyceridemia on their problem list, then there should be a button that says, "Do you want to print the hypertriglyceridemia documentation?" It's got to be seamless, because every hurdle you put that is not helped by IT is going to be a barrier.—
Physician, UNCHC

Secure Electronic Messaging (SGRP 207)

Stakeholders' experiences with secure electronic messaging. Many of the stakeholders we interviewed had limited or no experience with secure electronic messaging. At the time of the site visit, the UNCHC patient portal had only limited functionality, not including secure messaging. However, some providers had experience with secure electronic messaging in other clinical settings and/or used the UNCHC secure email with patients who are UNCHC employees. Some providers also used regular email with patients.

Convenient for both patients and providers. Most of the stakeholders say that the asynchronous nature of secure messaging offers convenience for both patients and providers. It avoids the frustration and miscommunication that can occur with "telephone tag." After a clinic visit, providers can follow up with additional information, and patients can ask questions they may have forgotten.

Concerns about message volume and inappropriate use. However, providers are also concerned about being "bombarded" with patient messages, patients using secure messaging inappropriately (for example, for urgent matters, in place of coming in for a visit), being accessible to patients at all times, and about added—and unreimbursed—time spent on messaging with patients and families.

Secure messaging can improve communication. Some providers have experienced improved communication with patients using secure messaging. Patients may be more open and honest with online communication, allowing providers to get "a really honest point of view." Secure messaging also allows providers to better understand how patients are doing between visits.

How Could the Secure Electronic Messaging Objective be Improved?

Do not require patient action. A number of stakeholders opposed a MU objective that requires patient action (for example, 5 percent of patients send a secure message). They said that although providers can educate patients about secure messaging and encourage them to use it, providers ultimately have no control over patient actions.

Adjust the threshold based on the proportion of patients who have access. The threshold should take into account characteristics of the clinic population. For example, it should be based on the proportion of patients who have access to the patient portal or have signed up to use it.

Clarify what constitutes a response. Stakeholders agreed with the proposed certification criteria that EHRs have the capability to (1) indicate whether the patient is expecting a response

to a message they initiate; and (2) track the response to a patient-generated message. However, stakeholders wanted additional detail about what qualifies as a response.

Note: Because stakeholders had limited experience using secure messaging with patients, no recommendations were identified for improving this objective based on data collected from stakeholders.

What EHR Innovations Would Support Meeting the Secure Electronic Messaging Objective?

Design triage systems that are easy to set up. Systems should be designed so that it is easy to set up triage systems at both the clinic and individual provider level, such as ways to identify time-sensitive requests from the patient.

Flag messages that are not read. The system should include mechanisms to confirm receipt of messages and flexibility for providers to set up a flag if a patient does not open a message within a certain period. This system will alert the provider that he or she needs to follow up with the patient in another way (for example, phone, letter).

Recommendation 8. As a workflow tool, secure messaging EHR features should help users save time, improve throughput, and identify delays or potential errors.

What Would Increase the Value of the Secure Electronic Messaging Objective?

Reimbursement for indirect care via secure messaging. Providers will have to build time into their workflow to communicate with patients via secure messaging. This is challenging given the pressure to see large numbers of patients. Stakeholders say the solution is a change in payment approach to cover this type of indirect care.

Promotion of patient use. Stakeholders say that for this objective to work, patients need to be encouraged to use secure messaging and educated to use it appropriately. At the time of the site visit, UNCHC was planning a promotional strategy.

Recommendation 9. Stakeholders identified value-based care or other payment mechanisms to promote use of secure messaging among providers and the importance of promoting the use of secure messaging among patients, leveraging the “network effect” to increase value to stakeholders.

Some representative quotes from stakeholders are as follows:

How do you work indirect care into the clinician’s day? That’s going to be the fundamental challenge of moving from fee-for-service to fee-for-value.—Quality Improvement Physician, UNCHC

You don’t want patients to take inappropriate advantage of it. But—at the same time—I want to be accessible to my patient about things that I should be accessible for.—Physician, UNCHC

The concern is, what kind of emails are people going to send? Is it going to be clinically relevant, or is it going to be a lot of fluff? That's what people are concerned about. What's the volume going to look like and how relevant is an email going to be?—Quality Improvement Physician, UNCHC

View, Download, Transmit (SGRP 204A)

The proposed Stage 3 objective calls for patients to have the ability to view, download, and transmit their health information within 24 hours for information generated during the course of the clinic visit with eligible providers. Stakeholders generally support this objective, saying it is valuable for patients (and family members/other caregivers) to have access to their health information online. However, there were questions about what types of health information would have to be available for viewing, downloading, and transmitting. Stakeholders' views ranged from providing access to only limited EHR content to providing open access to all information.

At the time of the site visits, UNCHC had a rudimentary patient portal used for laboratory results only, and few patients actively used it. They were planning the launch of a more robust patient portal as part of a commercial EHR implementation.

Stakeholder Experiences and Perceptions With View, Download, Transmit

Concerns about patients misinterpreting information. Stakeholders had concerns about patients misinterpreting information, leading to unnecessary worry (for example, about laboratory results that are marginally abnormal), and a flood of patient calls to providers.

Challenge of getting patients signed up for and using the patient portal. Stakeholders anticipated it would be challenging and require significant staff time to get patients registered to use the patient portal and to support ongoing use. Stakeholders noted that if information is available that patients want (for example, laboratory results), they will be motivated to use it.

How Could the View, Download, Transmit Objective Be Improved?

Allow flexibility in terms of what information to make available. Stakeholders questioned what types of information would be required for viewing, downloading, and transmitting, and they want discretion as to what they make available. There was concern about radiology reports, pathology reports, and "sensitive information," such as HIV tests, mental health diagnoses, and some social issues (for example, domestic abuse). Most stakeholders did not support making the provider notes available to the patient. One provider commented that if the note was available he would be "less direct and blunt," which could ultimately compromise patient care.

Allow more than 24 hours to make information available. Some stakeholders say the requirement to release information generated during the visit within 24 hours will be a challenge. One stakeholder suggested distinguishing between critical and noncritical information, with critical information required within 24 hours and a longer period allowed for noncritical information.

Refine the exemption criteria. The exemption criteria for this objective should be based on the specific patient population rather than on county-wide data. Stakeholders note that a clinic

may be located in a county with high rate of Internet access overall, but the particular patient population has a lower rate of Internet access. One stakeholder recommended allowing “*a lower threshold that could be set at the practice level based on the population served.*”

Recommendation 10. Based on limited experience using View/Download/Transmit with patients, stakeholders suggested allowing flexibility in the types of information that would be shared, the timeframes for sharing information, and the exemption criteria for patient populations with limited internet access.

What EHR Innovations Would Support Meeting the View, Download, Transmit Objective?

Link to patient education resources. Patients’ access to their health information should be coupled with tailored patient education resources. Together with an explanatory message from the provider, access to high-quality educational resources will help patients to understand their health information.

Standardized templates for patient messages. Providers need a quick and easy way to send messages to patients explaining their lab results or other information that is available to the patient. One stakeholder emphasized the importance of providing an interpretation of lab results:

There is a big difference between ‘here are your lab results’ and ‘here are what your lab results mean.’—Physician, UNCHC

Standardized templates for messages are anticipated to make the process more efficient for providers.

Present information in patient-friendly manner. Information available for patients to view, download, and transmit should be in plain language and organized in a way that is easy to navigate. Also, it should be easy for patients to search their health information, compare information from one time to another, and see trends (for example, easy visualization tools).

One stakeholder advised:

[The information] should be in layman’s terms, not a bunch of medical stuff that we know what it means but they don’t [value].

Flexible release processes. Stakeholders had different views about when laboratory results should be released—in real-time, after physician approval, or after a specified time delay. Stakeholders want flexibility at the provider and clinic level to set different release processes. For example, some laboratory results can be auto-released immediately, whereas for others, a lag time would allow the provider to review and send a message. Some types of information might never be made available for patients to view, download, and transmit. Further, for laboratory panels, providers want the option to release selected results rather than the full panel.

Recommendation 11. Based on limited experience using an EHR to offer View, Download, Transmit functionality to patients, stakeholders suggested focusing on EHR features to improve patient understanding, provider communication, and flexibility in the information release process.

What would Increase the Value of the View, Download, Transmit Objective?

Patient Access to Multiple Sources of Data. This objective would be of higher value to patients if they can view, download, and transmit their health information from all of their sources of health care through a single process.

Recommendation 12. Based on limited experience using View, Download, Transmit functionality with patients, stakeholders suggested that more consistent ways for patients to access health data, regardless of their source, would increase the value of this objective.

Some representative quotes from stakeholders are as follows:

It's inherently good to have access to your medical information, but I think medical information in its raw form can be easily misinterpreted; it could create more harm than good by increasing anxiety.—Physician, UNCHC

Looking at the ultimate goal of allowing patients to participate in their care decisionmaking and having their preferences expressed, I think giving access to patients directly to their health information is critical to make that happen.—Physician, UNCHC

Patient-Generated Health Information (PGHI, SGRP 204B)

The proposed new objective calls for providers to receive provider-requested, electronically submitted PGHI through either structured or semistructured questionnaires or secure messaging. The stakeholders generally support the objective because it can offer efficiencies and improve care, but workflow issues could impede widespread implementation.

Stakeholders' Experiences and Perspectives With PGHI

Stakeholders already collect PGHI. Many of the stakeholders already collect PGHI, including patients completing logs (for example, to track their blood pressure, blood glucose, and weight), patient-reported outcomes questionnaires, and screening instruments to bring to appointments or communicate by telephone. They believe it will be much more efficient for patients to provide information electronically outside of the clinic visit and valuable to have information automatically incorporated into the EHR.

Collection of PGHI can improve the quality of care. PGHI will make it easier for providers to monitor how patients are doing between visits (for example, if they report on symptoms and monitor and report their blood pressure, peak flow, weight, and other measures, depending on the health condition). For some measures, such as blood pressure, it is valuable to get measures taken at home to avoid the “white coat syndrome,” which can elevate measurements taken in the clinic setting. Stakeholders shared some ideas about how they would expand use of PGHI:

- Depression screening
- Symptom tracking
- Monitoring blood pressure, blood glucose, peak flow, and weight

Some concerns about reliability of PGHI. Some stakeholders raised concerns about the reliability of devices (for example, blood pressure cuffs, glucose meters) and patients’ ability to use them correctly. However, others were not concerned and said they could calibrate readings from home with readings taken in the clinic, and patient currently already use many of these devices and report these data within current clinical workflows.

How Could the PGHI Objective be Improved?

There were no suggestions about how the objective could be improved.

Note: Because stakeholders had limited experience using PGHI with patients, no recommendations were identified for improving this objective based on data collected from stakeholders.

What EHR Innovations Would Support Meeting the PGHI Objective?

Functions for data synthesis and presentation. Although it is important to receive complete information from patients, providers need to be able to get a quick overview and identify trends. Thus, it is important that certification criteria address functions related to data synthesis and presentation. Providers can also use displays of these data as educational tools with patients.

Device data acquisition. EHRs should have the ability to receive data and integrate data from devices such as fitness tracking devices (e.g., Fitbit, Nike FuelBand) and various types of sensors.

Confirmation of receipt. Providers should receive notice when PGHI is received, and patients should receive confirmation that their data were successfully transmitted. Patients also need to be educated about what to expect when they submit PGHI, in terms of how and when the provider or clinic staff will follow up.

Alert systems. Alert systems (at the provider and clinical level) for any PGHI that requires followup should be included in standard EHR functionality. Stakeholders gave examples of depression screener results that indicate suicidality, rapid weight gain with heart failure, and high blood pressure levels. There is a desire for guidelines about who would be responsible for reviewing PGHI and within what timeframe.

Ability for patients to add comments together with data. When patients submit data, there needs to be a way to include a note; for example, to explain what was happening at the time of each particular reading (for example, a patient with asthma could note environmental conditions or physical activity at the time of a peak flow measurement). This contextual information will aid providers in interpreting the information.

Ability to identify the source of PGHI. Stakeholders say it is important to identify the source of data as PGHI versus data from clinical encounters and review it before accepting it into the medical record.

Recommendation 13. EHR enhancements that will reduce the time required by providers and patients to collect, obtain, review, analyze, summarize, and document relevant patient-generated health information were viewed by stakeholders as key EHR features.

What Would Increase the Value of the PGHI Objective?

Certification of devices. Some stakeholders recommend that devices (for example, blood pressure cuffs and scales that upload to the medical record) be certified as “calibrated.” However, not all stakeholders thought this was critical because they do not rely on PGHI alone, and they can calibrate patient devices with those used in the office.

Note: Because stakeholders had limited experience using PGHI with patients, no recommendations were identified for increasing the value of this objective based on data collected from stakeholders.

Some representative quotes from stakeholders are as follows:

The concern here is how we do manage the volume of data generated? I think in order for it to be valuable it needs to have the right amount of data synthesis available. If we’re going to collect pressures on an automated device that can be used as often as the patient wants, then that tool has to show averages and outliers and have comments sections where the patient can note what was happening at the time. —Physician, UNCHC

PGHI has to be separated from data obtained from the hospital, nurse, office... there has to be some segregation to say, “patient reported blood pressure trends are X, office pressures shows Y.”—Physician, UNCHC

Request Amendment to Health Records (SGRP 204D)

Stakeholders generally support this proposed new Stage 3 objective. They emphasize the importance of educating patients that they can request—not make—an amendment. They note that patients already can request amendments to their records, but these types of requests will likely happen more frequently as patients have easier access to their health information through the patient portal and clinical summaries.

Stakeholders' Experiences and Perspectives With the Request Amendment Objective

Potential to improve the accuracy of records. Stakeholders say that this objective has the potential to improve the accuracy of patients' records. One stakeholder commented, "Obviously as providers we are not perfect," so accountability from patients is important.

Concerns about patients making unwarranted requests. Despite the potential for improved accuracy, stakeholders have concerns about patients making unwarranted requests because they do not want something on their record for insurance, employment, or other reasons. Patients sometimes do not want to be labeled with a health condition, such as obesity, a mental health disorder, or cognitive impairment. These situations "create a lot of distress" on both sides, according to one stakeholder, and providers need to learn how to handle these situations.

How Could the Request Amendment Objective be Improved?

Clarify "Provide patients with an easy way to request an amendment." The objective should allow flexibility in terms of how patients can request amendments. It is important to allow a variety of ways, both online (for example, via a patient portal) and by phone or paper forms for patients who are not online.

Recommendation 14. The Amendment Request objective should allow flexibility in the manner (for example, phone, email, letter) in which patient requests are accepted.

What EHR Innovations would Support Meeting the Request Amendment Objective?

Include a way to identify amended information. It is important to have an audit trail to identify any request to amend information, the information that was changed, who made the request (and the change), and any requests that were denied.

Recommendation 15. EHR enhancements to clearly identify amendment requests and amended information in the record were supported strongly by stakeholders.

What Would Increase the Value of the Request Amendment Objective?

Ability to easily forward requests. Providers may receive patient requests for amendments that pertain to other providers. Providers will likely need to contact others in handling the request. A functioning HIE would facilitate this process.

Recommendation 16. If one provider could easily forward an amendment request to another provider, stakeholders believed the value of the objective would be increased.

Some representative quotes from stakeholders are as follows:

I don't think anybody has any concerns about keeping the record as up to date and accurate as possible. If somebody enters incorrect information that's visible to the patient and the patient offers a correction, it should get updated. We should be tracking all of these changes anyway; we can have a chronologic view. It's a good quality metric too.—Physician, UNCHC

Definitely the portal should have that capability [to send an amendment request], and should be pretty straightforward and clear. I shouldn't have to fill out tons of forms, write tons and tons, go through multiple levels.—Practice Manager, UNCHC

Care Coordination Objectives

Three proposed Stage 3 CC objectives were assessed:

- Medication Reconciliation
- Care Summaries for Consults and Referrals
- Notification of Significant Events

In this section, we present the findings related to these proposed objectives, which center on information sharing between providers to facilitate care.

For each objective, themes are presented that relate to the RQs:

1. How can the evaluated MU objective be improved at the policy level?
2. What EHR innovations would support meeting the evaluated MU objective?
3. What will increase the value for hospitals and/or ambulatory practices of implementing the proposed Stage 3 MU objective?

Medication Reconciliation (SGRP 302)

The Medication Reconciliation objective is designed to facilitate clearer communication about medications across providers. Although stakeholders found the notion of medication reconciliation laudable, they had concerns with the practical aspects. Major themes and recommendations extracted from the responses are detailed as follows.

To summarize, the process of knowing and comparing lists of medications varies. It might include (1) the entire list of all medications, (2) a problem-focused or limited review of selected medications (for example, limited to the focus of the visit, patient safety concerns, or potential drug interactions), (3) herbals and supplements, and (4) one or more providers who have cared for the patient in the past at some location.

Stakeholders' experiences and perspectives with medication reconciliation. Stakeholders universally agreed that medication reconciliation was important and needed to occur. However, there were varying perceptions about the appropriate level of detail to focus on during the medication reconciliation process. There were also varying perceptions about the appropriate individuals to conduct medication reconciliation. Participants also cited the difficulty in understanding different definitions of and contexts for medication reconciliation when the patient had multiple providers and care settings.

How Could the Medication Reconciliation Objective be Improved?

Addressing varying definitions of medication reconciliation. Stakeholders cited a number of ways in which medication reconciliation could be conducted. It could range from asking patients to verify a prepopulated list to having patients bring in their bottles of medication and go through

each one individually. It is not clear what activities constitute medication reconciliation for compliance purposes.

As one participant said:

I'm not convinced that really anyone does it all that well...med reconciliation [is] done by lots of different roles on the team and it's not standard because an intern does it one way, a resident does it another way, and a surgical attending does it one way, a medical attending does it another... So...often people keep doing [repeated] med reconciliations because they have no confidence in the data...—Clinical Pharmacist, VUMC

Addressing specialty-specific medication reconciliation. Primary care providers and specialists have different concerns with medication reconciliation. Some providers, such as ED physicians, were looking for a specific set of drugs, such as blood thinners. They did not need to know the details of the regimen to complete their clinical activities. Other providers, such as primary care providers, conducted a more thorough medication reconciliation and would not want providers in other specialties changing medication lists. The perception was that specialists were reviewing the medications for potential interactions or considerations with their treatment plans and not to make changes. However, the objective does not distinguish between different kinds of providers, and EHRs typically do not support these distinctions, either.

Having specialty providers conduct medication reconciliation and alter a list that another provider has been managing could have unintended consequences. As one provider indicated:

I think you would be doing more harm than good if there's some forced medicine reconciliation...even in the clinic setting, the idea that every clinic encounter that is going to touch somebody is going to do a full medicine reconciliation, I think is... not a good idea. When you come into the plastic surgery clinic...or derm clinic to get your mole removed, again, they care about, "Are you on Coumadin? Are you on aspirin?" If you ask them to start monkeying around with somebody's huge medication list, I think nine out of ten times what you're going to get is worsening care and not better...It's just going to get in the way.—Physician, VUMC

<p>Recommendation 17. The Medication Reconciliation objective should better identify what is meant by medication reconciliation because it may have different meanings in different contexts.</p>
--

What EHR Innovations Would Support Meeting the Medication Reconciliation Objective?

Supporting a single list of medications. Medications can often be documented in several places in the EHR, which may lead to conflicting lists. When patients are seen in different hospital systems or provider organizations, the patient may have multiple lists of medications. Different providers who see a given patient may make changes to the medication list, and those updates may occur with some delay (not in real time). Participants envisioned the ideal of a single source of truth for the medication list with a clearly defined owner.

Identifying the origin of the list. When reviewing the medication list, participants cited confusion about the origin of the medications on the list. Having access to the name of a referring provider or a note about why and when a medication was prescribed or changed could

facilitate greater understanding of the medication list throughout the health care team. Not knowing this information made it difficult for providers to understand the medication list and perform medication reconciliation.

As one provider stated:

We don't have a way to communicate the source and the confidence in the information that we're capturing at any given time. So there seems to be a lot of desire to have some way to communicate... information like "the patient knows she takes Warfarin but doesn't know the most recent dose" [which] is different than "the patient has no idea what she's on at all... a pharmacist or someone needs to dig in and do a complete medication history." That's a lot different than just needing to clarify one or two doses.—Physician, VUMC

Recommendation 18. For the Medication Reconciliation objective, it is helpful to have EHR features that support the use of a single list for medications, herbals, and supplements, along with a place to store the identity of each treating prescriber for each medication, as well as contextual information about a medication (such as notes from a prescribing provider).

What Would Increase the Value of the Medication Reconciliation Objective?

Having defined roles and responsibilities. Stakeholders almost unanimously agreed that medication reconciliation was an important and valuable activity. Greater clarity at the organizational or Federal level would increase the value of the objective by defining what aspects of medication reconciliation performed by whom would be required. For example, in some ED setting scenarios, it may be difficult to conduct a complete medication reconciliation.

As one stakeholder described:

I think the other issue is that we sometimes have too many people trying to do it [medication reconciliation]. So we've assigned it as a nursing responsibility to collect the... preadmission medication list... Then [on admission] we've assigned [med rec] to the provider group, so the midlevel NP or whomever... have to collect... [the medication] list and sometimes there's no reconciliation that happens between [the preadmission medication list and the list collected by the provider]. So... everybody's doing work and it would be better if we were all using the same system to do it in.—Administrator, RN, VUMC

Recommendation 19. The value of Medication Reconciliation can be increased by establishing clear roles and responsibilities for individuals who perform the steps of Medication Reconciliation.

Care Summaries for Consults and Referrals (SGRP 303)

The objective to share care summaries during transitions of care and after consults and referrals builds on Stage 2 objectives. This Stage 3 proposed objective provides more guidance about the types of information to be shared than previously. Stakeholders had positive

perceptions of the objective itself but had some concerns with operationalizing it and with the threshold values.

Stakeholders’ experiences and perspectives with care summaries for consults and referrals. Overall, stakeholders felt that this objective provided better clarity around information sharing than what was provided in Stage 2. Stakeholders agreed that information sharing was important and sought targeted information to be shared rather than the entire chart.

How Could the Care Summaries for Consults and Referrals Objective be Improved?

Realistic thresholds. There were some concerns about the thresholds needed to achieve compliance. Some systems have many providers in-house and rarely refer to outside organizations. This may make it difficult for them to meet the percentage thresholds. Other participants cited the need to include a change in the patient’s provider, so that if a patient moves between geographic areas and changes primary or specialty providers, the information sharing would count toward achieving the proposed Stage 3 objectives.

Meaningful timeframes. There were also concerns about the timeframe indicated by the objective. For transitions of care, the 48-hour timeframe might be too much time. However, for a consult or referral for which lab results should be accessed, it might not be enough time, as shared by one stakeholder:

I think some providers could look at number three, “Instructions for care during the transition for 48-hours after,” and I just wonder why the 48-hours requirement is there if there’s no requirement to have sent it within a certain period of time. Because those 48-hours could be obsolete by the time it gets sent. During transition and for 48-, is that after the transition, so after they’ve already seen the new provider, is that what that means? —Washington DC REC

Recommendation 20. The Care Summaries for Consults and Referrals objective should have more flexible thresholds and timeframes that match the context of care to avoid reducing their quality.

What EHR Innovations Would Support Meeting the Care Summaries for Consults and Referrals Objective?

Support for sharing radiology images. Sharing radiology images versus only the reports was an important EHR innovation that would be useful. Several providers said that the radiology report from a referring hospital was not enough but that the image itself would also be needed to determine the course of treatment. In the absence of the actual study, radiographic studies would be repeated. Time and money would be saved if the actual study could be shared. One provider commented:

It ought to [include x-rays] if you’re going to have continuing care.... And the EKG and the labs.... And if I’m going to talk to the outside physician when the patient goes home, it’d be nice to transmit all that, too, so they can actually pull the x-ray up and say, “Hmm, you know what, there’s this little spot over here that, this is what they were

concerned about. Okay, I see what they're concerned about now, I know what to do." [Instead of] the patient coming back and saying, "Hey, I have a spot on my lung," and when you ask, "What did that mean?" [the patient says] I don't know what that meant." There's so much waste in our healthcare system; repeating x-rays, repeating labs, repeating stuff just because you can't talk to each other.—Physician, UNCHC ED

Support for receiving and sending information to “other” systems. Mechanisms to share information electronically such as an HIE or direct messaging need to be in place to support this objective. Otherwise, information sharing will result in information that is not integrated in the medical record. Participants were not concerned with this within a given network or hospital system but for times when different networks were at play. As one REC member explained:

That's going to be difficult if there's not a provider directory where [providers] have access to the contact information of other providers that they're trying to refer. [IT staff are] going to have to bring that all together, ...[and] anyone that they refer [to] they'll have to collect [their]... Direct addresses create some kind of trust agreement.... For big hospitals that have IT departments that can do this, that might be simple and straightforward, but for small ambulatory providers where the vendor doesn't offer those kind of out of the box automatic capabilities, that's going to be difficult for them. Just... looking at... the state of HIEs right now, some of them are really advanced but some of them are barely even functioning, if at all.—Washington DC REC

Recommendation 21. For the Care Summaries for Consults and Referrals objective, it would be helpful to have EHR features that support access to information details such as radiology images, support for sending and receiving information from “other” systems, and ways to reliably identify “actionable” data.

What Would Increase the Value of the Care Summaries for Consults and Referrals Objective?

Targeted, actionable information. Participants cited the need for sharing targeted, actionable information. Although they approved of the visit-specific language in the objective, they specifically cited orders, medications, and next steps as the items they cared the most about. A requirement to flag the most important pieces of information during transitions or after a consult or referral would provide greater impact, as described by a clinical staff member:

So when I get a report from a radiologist, it could be very, very long and I'll read it thoroughly but it's easy for me to miss an individual fact... because there's a lot of data in there. So ... it's almost like there should... the ability to surface or mark really important information...[such as] 'this is an important follow up' or 'this is a critical piece of data'.... 'This is a CT scan and it showed a nodule in the thyroid.' So recommend follow up... It's actionable data....—Clinical Pharmacist, VUMC

Recommendation 22. The value of Care Summaries for Consults and Referrals objective can be increased by making actionable data harder to miss.

Notification of Significant Events (SGRP 308)

Notifications are a new objective for Stage 3 MU. This objective involves electronic sharing of significant events with the patient's designated primary care provider or care coordinator. Although stakeholders thought the objective was useful, they were concerned with overwhelming the primary care provider. Other concerns included the mechanics of notifications and ensuring that important workflows are supported.

Stakeholders' experiences and perspectives with notifications. The feedback about notifications and the specific events outlined in the objective was positive. However, there were concerns about how this objective would be operationalized. Primary care providers mentioned that they may need to change their workflows to handle the notifications. Participants cited concerns with overwhelming the primary care physician or care coordinator with notifications:

I think that [notification] would be great but I think... when the primary care provider or the PCP is so bombarded with their office work or their clinical work... [there's not much] value in sending them an e-mail if they're not going to read it... [they] get numb to those... [there's] alarm fatigue....—Program Manager, RN, VUMC

How Could the Notifications Objective be Improved?

Thresholds when primary care providers are not known. There was concern about thresholds and how they would be achieved. This was of particular importance for EDs in which many patients do not have a primary care provider or care coordinator. Some participants mentioned that unless patients stop using the ED as their primary care source, this objective would not truly be effective. However, participants indicated that for patients with chronic conditions or who do have a primary care provider, this objective would be useful.

Recommendation 23. The Notification of Significant Events objective should have more flexible thresholds to reflect situations in which one or more care providers are not known or the patient has an incomplete care team.

What EHR Innovations Would Support Meeting the Notifications Objective?

Automatically sending notifications. Although stakeholders agreed that the objective is important, they did not think it required manual intervention. Providers cited the need for EHRs to automatically send notifications of the specified events without provider intervention. This would require EHR innovations coupled with external resources such as an HIE, direct messaging, or a directory of primary care physicians and/or care coordinators. It also would require some decision logic for the events.

Yeah. I'm glad [the objective says] "Low threshold." ... [since] depending on what [data is] in the EHR, how [it's shared] is going to be very interesting... the way I want to tackle this would be an automatic thing [without]... an action required by the physician because this would be adding yet another step to the physician.—IT Specialist, VUMC

Automatic upload of notifications into the receiving provider's EHR. In addition to automatically sending the information, the notification must be integrated into the technology of the receiving physician or care coordinator. If the primary care provider is inundated with notifications, it may be difficult for him or her to parse through them. Thus, a mechanism to flag the notifications in the receiving provider's chart would be helpful.

Recommendation 24. For the Notification of Significant Events objective, helpful EHR features would be those that support automatic generation of notifications in response to appropriate "trigger" events and that support triage of incoming notification messages to an appropriate team member.

What Would Increase the Value of the Notifications Objective?

Ease of creating and directing messages to the intended recipient using automation. The thresholds were a concern given that sharing information outside a network is difficult to accomplish in an automated fashion in the absence of an HIE. The use of DIRECT messaging is another possibility to exchange information, but that is not in widespread use. To improve the value of the objective, participants cited the need for external mechanisms of information sharing.

In addition, there was a concern about the information to be sent in the notification. Participants cited the importance of having the information as pieces that could be automated and not require too much manual intervention.

Do we want our ED staff taking the time to look up and put together a document and sending it to a primary care provider? I understand the intent behind it. The primary care provider definitely wants to know but if you're saying that this is going to be a robust document similar to the summary of care or even a subset of that... you can't do it at the arrival of [the patient to] the ED... you might get chief complaint and patient arrived... [but] you're not going to have much else than that.—IT Specialist, VUMC

Recommendation 25. The value of the Notification for Significant Events objective can be increased by providing access to necessary details important to the individual receiving the notification (for example, reason for admission) and permitting incorporation of materials from a wide variety of sources in the notification message and as its trigger.

Discussion

A number of themes were consistently mentioned across objectives during the interviews.

Overarching Themes

The Need for Common Measures, Standards, and Vocabularies Across Multiple Initiatives

Participants cited the number of regulations and quality initiatives to which providers must adhere. Because of the primary care focus of many of the objectives, patient-centered medical home was specifically mentioned a number of times. Other initiatives may have different objectives, definitions, and areas of focus, making it more challenging to reconcile competing efforts. Several stakeholders indicated that having common vocabularies, standards, and measures across initiatives would enhance adoption and implementation of the measures.

Concern About the Pace of Change

With all of the changes occurring at once, participants cited concerns with the rapid pace of change and how challenging it can be to keep up with advances in technology, policy, and workflow.

I think we actually just need to let stage 2 gel for a bit so that people can get used to having the functionality. —Washington DC, REC

It's just if you want widespread adoption and it to become commonplace you need time for the behavior to change and for it to become commonplace. And then they start to see the value. —Washington DC, REC

I think having input on prioritization by the clinicians on what is most important. What do they want to roll out first? And let's do it in layers, trial periods maybe so that it doesn't all come at once" —Physician, UNCHC

Role Definition

Compliance with objectives requires many decisions at the organizational level that impact multiple roles, including decisions about who is responsible for certain functions (for example, medication reconciliation, significant event notification, creation and delivery of clinical summaries, review of PGHI and secure messages). When roles are unclear, required activities may not be completed. Establishing clear policies and leveraging the EHR to help automate and enforce role responsibilities may help alleviate confusion in some situations.

Primary Care Focus

Several participants felt that some objectives maintained a primary care focus, but may not have adequately reflected important differences in practice across various specialties, particularly for medication reconciliation and care summaries.

Another confusion or frustration on the part of the providers is the seemingly one-size-fits-all approach towards the providers from specialty to specialty. ...[One high-volume

specialist says] “I need to see four patients in twenty minutes, [and] there’s no way I can be doing care summaries or I can be asking if they smoke every single time... it’s just not possible for me.” [Whereas] a geriatrics physician... has [more time for the patient] or might not have such a high patient volume... That’s a big frustration when you speak [to providers] across [different] specialties... they just don’t feel that ... each specialty should be required to do the same things. —Washington DC, REC

Clear Language in the Standards

Several participants indicated that the language in the objectives was not clear. Some viewed this positively and felt that the ambiguity was intentional so providers could meet the requirements in a way that made sense for them. Others felt that vendors would define how to meet the objective and create a de facto standard, possibly limiting provider flexibility and workflows. Thus, concerns were expressed about both over- and underspecified details for an objective.

Time and Workflow Burden

A common concern across objectives was workflow disruption as stakeholders worked to comply with objectives. Several participants cited the need to rely on EHR automation to help ease the compliance burden for providers. Additionally, workflows to meet objectives are often determined by EHR vendor functionality with limited flexibility for providers to optimize them for their particular workflows. Participants indicated that providers were already overburdened with multiple competing tasks, so adding even a small administrative requirement to their workflow would make compliance more challenging. Stakeholders also pointed out that automation often left important problems unsolved and sometimes led to worsening challenges requiring additional efforts by users. For example, if the medication list automatically populates the clinical summary but the information is not correct, medications are not reconciled and the summary is not accurate. Participants also described several examples of needing to create new staff positions to successfully utilize the new EHR innovations, such as pharmacy technicians in the ED to perform medication reconciliation, and ED CC nurses to assist patients with post-ED follow-up appointments if patients lack primary care providers.

Implicit Assumptions for Certain Objectives

Participants cited the importance of considering objectives in the context of the health care system as a whole. For example, the fact that the ED serves as a primary care setting for some patients should be an important consideration for several objectives such as the clinical summary, View, Download, Transmit, secure messaging, notifications, and medication reconciliation.

One of the things that makes it really complicated in the emergency department is that many of our patients don’t have primary care providers and so there is no one to communicate with. They don’t know their medications, they live alone or they’re in the shelter or they’re somewhere else, and there’s no one to communicate with to figure out what their medications are or to communicate an aftercare plan with. So many of our patients, there’s no one to talk to. —Physician, UNCHC ED

Small Provider Organizations

One concern across objectives was how well they would apply at smaller scale. Participants cited concern for solo practitioners and providers at smaller organizations, especially given the challenge of having multiple initiatives to satisfy. Lower patient volumes of smaller practices may lead to difficulty in achieving the percentages required for each objective measure. Part-time practitioners may face similar concerns.

One thing I wanted to mention was the challenge of physicians that have really small denominators for some of these measures... [maybe just a couple of dozen patients]... Capturing those two... out of that 20 can be really challenging and I'm concerned about meeting the preventive health reminders measure in Stage 2, for instance. Someone who has a very small denominator, how do we make sure that the preventive health reminders that we're able to mobilize... hits enough patients for every doctor? I think that's a challenge to keep in mind as we move ahead to Stage 3. — Program Director, UNCHC

Care Coordination Themes

Radiology

Sharing radiology images was suggested across objectives by participants concerned about unnecessary test duplication and the inconvenience of having to send a courier or family member to retrieve an original image disc. The ability to view an image (after it was obtained) was also identified as a challenge, given different standards for viewing image files.

The most frustrating thing is imaging studies where [the patient] will have had a CAT scan already performed. You may know the result and you may have a copy of the result, but you don't have the actual study and that leads to a conundrum, [since]... without looking at the study and looking at the actual images you don't know what you're working.... So... if it's a surgical issue, surgeons are hesitant to take the patient to the operating room without actually seeing what's going on and everything that's there [in the image, not just the report]. So the report [alone] does us no good. So then you're either left to... wait for a courier to bring the study back, which [is] wasting time and, you know, possibly endangering the patient's care.—Physician, UNCHC ED

Ability to Routinely Extract Information from EHRs

Participants cited the importance of having EHRs available that support routine reporting (without additional manual work) for frequently used information and analyses.

For a product that touts being integrated and capturing data, [it's amazing] how poorly that data is captured and retrievable to meet metrics. It was very frustrating to see... some of these standardized metrics that are collected for every single hospital were not available as routine data elements that you could report on through [software vendor] and you had to build them yourself by every single hospital—I mean, some very simple, basic core measures [are a challenge]. How to collect the time to pain management for long bone fracture, to drill down and capture that [time] without having specific nurse review of those charts to get rich accurate data, is not available. So you either have very

kind of global data that's not... very meaningful or you have to have the time consuming chart review to capture it... which one would think with implementation of a system such as this, you wouldn't have to do that chart review and you could capture those data elements as you go.—Physician, UNCHC ED

Patient and Family Engagement Themes

Need to Meet Usability Requirements for Patient-Facing Resources

Tools intended for patients (patient portal, clinical summary, patient educational resources) will not be used or valued unless they are “patient friendly” (for example, use plain language with appropriate literacy and numeracy levels, easy to navigate). It will be important to conduct user testing with patients.

Time Tradeoffs between Documentation and Patient Interaction during the Visit

Some stakeholders find that they need to document more during the visit; for example, to add information for inclusion in the clinical summary, which takes their attention away from the patient.

“I use a computer as minimally as possible in the room...they're going to try to force us to type our notes and I'm not going to, I'm old fashioned. I'm going to dictate this after the clinic visit, after the patient has left because I would rather spend that 5 minutes actively talking to the patient.”—Physician, UNCHC Internal Medicine

Concern About Provider Measures Based on Patient Behaviors

Stakeholders are resistant to objectives that are measured based on patient behaviors they do not control, such as patient use of a patient portal and secure messaging, and submission of patient-generated health information.

Focus on High-Impact Areas

Given the time constraints, providers would rather focus on developing high-quality clinical summaries for selected patients and types of clinic visits (for example, complex, new diagnosis) rather than rushing to give lower-quality summaries to all patients. Similarly, it may not be important to give certain patients educational resources at every type of visit (for example, simple problem, had a health condition for a long time, received the same resources at the last visit), but it may be better to focus on patients with the highest need for educational resources, such as the patient with a new diagnosis or who struggles to manage his or her condition.

Interdependencies Across Multiple Objectives

Success with the medication reconciliation objective may potentially improve the quality of information in the clinical summary, because dated and inaccurate medication information is one of the major complaints about the clinical summary. The View, Download, Transmit objective would be more valuable to patients if they could access all their health information using a single patient portal across multiple providers, rather than using a separate portal for each provider.

Limitations

Selection of the 10 practice settings and two RECs was aimed at developing recommendations based on considerable stakeholder experience in the proposed PFE and CC areas we explored. Experience, however, was in some cases more limited than anticipated. For example, having a patient portal “live” and available to patients did not necessarily mean it was used extensively, as we found when probing for experience with view/download/transmit and secure messaging. This is an important limitation of the findings in this report.

Conclusions

This report presents 25 recommendations for improvements to policy objectives, enhancements to EHRs, and ways to improve the value to organizations and stakeholders based on the proposed Stage 3 MU objectives in the areas of PFE and CC.

Stakeholders from the 10 sites and two REC groups provided rich commentary on the proposed objectives that identified a number of important themes for consideration. From these themes, the project team developed recommendations for consideration by policymakers and other stakeholders as the objectives are refined and finalized in the coming months. The recommendations are presented in Appendix A.

Appendix A. Recommendations for PFE and CC Proposed Objectives for Stage 3 Meaningful Use

Table A-1. Recommendations

Proposed objectives (SGRP)	Final objectives	Major findings	Policy recommendations (RQ1 how to improve objective)	EHR innovations (RQ2)	Things to make sure users get what they want out of it (RQ3 increasing the value)
<p>205: Clinical summaries Provide clinical summaries for patients for each office visit EP Measure: Clinical summaries provided to patients or patient-authorized representatives within 1 business day for more than 50% of office visits. The clinical summary should be pertinent to the office visit, not just an abstract from the medical record.</p>	<p>Core: EPs provide office-visit summaries to patients or patient-authorized representatives with relevant, actionable information, and instructions pertaining to the visit in the form/media preferred by the patient. Certification Criteria: CEHRT allows provider organizations to configure the summary reports to provide relevant, actionable information related to a visit. Threshold: Medium</p>	<p>Providers face workflow challenges with the clinical summary Stakeholders say it is challenging for providers to complete documentation during the clinic visit, a precursor to producing a more meaningful clinical summary for the patient at the end of the visit. Providers and stakeholders felt that focusing more on documentation during the clinic visit took away from their interaction with the patient. Simple issues such as where summaries could be printed also presented a barrier. For example, with UNC's recent commercial EHR implementation, providers must print summaries to the front desk, which does not allow providers to easily review the summary with the patient.</p>	<p>Recommendation 1. The clinical summary objective should promote flexibility in content and timing to allow clinical judgment and situational context to drive its use.</p>	<p>Recommendation 2. EHR certification should support improvements in the creation and tailoring of a clinical summary through features such as favorites, opt-out sections, improved formatting and organization, and easy adjustments to the content, format, and level of detail of information.</p>	<p>Recommendation 3. The value of the clinical summary is enhanced with its use as an information and communication tool to support patient-provider dialogue, shared decisionmaking, and information needs. This should be a focus of individuals and organizations promoting its use.</p>

Table A-1. Recommendations (continued)

Proposed objectives (SGRP)	Final objectives	Major findings	Policy recommendations (RQ1 how to improve objective)	EHR innovations (RQ2)	Things to make sure users get what they want out of it (RQ3 increasing the value)
<p>205: Clinical Summaries (continued)</p>		<p>For example, with UNC’s recent commercial EHR implementation, providers must print summaries to the front desk, which does not allow providers to easily review the summary with the patient.</p> <p>Unless providers spend significant time and effort spent tailoring the clinical summaries, they are of limited benefit to patients and families</p> <p>Providers reported needing to spend significant time to create clinical summaries that are useful to patients, which is a challenge given the time constraints of a busy practice. The standard automated clinical summary had limitations: it was too long, had outdated information (e.g., old medication and problem lists), used medical jargon rather than patient-friendly language, and was not formatted so that patients could easily find information.</p> <p>Some providers feel they must provide the clinical summary (“check the box”) despite its limitations</p> <p>As a result of these challenges, providers may “check the box” to meet this objective, but they question the value of producing and sharing clinical summaries.</p>			

Table A-1. Recommendations (continued)

Proposed objectives (SGRP)	Final objectives	Major findings	Policy recommendations (RQ1 how to improve objective)	EHR innovations (RQ2)	Things to make sure users get what they want out of it (RQ3 increasing the value)
<p>206: Patient-Specific Educational Resources EP/EH Objective: Use Certified EHR Technology (CEHRT) to identify patient-specific education resources and provide those resources to the patient. Additional language support: For the top 5 non-English languages spoken nationally, provide 80% of patient-specific education materials in at least one of those languages based on EP’s or EH’s local population, where publically available.</p>	<p>EPs and EHs use CEHRT capability to provide patient-specific educational material in the patient’s preferred non-English language and preferred form/media (e.g., online, printout from CEHRT). Certification criteria: EHRs are capable of providing patient-specific non-English educational materials based on patient preference. Thresholds At least one patient receives non-English educational material according to the patient’s language preference.</p>	<p>Stakeholders support the importance of providing patients with accurate and up-to-date educational resources and support the proposed Stage 3 objective to provide materials to patients in languages other than English. They also support the idea that educational resources should be in the patient’s preferred form and media. As noted above, at the time of our site visits UNC was preparing for implementation of a new commercial EHR with patient education resources from a leading vendor, which stakeholders felt would cover more topics than currently available resources. In addition to print materials, providers also like to direct patients to videos and interactive Web-based tools (e.g., decision aids and self-management tools).</p>	<p>Recommendation 4. The PSER objective should allow educational resources from multiple sources, not just CEHRT, because excellent content can be self-developed, crowd-sourced, and tailored to improve patient understanding and to mirror provider recommendations to the patient and family. Recommendation 5. The PSER objective should allow an exemption for practices with few patients who speak languages other than English.</p>	<p>Recommendation 6. Certified EHRs should support access to educational resources from a wide variety of resources including self-developed content, enhanced selection and tailoring, matching corresponding English and non-English resources, and a history of resources provided to the patient.</p>	<p>Recommendation 7. The value of the PSER objective is enhanced with a greater variety of high-quality resources that are widely accessible for use with patients and families, including the testing of resources for suitable content, format, and user understanding.</p>

Table A-1. Recommendations (continued)

Proposed objectives (SGRP)	Final objectives	Major findings	Policy recommendations (RQ1 how to improve objective)	EHR innovations (RQ2)	Things to make sure users get what they want out of it (RQ3 increasing the value)
<p>207: Secure Messaging EP Objective: Use secure electronic messaging to communicate with patients on relevant health information. Measure: More than 10%* of patients use secure electronic messaging to communicate with EPs.</p>		<p>Convenient for both patients and providers. Most stakeholders say that asynchronous secure messaging is convenient for both patients and providers. It avoids the frustration and miscommunication that can occur with “telephone tag.” Following a clinic visit, providers can follow up with additional information and patients can ask questions they may have forgotten. Concerns about message volume and inappropriate use. However, providers are also concerned about being “bombarded” with patient messages, patients using secure messaging inappropriately (e.g., for urgent matters, in place of coming in for a visit), being accessible to patients at all times, and about added—and unreimbursed—time spent on messaging with patients and families.</p>	<p>Note: Since stakeholders had limited experience using secure messaging with patients, no recommendations were identified for improving this objective based on data collected from stakeholders.</p>	<p>Recommendation 8. As a workflow tool, secure messaging EHR features should help users save time, improve throughput, and identify delays or potential errors.</p>	<p>Recommendation 9. Stakeholders identified value-based care or other payment mechanisms to promote use of secure messaging among providers, and the importance of promoting the use of secure messaging among patients, leveraging the “network effect” to increase value to stakeholders.</p>

Table A-1. Recommendations (continued)

Proposed objectives (SGRP)	Final objectives	Major findings	Policy recommendations (RQ1 how to improve objective)	EHR innovations (RQ2)	Things to make sure users get what they want out of it (RQ3 increasing the value)
<p>207: Secure Messaging (continued)</p>		<p>Secure messaging can improve communication. Some providers have experienced improved communication with patients using secure messaging. Patients may be more open and honest with online communication, allowing providers to get “a really honest point of view.” Secure messaging also allows providers to better understand how patients are doing between visits.</p>			

Table A-1. Recommendations (continued)

Proposed objectives (SGRP)	Final objectives	Major findings	Policy recommendations (RQ1 how to improve objective)	EHR innovations (RQ2)	Things to make sure users get what they want out of it (RQ3 increasing the value)
<p>204A: View, Download, Transmit</p> <ul style="list-style-type: none"> • EPs provide patients the ability to view online, download, and transmit (VDT) their health information within 24 hours if generated during the course of a visit and ensure the functionality is in use by patients. • Threshold for availability: high • Threshold for use: low • Labs or other types of information not generated within the course of the visit should be made available to patients within 4 business days of information becoming available 	<p>EPs/EHs provide patients with VDT ability for their health information within 24 hours if generated during the course of a visit.</p> <p>Threshold for availability: high</p> <p>Threshold for use: low</p> <p>Labs or other types of information not generated within the course of the visit available to patients within 4 business days of availability</p> <p>Add family history to data available through VDT.</p>	<p>Stakeholders generally support this objective, saying it is valuable for patients (and family members/ other caregivers) to have access to their health information online. However, there were questions about what types of health information would have to be available for viewing, downloading, and transmitting. Stakeholders' views ranged from providing access to only limited EHR content to providing open access to all information.</p>	<p>Recommendation 10. Based on limited experience using VDT with patients, stakeholders suggested allowing flexibility in the types of information that would be shared, the timeframes for sharing information, and the exemption criteria for patient populations with limited internet access.</p>	<p>Recommendation 11. Based on limited experience using an EHR to offer VDT functionality to patients, stakeholders suggested focusing on EHR features to improve patient understanding, provider communication, and flexibility in the information release process.</p>	<p>Recommendation 12. Based on limited experience using VDT functionality with patients, stakeholders suggested that more consistent ways for patients to access health data, regardless of their source, would increase the value of this objective.</p>

Table A-1. Recommendations (continued)

Proposed objectives (SGRP)	Final objectives	Major findings	Policy recommendations (RQ1 how to improve objective)	EHR innovations (RQ2)	Things to make sure users get what they want out of it (RQ3 increasing the value)
<p>204A: View, Download, Transmit (continued)</p> <ul style="list-style-type: none"> • Add family history to data available through VDT. Recommend that CEHRT provide the ability for patients to designate to whom and when a summary of care document is sent to a patient-designated recipient, building upon automated Blue Button efforts. 					

Table A-1. Recommendations (continued)

Proposed objectives (SGRP)	Final objectives	Major findings	Policy recommendations (RQ1 how to improve objective)	EHR innovations (RQ2)	Things to make sure users get what they want out of it (RQ3 increasing the value)
<p>204B: Patient-Generated Health Information (PGHI) Menu: Provide 10% of patients with the ability to submit PGHI to improve performance on high-priority health conditions, and/or to improve patient engagement in care (e.g., patient experience, pre-visit information, patient-created health goals, shared decisionmaking, advance directives, etc.). This could be accomplished through semistructured questionnaires, and EPs and EHS would choose information most relevant for their patients and/or related to high-priority health conditions they elect to focus on.</p>	<p>Menu: EPs and EHS receive provider-requested, electronically submitted PGHI through either structured or semistructured questionnaires (e.g., screening questionnaires, medication adherence surveys, intake forms, risk assessment, functional status) or secure messaging. Threshold: low</p>	<p>PGHI will make it easier for providers to monitor how patients are doing between visits, e.g., if they report on symptoms and monitor and report their blood pressure, peak flow, weight, and other measures, depending on the health condition. Stakeholders shared a number of ideas about how they would expand use of PGHI:</p> <ul style="list-style-type: none"> • Depression screening • Symptoms tracking • Monitoring blood pressure, blood glucose, peak flow, weight <p>Some stakeholders raised concerns about the reliability of devices (e.g., blood pressure cuffs, glucose meters) and patients' ability to use them correctly. However, others were not concerned saying they could calibrate readings from home with readings taken in the clinic.</p>	<p>Note: Since stakeholders had limited experience using PGHI with patients, no recommendations were identified for improving this objective based on data collected from stakeholders.</p>	<p>Recommendation 13. EHR enhancements that will reduce the time required by providers and patients to collect, obtain, review, analyze, summarize, and document relevant PGHI were viewed by stakeholders as key EHR features.</p>	<p>Note: Since stakeholders had limited experience using PGHI with patients, no recommendations were identified for increasing the value of this objective based on data collected from stakeholders.</p>

Table A-1. Recommendations (continued)

Proposed objectives (SGRP)	Final objectives	Major findings	Policy recommendations (RQ1 how to improve objective)	EHR innovations (RQ2)	Things to make sure users get what they want out of it (RQ3 increasing the value)
<p>Request Amendment to Health Record—204 D Provide patients with an easy way to request an amendment to their record online (e.g., offer corrections, additions, or updates to the record).</p>		<p>Stakeholders generally support this proposed new Stage 3 objective. They emphasize the importance of educating patients that they can request—not make—an amendment. They note that patients already can request amendments to their records, but these types of requests will likely happen more frequently as patients have easier access to their health information through the patient portal and clinical summaries.</p> <p>Potential to improve the accuracy of records.</p> <p>Stakeholders say that this objective has the potential to improve the accuracy of patients' records.</p> <p>Concerns about patients making unwarranted requests, such as to avoid something in their record that might impact insurance or employment.</p>	<p>Recommendation 14. The Amendment Request objective should allow flexibility in the manner (e.g., phone, email, letter) in which patient requests are accepted.</p>	<p>Recommendation 15. EHR enhancements to clearly identify amendment requests and amended information in the record were supported strongly by stakeholders.</p>	<p>Recommendation 16. If one provider could easily forward an amendment request to another provider, stakeholders believed the value of the objective would be increased.</p>

Table A-1. Recommendations (continued)

Proposed objectives (SGRP)	Final objectives	Major findings	Policy recommendations (RQ1 how to improve objective)	EHR innovations (RQ2)	Things to make sure users get what they want out of it (RQ3 increasing the value)
<p>302 Medication Reconciliation: EP/ EH/CAH Objective: The EP, EH, or CAH who receives a patient from another setting of care or provider of care or believes an encounter is relevant should perform reconciliation for:</p> <ul style="list-style-type: none"> • medications • medication allergies • problems <p>EP/EH/CAH Measure: The EP, EH, or CAH performs reconciliation for medications for more than 50% of transitions of care, and it performs reconciliation for medication allergies, and problems for more than 10% of transitions of care in which the patient is transitioned into the care of the EP or admitted to the EH's or CAH's inpatient or emergency department (POS 21 or 23).</p> <p>Certification Criteria: Standards work needs to be done to adapt and further develop existing standards to define the nature of reactions for allergies (i.e., severity).</p>	<p>No change</p>	<p>Stakeholders universally agreed that medication reconciliation was important and needed to occur. However, they expressed varying perceptions about the appropriate level of detail to focus on during the medication reconciliation process. There were also varying perceptions about the appropriate individuals to conduct medication reconciliation. Participants also cited the difficulty in understanding different definitions of and contexts for medication reconciliation when the patient had multiple providers and care settings.</p>	<p>Recommendation 17. The Medication Reconciliation objective should better identify what is meant by medication reconciliation because it may have different meanings in different contexts.</p>	<p>Recommendation 18. For the Medication Reconciliation objective, it is helpful to have EHR features that support the use of a single list for medications, herbals, and supplements, along with a place to store the identity of each treating prescriber for each medication, as well as contextual information about a medication (such as notes from a prescribing provider).</p>	<p>Recommendation 19. The value of Medication Reconciliation can be increased by establishing clear roles and responsibilities for individuals who perform the steps of Medication Reconciliation.</p>

Table A-1. Recommendations (continued)

Proposed objectives (SGRP)	Final objectives	Major findings	Policy recommendations (RQ1 how to improve objective)	EHR innovations (RQ2)	Things to make sure users get what they want out of it (RQ3 increasing the value)
<p>303 Care Summary: EP/EH/CAH Objective: The EP, eligible hospital or CAH who receives a patient from another setting of care or provider of care or believes an encounter is relevant should perform reconciliation for:</p> <ul style="list-style-type: none"> • medications • medication allergies • problems <p>EP/EH/CAH Measure: The EP, EH, or CAH performs reconciliation for medications for more than 50% of transitions of care, and it performs reconciliation for medication allergies, and problems for more than 10% of transitions of care in which the patient is transitioned into the care of the EP or</p>	<p>EPs/EHs/CAHs provide a summary of care record during transitions of care Threshold: No change Types of transitions: Transfers of care from one site of care to another (e.g., Hospital to: PCP, hospital, SNF, HHA, home, etc.) Consult (referral) request (e.g., PCP to Specialist; PCP, SNF to ED) [pertains to EPs only] Consult result note (e.g. consult note, ER note) Summary of care may (at the discretion of the provider organization) include, as relevant: A narrative (synopsis, expectations, results of a consult) [required for all transitions] Overarching patient goals and/or problem-specific goals Patient instructions (interventions for care) Information about known care team members</p>	<p>Overall, stakeholders felt that this objective provided better clarity around information sharing than what was provided in Stage 2. Stakeholders agreed that information sharing was important and sought targeted information to be shared rather than the entire chart.</p>	<p>Recommendation 20. The Care Summaries for Consults and Referrals objective should have more flexible thresholds and timeframes that match the context of care to avoid reducing their quality.</p>	<p>Recommendation 21. For the Care Summaries for Consults and Referrals objective, it would be helpful to have EHR features that support access to information details such as radiology images, support for sending/receiving information from “other” systems, and ways to reliably identify “actionable” data.</p>	<p>Recommendation 22. The value of Care Summaries for Consults and Referrals objective can be increased by making actionable data harder to miss.</p>

Table A-1. Recommendations (continued)

Proposed objectives (SGRP)	Final objectives	Major findings	Policy recommendations (RQ1 how to improve objective)	EHR innovations (RQ2)	Things to make sure users get what they want out of it (RQ3 increasing the value)
<p>303 Care Summary (continued) admitted to the EH's or CAH's inpatient or emergency department (POS 21 or 23). Certification Criteria: Standards work needs to be done to adapt and further develop existing standards to define the nature of reactions for allergies (i.e., severity).</p>					

Table A-1. Recommendations (continued)

Proposed objectives (SGRP)	Final objectives	Major findings	Policy recommendations (RQ1 how to improve objective)	EHR innovations (RQ2)	Things to make sure users get what they want out of it (RQ3 increasing the value)
<p>308 Notifications EHs and CAHs send electronic notifications of significant health care events in a timely manner to key members of the patient’s care team (e.g., the primary care provider, referring provider, or care coordinator) with the patient’s consent if required. Significant events include:</p> <ul style="list-style-type: none"> • Arrival at an ED • Admission to a hospital • Discharge from an ED or hospital • Death 	<p>Menu: EHs and CAHs send electronic notifications of significant health care events in a timely manner to known members of the patient’s care team (e.g., the primary care provider, referring provider, or care coordinator) with the patient’s consent if required.</p> <p>Significant events include:</p> <ul style="list-style-type: none"> • Arrival at an ED • Admission to a hospital • Discharge from an ED or hospital • Death <p>Threshold: low</p>	<p>Notifications are a new objective for Stage 3 MU. This objective involves electronic sharing of significant events with the patient’s designated primary care provider or care coordinator. While stakeholders thought the objective was useful, they were concerned with overwhelming the primary care provider. Other concerns included the mechanics of notifications and ensuring that important workflows are supported.</p>	<p>Recommendation 23. The Notification of Significant Events objective should have more flexible thresholds to reflect situations in which one or more care providers are not known or the patient has an incomplete care team.</p>	<p>Recommendation 24. For the Notification of Significant Events objective, helpful EHR features would be those that support automatic generation of notifications in response to appropriate “trigger” events and that support triage of incoming notification messages to an appropriate team member.</p>	<p>Recommendation 25. The value of the Notification for Significant Events objective can be increased by providing access to necessary details important to the individual receiving the notification (e.g., reason for admission) and permitting incorporation of materials from a wide variety of sources in the notification message and as its trigger.</p>

Table A-1. Recommendations (continued)

Proposed objectives (SGRP)	Final objectives	Major findings	Policy recommendations (RQ1 how to improve objective)	EHR innovations (RQ2)	Things to make sure users get what they want out of it (RQ3 increasing the value)
<p>308 Notifications (continued) EH Measure: For 10% of patients with a significant health care event (arrival at an ED, hospital admission, discharge from an ED or hospital, or death), EH/CAH will send an electronic notification to at least one key member of the patient's care team, such as the primary care provider, referring provider or care coordinator, with the patient's consent if required, within 2 hours of when the event occurs.</p>					

Table A-2. Proposed Stage 3 meaningful use objectives in patient and family engagement and care coordination as of May 20, 2014

Patient and Family Engagement Objectives				
ID #	Stage 2		Proposed Stage 3 1	
	Objective	Measures	Objective	Measures
204A	<p>View, download, transmit Provide patients VDT ability for their health information within 4 business days of the information being available to the EP.</p>	<ul style="list-style-type: none"> • (EP) > 50% of patients provided online access to their health information within 4 business days • (EP) > 5% of patients view, download, or transmit their information to third party • (EH) > 50% of all patients who are discharged from inpatient or ED have information available online within 36 hours of discharge • (EH) > 5% of all patients (or authorized representatives) who are discharged view, download, or transmit information to third party 	<p>View, download, transmit Eligible Professionals/Eligible Hospitals provide patients with the ability to view online, download, and transmit (VDT) their health information within 24 hours if generated during the course of a visit and ensure the functionality is in use by patients. Add family history to data available through VDT</p>	<ul style="list-style-type: none"> • Threshold for availability: High (i.e., the functionality is available to the majority of patients; it does not require patients to view information online, if they chose not to) • Threshold for use: low • Labs or other types of information not generated within the course of the visit should be made available to patients within 4 business days of information becoming available
204B	New	—	<p>PGHI Menu: EPs/EHs receive provider-requested, electronically submitted PGHI through either:</p> <ul style="list-style-type: none"> • structured or semistructured questionnaires (e.g., screening questionnaires, medication adherence surveys, intake forms, risk assessment, functional status) • or secure messaging. 	<ul style="list-style-type: none"> • Provide low threshold of patients ability to submit PGHI

Table A-2. Proposed Stage 3 meaningful use objectives in patient and family engagement and care coordination as of May 20, 2014 (continued)

Patient and Family Engagement Objectives				
ID #	Stage 2		Proposed Stage 3¹	
	Objective	Measures	Objective	Measures
204D	New	—	Request amendment to health records (Certification criteria) Provide patients with an easy way to request an amendment to their record online (e.g., offer corrections, additions, or updates to the record)	Not specified
205	Visit Summary/ clinical summary Provide clinical summaries for patients for each office visit.	<ul style="list-style-type: none"> (EP) Clinical summaries provided to patients or patient-authorized representatives within 1 business day for > 50% of office visits 	Clinical summary <ul style="list-style-type: none"> Core: EPs provide office-visit summaries to patients or patient-authorized representatives with relevant, actionable information, and instructions pertaining to the visit in the form/media preferred by the patient Summaries should be shared with the patient according to their preference (e.g., online, printed handout), if the provider has implemented the technical capability to meet the patient preference Certification criteria: CEHRT allows provider organizations to configure the summary reports to provide relevant, actionable information related to a visit. 	<ul style="list-style-type: none"> Threshold: medium

Table A-2. Proposed Stage 3 meaningful use objectives in patient and family engagement and care coordination as of May 20, 2014 (continued)

Patient and Family Engagement Objectives				
ID #	Stage 2		Proposed Stage 3¹	
	Objective	Measures	Objective	Measures
206	<p>Patient-specific education resources Use CEHR to identify patient-specific education resources and provide those resources to the patient.</p>	<ul style="list-style-type: none"> • (EP) Patient-specific education resources identified by CEHRT are provided to > 10% of patients • (EH) > 10% of patients admitted to EHs or CAH inpatient or ED are provided patient-specific education resources identified by CEHRT 	<p>Patient-specific education resources</p> <ul style="list-style-type: none"> • Continue educational material objective from Stage 2 for Eligible Professionals and Hospitals • Additionally, EPs/EH use CEHRT capability to provide patient-specific educational material in non-English speaking patient's preferred language, if material is available, using preferred media (e.g., online, print-out from CEHRT). • Certification criteria: EHRs are capable of providing patient-specific educational materials in at least one non-English language 	<ul style="list-style-type: none"> • At least one patient receives educational material in that patient's non-English language • Low % (e.g., 10) of all patients receive educational material (by the provider's own selection)
207	<p>Secure electronic messaging Use secure electronic messaging to communicate with patients on relevant health information.</p>	<ul style="list-style-type: none"> • (EP) A secure message was sent using the electronic messaging function of CEHRT by more than 5% of patients (or authorized representatives) 	<p>Secure electronic messaging</p> <ul style="list-style-type: none"> • Core: EPs • Patients use secure electronic messaging to communicate with EPs on clinical matters. • Certification criteria: EHRs have the capability to: <ul style="list-style-type: none"> – Indicate whether the patient is expecting a response to a message they initiate – Track the response to a patient-generated message (e.g., no response, secure message reply, telephone reply) 	<ul style="list-style-type: none"> • Threshold: low (e.g. 5% of patients send secure messages)

Table A-2. Proposed Stage 3 meaningful use objectives in patient and family engagement and care coordination as of May 20, 2014 (continued)

Care Coordination Objectives				
ID #	Stage 2		Proposed Stage 3 1	
	Objective	Measures	Objective	Measures
302	<p>Medication reconciliation The EP/EH who receives a patient from another setting of care or provider of care or believes an encounter is relevant should perform medication reconciliation.</p>	<p>The EP, EH, or CAH performs medication reconciliation for more than 50% of transitions of care in which the patient is transitioned into the care of the EP.</p>	<p>Medication reconciliation EPs/EHs/ CAHs who receive patients from another setting of care perform medication reconciliation.</p>	<p>Threshold: no change</p>
303	<p>Care summary The EP/EH/CAH who transitions their patient to another setting of care or provider of care or refers their patient to another provider of care provides summary care record for each transition of care or referral.</p>	<p>1. The EP, EH, or CAH that transitions or refers their patient to another setting of care or provider of care provides a summary of care record for more than 50% of transitions of care and referrals. 2. The EP, EH, or CAH that transitions or refers their patient to another setting of care or provider of care provides a summary of care record for more than 10% of such transitions and referrals.</p>	<p>Summary of care for transfers of care EPs/EHs/ CAHs provide a summary of care record during transitions of care. Types of transitions:</p> <ul style="list-style-type: none"> • Transfers of care from one site of care to another (e.g., Hospital to: PCP, hospital, SNF, HHA, home, etc.) • Consult (referral) request (e.g., PCP to Specialist; PCP, SNF to ED) [pertains to EPs only] • Consult result note (e.g., consult note, ER note) 	<p>Threshold: no change</p>

Table A-2. Proposed Stage 3 meaningful use objectives in patient and family engagement and care coordination as of May 20, 2014 (continued)

Care Coordination Objectives				
ID #	Stage 2		Proposed Stage 3 1	
	Objective	Measures	Objective	Measures
303	Care summary (continued)	<p>Either (a) electronically transmitted using CEHRT to a recipient or (b) where the recipient receives the summary of care record via exchange facilitated by an organization that is a NwHIN Exchange participant or in a manner that is consistent with the governance mechanism ONC establishes for the nationwide health information network.</p> <p>3. An EP, EH, or CAH must satisfy one of the two following criteria:</p> <p>(A) conducts one or more successful electronic exchanges of a summary of care document, as part of which is counted in "measure 2" (for EPs the measure at §495.6(j)(14)(ii).</p>	<p>Summary of care may (at the discretion of the provider organization) include, as relevant:</p> <ul style="list-style-type: none"> • A narrative that includes a synopsis of current care and expectations for consult/transition or the results of a consult [required for all transitions] • Overarching patient goals and/or problem-specific goals • Patient instructions, suggested interventions for care during transition • Information about known care team members (including a designated caregiver) <p>Threshold: no change</p>	

Table A-2. Proposed Stage 3 meaningful use objectives in patient and family engagement and care coordination as of May 20, 2014 (continued)

Care Coordination Objectives				
ID #	Stage 2		Proposed Stage 3 1	
	Objective	Measures	Objective	Measures
308	New	—	Notifications <ul style="list-style-type: none"> • Menu: EHs and CAHs send electronic notifications of significant health care events in a timely manner to known members of the patient's care team (e.g., the primary care provider, referring provider, or care coordinator) with the patient's consent if required • Significant events include: <ul style="list-style-type: none"> – Arrival at an ED – Admission to a hospital – Discharge from an ED or hospital – Death 	Threshold: low

Appendix B: Consent Form to Participate in Focus Group

Evaluation of Stage 3 Meaningful Use Objectives

Consent to Participate in Focus Group

The following information is provided to inform you about the research project and your participation in it. Please read this form carefully and feel free to ask any questions you may have about this study and the information given below. You will be given an opportunity to ask questions, and your questions will be answered. Also, you will be given a copy of this consent form.

Your participation in this research study is voluntary. You are also free to withdraw from this study at any time. In the event new information becomes available that may affect the risks or benefits associated with this research study or your willingness to participate in it, you will be notified so that you can make an informed decision whether or not to continue your participation in this study.

Purpose of the Study

This research is sponsored by Agency for Healthcare Research and Quality (AHRQ), an agency within the U.S. Department of Health and Human Services, and is being led by researchers from RTI International, with participation from UNC Chapel Hill Health Centers and Vanderbilt University Medical Center. The purpose of this research is to gain an understanding of the proposed Stage 3 meaningful use (MU) objectives in the areas of care coordination and/or patient and family engagement. This will be accomplished by gathering practical feedback from focus group participants about the draft Stage 3 MU objectives, the EHR innovations to support the objectives, and the anticipated value provided to organizations pursuing the objectives. You are being asked to participate in this research because of your role engaging with staff members or stakeholders in activities related to care coordination or patient and family engagement, and your perspective is valuable for this project.

Study Size and Procedures

This study will include up to 18 participants in the focus groups.

During the focus group, the facilitators will ask questions about your experiences with care delivery staff, including their activities relating to care coordination or patient and family engagement, health IT, and workflow and practice patterns. The focus group should last approximately 90 minutes and will be audio-recorded with your permission. Participants will be asked *not* to refer to themselves by full name and *not* to name the location where they work.

Expected Costs

There are no expected costs to you as a participant in this study, other than the time spent in discussion with the researcher.

Potential Risks or Discomforts

There is a risk that the audio tapes of your interview could be lost or stolen. There is also a potential that signed documents might be lost or stolen. We are taking steps to minimize these risks by (a) requiring that participants agree not to discuss the interview's proceedings, (b) recording only first names of participants on the recordings, (c) temporarily storing written items and tapes in lockable briefcases and permanently storing them in lockable desks and file cabinets, and (d) assigning a random case and subject number to all audio and print materials. We will destroy the tapes and documents at the earliest opportunity upon completion of our reporting. We will not contact participants after the completion of this session, except to review and optionally comment on the transcribed meeting summary produced from the session.

This study may cause some inconvenience to you, typically associated with the time involved in the study. There may also be discomfort associated with some of the questions asked.

The discomforts or risks are expected to not exceed those of your employment, and are anticipated to be mostly psychological in nature. For example, anticipated discomforts may include potential feelings of inadequacy or disclosure about your performance. You are not obligated to answer any particular questions asked and may withdraw from the study at any time.

Compensation in Case of Study-Related injury

If you are injured because you are in this study you can get reasonable, immediate, and necessary medical care for your injury at a nearby medical center, or if convenient, VUMC or UNCHC without charge to you. There are no plans for the investigators to pay for the costs of care beyond your injury, or to give you money for such injury.

Benefits of the Study

Benefits to science and humankind that might result from this study: This study will help the investigators better understand how to improve the proposed Stage 3 MU objectives in the areas of care coordination and patient and family engagement, including what EHR innovations or staff practices could improve the value associated with implementing proposed Stage 3 MU objectives.

Compensation

Participants will be offered no compensation.

Circumstances to Withdraw

The principal investigator may withdraw you from this study if at any time it is deemed that continuing in the study would pose a risk to you or others.

What Happens if You Choose to Withdraw from the Study

Participation is entirely voluntary and will not have any effect on your work as a staff member or any other benefits to which you are entitled. You are under no obligation to answer any particular questions posed during the interview or on the survey.

You may withdraw from the study at any time. There is no penalty if you choose to withdraw from the study. If you decide to withdraw from the study, any audiotapes and/or survey responses will be destroyed and not used in any way.

Confidentiality

All efforts, within reason and in accordance with applicable law, will be made to keep your personal information in your research record confidential but total confidentiality cannot be guaranteed. All records collected during this study, including this informed consent document, will be accessible only to key research personnel. All electronic information will be stored on password-protected computers. Additionally all print materials will be stored in a locked cabinet and de-identified using a random case and subject number. Finally, only aggregate data will be disseminated, so your data will never be presented singularly; it will be presented with all the others that participate in this study.

During the interview, please use your first name only. Recordings of the sessions are being kept for the purpose of ensuring accuracy. No one other than the research staff will hear the tapes. The tapes will be destroyed after the study's findings are released. By using only first names it becomes more difficult to identify any particular participant in the event a recording is lost or stolen.

Your responses will be kept confidential under Section 944(c) of the Public Health Service Act. 42 U.S.C. 299c-3(c). That law requires that information collected for research conducted or supported by AHRQ that identifies individuals or establishments be used only for the purpose for which it was supplied.

Privacy

If you or someone else is in danger, or if we are required to do so by law, your information may be shared with the RTI International, UNC Chapel Hill Health Centers or Vanderbilt University Medical Center Institutional Review Boards or the Federal Government Office for Human Research Protections.

Additional information

For additional information about this study, please contact Dr. Jonathan Wald, the study director. He can be reached at 781-370-4019, or via email at jwald@rti.org.

For additional information about giving consent or your rights as a participant in this study, to discuss problems, concerns, and questions, or to offer input, please feel free to contact RTI

International's Office of Research Protection at 866-214-2043, the UNC Chapel Hill Health Center's Institutional Review Board Office at 919-966-3113 or by email to IRB_subjects@unc.edu, or Vanderbilt University Medical Center's Institutional Review Board Office at 615-322-2918 or toll free at 866-224-8273.

Statement of understanding

By signing this document I am stating that I have read (or have had read to me) this informed consent statement and that it has been explained to me verbally. I am also stating that all of my questions have been answered. By signing this document I attest that I understand the contents of this document and freely and voluntarily agree to participate in this study.

Signature: _____ **Date:** _____

I agree that this interview may be audio recorded. _____

I do not consent for this interview to be audio recorded. _____

Appendix C: Consent Form to Participate in Clinic Staff Interview

Evaluation of Stage 3 Meaningful Use Objectives

Consent to be Interviewed

The following information is provided to inform you about the research project and your participation in it. Please read this form carefully and feel free to ask any questions you may have about this study and the information given below. You will be given an opportunity to ask questions, and your questions will be answered. Also, you will be given a copy of this consent form.

Your participation in this research study is voluntary. You are also free to withdraw from this study at any time. In the event new information becomes available that may affect the risks or benefits associated with this research study or your willingness to participate in it, you will be notified so that you can make an informed decision whether or not to continue your participation in this study.

Purpose of the Study

This research is sponsored by Agency for Healthcare Research and Quality (AHRQ), an agency within the U.S. Department of Health and Human Services, and is being led by researchers from RTI International, UNC Chapel Hill Health Centers and Vanderbilt University Medical Center. The purpose of this research is to gain an understanding of the proposed Stage 3 meaningful use (MU) objectives in the areas of care coordination and patient and family engagement. This will be accomplished by gathering practical feedback from hospital and ambulatory clinic sites about the draft Stage 3 MU objectives, the EHR innovations to support the objectives, and the anticipated value provided to organizations pursuing the objectives. You are being asked to participate in this research because you are a key staff member or stakeholder in activities related to care coordination or patient and family engagement, and your perspective is valuable for this project.

Study Size and Procedures

This study will include up to 80 health care professionals, including physicians, nurses, clinical assistants, office staff, and up to 30 participants in focus groups.

During the interview, the interviewer will ask questions about your experiences with care delivery, including activities relating to care coordination or patient and family engagement, health IT, and workflow and practice patterns. The interview session should last approximately 60 minutes and will be audio-recorded with your permission. Participants will be asked *not* to refer to themselves by full name and *not* to name the location where they work.

Expected Costs

There are no expected costs to you as a participant in this study, other than the time spent in discussion with the researcher.

Potential Risks or Discomforts

There is a risk that the audio tapes of your interview could be lost or stolen. There is also a potential that signed documents might be lost or stolen. We are taking steps to minimize these risks by (a) requiring that participants agree not to discuss the interview's proceedings, (b) recording only first names of participants on the recordings, (c) temporarily storing written items and tapes in lockable briefcases and permanently storing them in lockable desks and file cabinets, and (d) assigning a random case and subject number to all audio and print materials. We will destroy the tapes and documents at the earliest opportunity upon completion of our reporting. We will not contact participants after the completion of this session, except to review and optionally comment on the transcribed meeting summary produced from the session.

This study may cause some inconvenience to you, typically associated with the time involved in the study. There may also be discomfort associated with some of the questions asked.

The discomforts or risks are expected to not exceed those of your employment, and are anticipated to be mostly psychological in nature. For example, anticipated discomforts may include potential feelings of inadequacy or disclosure about your performance. You are not obligated to answer any particular questions asked and may withdraw from the study at any time.

Compensation in Case of Study-Related injury

If you are injured because you are in this study you can get reasonable, immediate, and necessary medical care for your injury at a nearby medical center, or if convenient, VUMC or UNCHC without charge to you. There are no plans for the investigators to pay for the costs of care beyond your injury, or to give you money for such injury.

Benefits of the Study

Benefits to science and humankind that might result from this study: This study will help the investigators better understand how to improve the proposed Stage 3 MU objectives in the areas of care coordination and patient and family engagement, including what EHR innovations or staff practices could improve the value associated with implementing proposed Stage 3 MU objectives.

Benefits you might get from being in this study: You may have a better understanding of how your clinic operates and how your team works to provide care, and of proposed Stage 3 MU objectives.

Compensation

Participants will be offered no compensation.

Circumstances to Withdraw

The principal investigator may withdraw you from this study if at any time it is deemed that continuing in the study would pose a risk to you or others.

What Happens if You Choose to Withdraw from the Study

Participation is entirely voluntary and will not have any effect on your work as a staff member or any other benefits to which you are entitled. You are under no obligation to answer any particular questions posed during the interview or on the survey.

You may withdraw from the study at any time. There is no penalty if you choose to withdraw from the study. If you decide to withdraw from the study, any audiotapes and/or survey responses will be destroyed and not used in any way.

Confidentiality

All efforts, within reason and in accordance with applicable law, will be made to keep your personal information in your research record confidential but total confidentiality cannot be guaranteed. All records collected during this study, including this informed consent document, will be accessible only to key research personnel. All electronic information will be stored on password-protected computers. Additionally all print materials will be stored in a locked cabinet and de-identified using a random case and subject number. Finally, only aggregate data will be disseminated, so your data will never be presented singularly; it will be presented with all the others that participate in this study.

During the interview, please use your first name only. Recordings of the sessions are being kept for the purpose of ensuring accuracy. No one other than the research staff will hear the tapes. The tapes will be destroyed after the study's findings are released. By using only first names it becomes more difficult to identify any particular participant in the event a recording is lost or stolen.

Your responses will be kept confidential under Section 944(c) of the Public Health Service Act. 42 U.S.C. 299c-3(c). That law requires that information collected for research conducted or supported by AHRQ that identifies individuals or establishments be used only for the purpose for which it was supplied.

Privacy

If you or someone else is in danger, or if we are required to do so by law, your information may be shared with the RTI International, UNC Chapel Hill Health Centers or Vanderbilt University Medical Center Institutional Review Boards or the Federal Government Office for Human Research Protections.

Additional information

For additional information about this study, please contact Dr. Jonathan Wald, the study director. He can be reached at 781-370-4019, or via email at jwald@rti.org.

For additional information about giving consent or your rights as a participant in this study, to discuss problems, concerns, and questions, or to offer input, please feel free to contact RTI International’s Office of Research Protection at 866-214-2043, the UNC Chapel Hill Health Center’s Institutional Review Board Office at 919-966-3113 or by email to IRB_subjects@unc.edu, or Vanderbilt University Medical Center’s Institutional Review Board Office at 615-322-2918 or toll free at 866-224-8273.

Statement of understanding

By signing this document I am stating that I have read (or have had read to me) this informed consent statement and that it has been explained to me verbally. I am also stating that all of my questions have been answered. By signing this document I attest that I understand the contents of this document and freely and voluntarily agree to participate in this study.

Signature: _____ **Date:** _____

I agree that this interview may be audio recorded. _____

I do not consent for this interview to be audio recorded. _____

Appendix D: Focus Group Discussion Guide

Note: This guide includes focuses on Patient and Family Engagement. If we have time, we will discuss other related topics.

1. Introduction and Consent

My name is []. I am researcher with RTI International, a non-profit research organization based in NC. [Introduce all team members]. This focus group is part of a study funded by the Agency for Healthcare Research and Quality, a federal agency, and being conducted by RTI with our partners, University of North Carolina and Vanderbilt University, to help improve proposed Stage 3 meaningful use objectives for care coordination and patient and family engagement, which are currently in draft form.

The purpose of this meeting is to learn about what you are learning from the field in patient and family engagement and other related areas such as care coordination. We are also interested in getting your perspectives about the proposed Stage 3 MU objectives for patient and family engagement in these areas: How can the proposed objectives be improved? What EHR innovations help or would help practices and hospitals meet the objectives? What would increase the value of the objectives to practices and hospitals overall?

Our team will speak with 2 RECs and visit a total of ten UNC-affiliated or VUMC-affiliated sites for input on patient and family engagement and care coordination, and prepare a report for AHRQ, which will be shared with the ONC – Office of the National Coordinator of Health IT, and CMS - the Centers for Medicare and Medicaid Services. We look forward to learning from your experiences and sharing information with policymakers about how the objectives can be refined.

The purpose of the focus group is to learn from your experience. It is **not** to assess the REC – or individual staff – in any way. And as you’ll see in the consent form, your responses are confidential.

Consent

Before we get started I would like to request your consent to participate in this study. *[Provide consent form and review with respondents]*

Your responses are confidential. They will not be shared with anyone outside of our research team. In our report to AHRQ, we will present findings at an aggregate level and will not identify who said what.

You can choose not to answer any questions and can end the interview at any time.

We would like to audio-record our conversation so that we are sure to capture everything accurately. Is that OK with everyone?

[Obtain signed consent form; give one copy to respondents]

- *If subject agrees to audio recording:*
I have set up the tape recorder here in front of us. Please speak clearly during the interview so that the tape will record your voice accurately. I may ask you to repeat a response to make sure that it is recorded.
- *If subject does not agree to audio recording:*
We will take notes during our conversation today. I may ask you to slow down or pause for a moment so that I can record what you say accurately.

This interview will take about 1 hour. We appreciate your time.

Do you have any questions for us before we get started?

2. Introduction

I would like to start by asking everyone to introduce themselves and share their role at the REC. Please include

- How long have you been at the REC
- Your title and role and how long you been in this specific role
- What you did before you were at the REC
- Your responsibilities related to helping providers meet MU and specifically for patient and family engagement (PFE)

For all of these questions, I would like you to think about the range of practices and hospitals with which you have worked. If there are characteristics of a given practice or the populations they serve that influence the answers or objectives, please let us know.

3. Overview of Patient and Family Engagement (PFE)

We will start by talking generally about the approach to PFE in practices where you have worked. Then we will move to the proposed Stage 3 MU objectives for PFE.

The term patient and family engagement is used in a variety of ways. For the purposes of our discussion, please think about the following:

Description of PFE: Using health IT to facilitate patients and their family members' active engagement in their health care, including: accessing their health information; becoming informed about their health and health care; communicating and collaborating effectively with others in their health care team, participating in making well-informed decisions; self-managing their health conditions; and navigating the health care system.

- Is there anything you would add, take away, or change in this 'Description of PFE'?
- What are the different strategies and activities you have seen that facilitate PFE? (possible probe depending on discussion – ask for examples)
 - Characteristics of the practice?
 - Champions for PFE? What role do they play?
 - Health IT?

- Specific features?
 - Do you have examples?
- What are barriers you have seen to supporting PFE? (possible probe depending on discussion – ask for examples)
 - Characteristics of the practice?
 - Detractors?
 - Health IT?
 - Specific features?
 - Do you have examples?
- What would you consider the greatest accomplishments you have seen related to PFE? What have been the biggest challenges?
 - What factors make a difference?
 - Champions
 - Technology use
- What types of health IT innovations would be helpful to facilitate PFE?
- What changes in health IT do you envision in the next 1-2 years that will impact PFE? What are future plans, priorities, and strategies for health IT in the clinic?

4. Proposed Stage 3 MU Objectives for Patient and Family Engagement

Now I would like to turn our attention to the proposed Stage MU objectives for patient and family engagement. I would like to ask your perspectives about the proposed objectives based on your experience supporting practices. First, let's talk about the set of proposed objectives overall, then we'll go into more depth about some of the individual proposed objectives. *(Provide respondents a copy of the proposed objectives as a reference for the discussion)*

- To what extent are the practices you support already addressing any of the proposed Stage 3 objectives?
- How would the objectives impact practices? What would be the value and benefits to different stakeholders (clinic-level, clinicians, patients, families)? What would be the drawbacks?
- What factors would facilitate addressing the proposed objectives? What are the challenges?
- What (if any) changes would practices need to make (e.g., workflow, systems, tools) to address the proposed Stage 3 objectives?

4.1 Clinical Summaries (#206)

Questions for clinic leadership (administrative and clinical)

- What are your reactions to the proposed Stage 3 objective? What (if any) changes would you need to make to address this objective?

- How does the proposed stage 3 objective align with priorities and strategies for practices you support?
- Tell us about the use of clinical summaries you have seen
- Overall, has use of clinical summaries worked out as anticipated?
 - What works well? What could be improved?
 - What have been the challenges? Facilitators?
- To what extent would the EHRs you have seen support this proposed objective?
 - What EHR or IT capabilities are most important for effective implementation of clinical summaries?
 - What are the EHR or IT challenges?
 - What about other challenges such as workflow or policy?
- What recommendations do you have about the proposed objective?
 - What EHR innovations would help clinics to achieve the objective?
 - What EHR innovations should be supported in order to enhance the value of this objective to patients, providers, or other stakeholders?
 - How can a practice to gain the most value from this proposed objective?
- *(Ask for sample clinical summaries and any other relevant documents)*

Note: Repeat questions (tailoring as needed) focusing on the additional proposed MU objectives for PFE:

- Electronic Access to Health Information (View/Download/Transmit) (#204a)
- Patient-generated Health Information (#204b)
- Patient- Specific Education Resources (#206)
- Secure Electronic Messaging (#207)
- Record communication preferences (#208)

5. Wrap-up

- If you had the ear of policy-makers, what would you tell them about moving forward with proposed Stage 3 MU *objectives* for patient/family engagement?
 - What policy decisions, EHR innovations would help clinics like this be successful?
 - What would provide the greatest value to different stakeholders (health care systems, clinicians, patients, families)?
- Is there anything else you would like to share about the topics we have discussed?

Provide contact information/business cards and invite them to follow up if they think of anything else they would like to share at a later point.

Thanks for taking the time to talk with us today!

Appendix E: Care Coordination Interview Guide

Note: This guide includes both core questions and questions specific to individuals in different roles:

- Clinical leadership (e.g., medical director, administrative director)
- Physician and other health care provider
- Administrative staff
- IT staff

1. Introduction and Consent

Consent – Review highlights – make sure they sign

2. Introduction

I would like to start by asking you about your role in the [department or clinic]:

- How long have you been at the [department or clinic]?
- What is your title and role? How long have you been in this specific role?
- What are your responsibilities related to Meaningful Use and to care coordination (CC)?

3. Vision of Care Coordination

We will start by talking generally about care coordination, followed by a more in-depth discussion of the different CARE COORDINATION activities. We will then move on to the proposed Stage 3 MU objectives for Care Coordination.

The term care coordination is used in a variety of ways and encompasses both receiving and sending information about patients. For the purposes of our discussion, please focus on (1) what happens during transitions of care between settings, such as development and sharing of care summaries and care plans, (2) notifications to providers such as communication of referral results to the referring provider and notification of significant healthcare events and (3) medication reconciliation.

Core Questions:

- How would you say that CC fits into the overall vision or mission of the [department or clinic]?
- What are the different strategies and activities in the [department or clinic] that support or embody CC?
- Are there people that are the most involved in these CC activities at the [department or clinic]? If so, who are they and what role do they play?

Questions for clinic leadership (administrative and clinical)

- From your perspective as a [clinical or administrative] leader at the [department or clinic], what are the priorities for CC and specifically for using health IT to support CC? What opportunities or challenges do you see?

- What changes do you envision in the next 1-2 years that will impact CC? What are future plans, priorities, and strategies for Health IT and care coordination and how do they fit into your overall plans?

Questions for physicians and other clinicians

- As a clinician, what do you see as the care coordination priorities? How can use the use of Health IT support care coordination? Are there any challenges?
- Are there any changes, clinical or otherwise, that you envision impacting care coordination? What are the future plans for cc?

Questions for administrative staff

- In your work at [department of clinic] what do you see as the priorities for CC? How would you use health IT to support cc? Are there any opportunities or challenges you can think of?

Questions for IT staff

- From your perspective as an IT professional, what do you see as the most important ways in which health IT can be used to support CC? What are the opportunities? What are the challenges?
- What changes in health IT do you envision in the next 1-2 years that will impact CC? What are future plans, priorities, and strategies for health IT in the [department or clinic]?

4. CARE COORDINATION ACTIVITIES

Now that we've had a high level discussion about care coordination in your [department or clinic], I would like to move to a more in-depth conversation about the various care coordination activities performed. I would like to understand the processes involved in each care coordination activity, whether or not there is EHR or IT support for the activity, and the impact of that EHR or IT support (or impact it could have). We will make sure to talk about your activities related to the care coordination objectives proposed for Stage 3 MU (i.e., reconciliation, care summary, care plan, and notifications), but we are also interested in other care coordination activities that are important to – and conducted in – your [department or clinic].

Core

- What care coordination activities occur in the [department or clinic] related to reconciliation, care summaries, care plans, notifications and other activities?
- Are these activities supported by the EHR/Health IT?
 - What kinds of things go wrong with respect to reconciliation, care summaries, care plans and notifications?
 - What is necessary to make things run smoothly?
- For each CC activity supported by the EHR/ IT, please describe the process for the activity as well as the impact of the EHR or IT on the activity.
 - How does the EHR or IT help to facilitate the activity? Detract from the activity?
 - What EHR or IT capabilities are most important for effective implementation of the CC activity?
 - What are the EHR or IT challenges?

- Are there EHR or IT capabilities/enhancements that would help make the CC activity better?
- Overall, has the process for the CC activity worked out as anticipated? What have been the challenges?
- For each CC activity not currently supported by the EHR or IT:
 - Would EHR or IT capabilities help make the CC activity better? If so, what capabilities would be helpful?
- What would you consider the [department's or clinic's] greatest accomplishments related to CC? What have been the biggest challenges?

Questions for clinic leadership (administrative and clinical)

- What is the priority for CC and MU relative to other activities at the clinic?

Questions for physicians and other clinicians

- Thinking about how the CC activity is implemented at the [department or clinic], what works well/not as well in terms of the workflow for clinicians? Accuracy of the activity (e.g., accuracy of medication reconciliation)?
- In your role as a clinician, what are the most important ways in which health IT helps you to coordinate the care of your patients? What are the opportunities?
- Are there ways in which health IT is a barrier to coordinating care for your patients? How can these barriers be addressed?
- What kinds of health IT innovations would be most helpful to you to coordinate care for your patients?

Questions for administrative staff

- From your perspective in an administrative role, what do you see as the most important ways in which health IT can support CC? Can you share some examples? What are the challenges?

Questions for IT staff

- What EHR or IT capabilities do users ask for to support care coordination?
- What kinds of care coordination troubleshooting do you have to do?
(*Obtain sample forms, outputs and any other relevant documents*)

5. PROPOSED STAGE 3 MU OBJECTIVES FOR CARE COORDINATION

Now I would like to turn our attention to the proposed Stage 3 MU objectives for care coordination. I would like to get your perspectives about the proposed objectives. First, let's talk about the set of proposed objectives overall, then we'll go into more depth about some of the individual proposed objectives. (*Provide respondents a copy of the proposed objectives as a reference for the discussion*). We are interested in:

Evaluation Questions and Measurement Areas
Current practices
Describe ways in which your hospital/practice already addresses areas relevant to [proposed objective]
What do you perceive as the barriers to implementing [proposed objective]?
What do you perceive as the factors that led to the successful implementation of [proposed objective], and/or any barriers?
Evaluation Question 1 – Improvement at Policy Level
How does the experience of implementing [proposed objective] compare to what was anticipated?
Recommendations related to [proposed objective]
Evaluation Question 2 – EHR Innovations
To what extent would current EHR support [proposed objective]?
What would the EHR barriers be to achieving [proposed objective]?
In what ways (if any) could these barriers be addressed?
What EHR innovations would facilitate implementation of [proposed objective]?
Evaluation Question 3 – Value
Perceived value of [proposed objective] to the practice
Perceived value of [proposed objective] for [role]
How [proposed objective] aligns with priorities, strategies, goals of the hospital department or ambulatory practice
What would increase the value of [proposed objective]
Perceived value for different stakeholders (practice leadership, providers, patients, families)

- How would the objectives impact the [department or clinic]? What would be the value and benefits to different stakeholders ([department or clinic]-level, clinicians, patients)? What would be the drawbacks?
- What factors would facilitate addressing the proposed objectives? What are the challenges?
- What (if any) changes would you need to make (e.g., workflow, systems, tools) to address the proposed Stage 3 MU objectives?

(Tailor questions according to extent to which the clinic is already addressing the objective)

Core

- What are your reactions to the objectives?
- What, if any, changes would you need to make to address them?
- To what extent would your current EHR support the proposed objectives?
- What EHR or IT capabilities are most important for effective implementation of the objectives:

- Reconciliation
- Care Summary
- Care Plan
- Notifications
- Other (as identified in admin/clinical interviews)
- What are the EHR or IT challenges or limitations for objectives:
 - Reconciliation
 - Care Summary
 - Care Plan
 - Notifications
 - Other (as identified in admin/clinical interviews)
- Are there EHR or IT capabilities/enhancements that would help make the activities related to the objectives better?
 - Reconciliation
 - Care Summary
 - Care Plan
 - Notifications
 - Other (as identified in admin/clinical interviews)
- What recommendations do you have about the proposed objectives?
 - What EHR innovations would help [departments or clinics] to achieve the objectives?
 - What EHR innovations would enhance the value of these objectives to patients, providers, or other stakeholders?

Questions for clinic leadership (administrative and clinical)

- How do the proposed Stage 3 MU objectives align with priorities and strategies for the [department or clinic]?

Questions for physicians and other clinicians

- How do the proposed objectives align with your clinical workflow and activities?

Questions for administrative staff

- How do the proposed objectives fit into your daily routine?

Question for IT staff

- To achieve the proposed Stage 3 MU objectives:
 - What changes would you have to make?
 - What EHR innovations would help?

6. Wrap-up

- If you had the ear of policymakers, what would you tell them about moving forward with proposed Stage 3 MU objectives for care coordination?
 - What policy decisions, EHR innovations would help [departments or clinics] like this be successful? What would the barriers be?
 - What would provide the greatest value to different stakeholders (hospitals, clinicians, patients)?

- Is there anything else you would like to share about the topics we have discussed?
- *Explain that we will provide summary notes from the discussion in about a week, for their review.*
- *Provide contact information and invite them to follow up if they think of anything else they would like to share at a later point.*

Thanks for taking the time to talk with us today!

Appendix F: Patient and Family Engagement Interview Guide

Note: This guide includes both core questions and questions specific to individuals in different roles:

- Clinical leadership (e.g., medical director, administrative director)
- Physician and other health care provider
- Administrative staff
- IT staff

1. Introduction and Consent

[Tailor introduction to refer to information gathered in pre-visit site contacts]

My name is []. I am researcher with RTI International, a nonprofit research organization based on NC. [Introduce all team members]. We are visiting the clinic as part of a study funded by the Agency for Healthcare Research and Quality, a federal agency. We are conducting this study in partnership with University of North Carolina and Vanderbilt University. The purpose of the study is to inform the proposed Stage 3 meaningful use objectives for patient and family engagement, which are currently in draft form.

The purpose of our visit is to learn about what [clinic name] is doing in the area of patient and family engagement, specifically related to [tailored according to information gathered in pre-site contact]. We are also interested in getting your perspectives about the proposed Stage 3 MU objectives for patient and family engagement: How can the objectives be improved? What EHR innovations would help practices to meet the objectives? What would increase the value of the objectives to clinics overall?

Our team will visit a total of five UNC-affiliated clinics and also get input from some of the RECs focusing on patient and family engagement. We are conducting additional clinic/hospital visits focusing on care coordination. We will synthesize the findings from all of the site visits and prepare a report for AHRQ – the Agency for Healthcare Research and Quality, which will make recommendations to the ONC – Office of the National Coordinator of Health IT, and CMS, the Centers for Medicare and Medicaid Services. We aim to provide practical feedback about the draft Stage 3 MU objective and EHR innovations to support the objectives. We look forward to learning from your experiences at the clinic and sharing information with policy makers about how the objectives can be refined.

The purpose of the interviews is **not** to assess the clinic – or individual staff – in any way.

Consent

Before we get started I would like to request your consent to participate in this study. *[Provide consent form and review with respondent]*

Your responses are confidential. They will not be shared with anyone else at the clinic. In our report to AHRQ, we will present findings at an aggregate level and will not identify who said what.

You can choose not to answer any questions and can end the interview at any time.

We would like to audio-record our conversation so that we are sure to capture everything accurately. Is that OK with you?

[Obtain signed consent form; give one copy to respondent]

- *If subject agrees to audio recording:*
I have set up the tape recorder here in front of us. Please speak clearly during the interview so that the tape will record your voice accurately. I may ask you to repeat a response to make sure that it is recorded.
- *If subject does not agree to audio recording:*
We will take notes during our conversation today. I may ask you to slow down or pause for a moment so that I can record what you say accurately.

This interview will take about 1 hour. Does that work for you? We understand that patient care comes first, so please let us know if you need to step out. We appreciate your time.

Do you have any questions for us before we get started?

2. Introduction

I would like to start by asking you about your role in the clinic:

- How long have you been at the clinic?
- What is your title and role? How long have you been in this specific role?
- What are your responsibilities related to MU and to patient and family engagement (PFE)?

3. Overview of Patient and Family Engagement

We will start by talking generally about the approach to PFE at the clinic. Then we will move to the proposed Stage 3 MU objectives for PFE.

The term patient and family engagement is used in a variety of ways. For the purposes of our discussion, please think about the following:

Description of PFE: Using health IT to facilitate patients and their family members' active engagement in their health care, including: accessing their health information; becoming informed about their health and health care; communicating and collaborating effectively with others in their health care team, participating in making well-informed decisions; self-managing their health conditions; and navigating the health care system.

Core:

- Is there anything you would add, take away, or change in this 'Description of PFE'?

- What are the different strategies and activities in the clinic that support or embody PFE?
- How would you say that PFE fits into the overall vision or mission of the clinic?
- Who are the champions for PFE at the clinic? What role do they play?
- How important is health IT to facilitating PFE and specific PFE strategies and priorities? What are some examples of how health IT helps to facilitate PFE? Detracts from PFE?
- What would you consider the clinic's greatest accomplishments related to PFE? What have been the biggest challenges?

Questions for clinic leadership (administrative and clinical)

- From your perspective as [clinical or administrative] leader at the clinic, what are the priorities for PFE and specifically for using health IT to support PFE?
- What changes do you envision in the next 1-2 years that will impact PFE? What are future plans, priorities, and strategies?

Questions for physicians and other clinicians

- In your role as a clinician, what are the most important ways in which health IT helps you to engage your patients (and their families) in their care? What are the opportunities?
- Are there other ways in which health IT is a barrier to engaging your patients/families? How can these barriers be addressed?
- What kinds of health IT innovations would be most helpful to you to engage your patients/families in care?

Questions for administrative staff

- From your perspective as an administrator, what do you see as the most important ways in which health IT can support PFE? Can you share some examples? What are the challenges?

Questions for IT staff

- From your perspective as an IT professional, what do you see as the most important ways in which health IT can be used to support PFE? What are the opportunities? What are the challenges?
- What changes in health IT do you envision in the next 1-2 years that will impact PFE? What are future plans, priorities, and strategies for health IT in the clinic?

4. Proposed Stage 3 MU Objectives for Patient and Family Engagement

Now I would like to turn our attention to the proposed Stage MU objectives for patient and family engagement. I would like to your perspectives about the proposed objectives. First, let's talk about the set of proposed objectives overall, then we'll go into more depth about some of the individual proposed objectives. *(Provide respondents a copy of the proposed objectives as a reference for the discussion)*

- To what extent is the clinic already addressing any of the proposed Stage 3 objectives?
- How would the objectives impact the clinic? What would be the value and benefits to different stakeholders (clinic-level, clinicians, patients, families)? What would be the drawbacks?

- What factors would facilitate addressing the proposed objectives? What are the challenges?
- What (if any) changes would you need to make (e.g., workflow, systems, tools) to address the proposed Stage 3 objectives?

4.1 Clinical Summaries (#206)

(Tailor questions according to extent to which the clinic is already addressing the objective)

Questions for clinic leadership (administrative and clinical)

- Tell me about the clinic's use of clinical summaries?
 - When did the clinic first implement clinical summaries?
 - What were motivators and goals in doing so?
- Overall, has use of clinical summaries worked out as anticipated? To what extent would you say you have achieved the goals? What have been the challenges?
- How does the proposed stage 3 objective align with priorities and strategies for the clinic?
- To what extent would your current EHR support this proposed objective?
 - What EHR or IT capabilities are most important for effective implementation of clinical summaries?
 - What are the EHR or IT challenges?
- What recommendations do you have about the proposed objective?
 - What EHR innovations would help clinics to achieve the objective?
 - What EHR innovations should be supported in order to enhance the value of this objective to patients, providers, or other stakeholders?

Questions for physicians and other clinicians

- From your perspective as a clinician, what do you see as the value and the limitations of clinical summaries (e.g., for improving care, PFE)? What would increase the value?
- Thinking about how clinical summaries are implemented at the clinic, what works well/not as well in terms of the workflow for clinicians?
- What do you tell patients/families about clinical summaries?
- What do you hear from patients/families about clinical summaries (e.g. whether/how they used them)?
- What are your reactions to the proposed Stage 3 objective? What (if any) changes would you need to make to address this objective?

Questions for administrative staff

- Thinking about how clinical summaries are implemented at the clinic, what works well/not as well in terms of the workflow for administrators?
- What are your reactions to the proposed Stage 3 objective? What (if any) changes would you need to make to address this objective?

Question for IT staff

- What EHR or IT capabilities are most important for effective use of clinical summaries?
 - What are the EHR or IT challenges and limitations?

- To achieve the proposed Stage 3 objective:
 - What changes would you have to make?
 - What EHR innovations would help?
- What EHR innovations should be supported in order to enhance the value of this objective to patients, providers, or other stakeholders?

(Obtain sample clinical summary and any other relevant documents)

Note: Repeat questions (tailoring as needed) focusing on the additional proposed MU objectives for PFE:

- Electronic Access to Health Information (View/Download/Transmit) (#204a)
- Patient-generated Health Information (#204b)
- Patient- Specific Education Resources (#206)
- Secure Electronic Messaging (#207)
- Record communication preferences (#208)

5. Wrap-up

- If you had the ear of policy-makers, what would you tell them about moving forward with proposed Stage 3 MU objectives for patient/family engagement?
 - What policy decisions, EHR innovations would help clinics like this be successful?
 - What would provide the greatest value to different stakeholders (health care systems, clinicians, patients, families)?
- Is there anything else you would like to share about the topics we have discussed?
- Explain that we will provide summary notes from the discussion in 1 week, for their review.
- Provide contact information and invite them to follow up if they think of anything else they would like to share at a later point.

Thanks for taking the time to talk with us today!