



Practical Approaches to Using Electronic Health Records for Research: Challenges and Mitigation Strategies

David Mehr, MD, MS
Rainu Kaushal, MD, MPH
Melissa Honour, MPH
Barbara Lund, MSW, MBA

March 15, 2011



Agenda

- Welcome
 - Barbara Lund, AHRQ NRC TA Lead, Massachusetts eHealth Collaborative
 - Vera Rosenthal, AHRQ NRC, Junior Service Fellow
- Grantee Introductions
- Format for Today's Session
 - Overview of Provider Engagement Issues
 - Presentations
 - Physician Responses
- Discussion



Technical Assistance Overview

- Goal: To support grantees in the meaningful progress and on-time completion of Health IT Portfolio-funded grant projects
- Technical Assistance (TA) delivered in two ways:
 - One-on-one individual TA
 - Multi-grantee webinars
 - Multi-grantee peer-to-peer teleconferences
- Ongoing evaluation to improve TA offerings



Key Resources

- AHRQ National Resource Center for Health IT
 - www.healthit.ahrq.gov
- AHRQ Points of Contact
 - Vera Rosenthal, vera.rosenthal@ahrq.hhs.gov
- AHRQ NRC TA Team
 - Erin Grant, Kai Carter, Julia Fitzgerald: Booz Allen Hamilton; grant_erin@bah.com; carter_nzinga@bah.com; Fitzgerald_julia@bah.com
 - Barbara Lund and Rachel Kell: Massachusetts eHealth Collaborative, NRC-TechAssist@AHRQ.hhs.gov
- AHRQ NRC Project Monitoring and Reporting Team: John Snow Inc.



Housekeeping

- All phone lines are UN-muted
- You may mute your own line at any time by pressing *6 (or via your phone's mute button); press * 7 to un-mute
- Questions may also be submitted at any time via 'Chat' feature on webinar console
- Online survey will be sent to each participant at conclusion of Webinar
- Discussion summary will be distributed to attendees



Grantee Introductions

- Name, Organization, Project PI
- Note any issues and challenges related to using EHRs for research



Today's Presentation

Practical Approaches to Using
Electronic Health Records for
Research:

Challenges and Mitigation Strategies



Using EHRs for Research: Setting the Stage

- Facilitator: Barbara Lund, MBA, MSW, AHRQ NRC TA Team, Massachusetts eHealth Collaborative



Using EHRs for Research: Setting the Stage (II)

- Vendors often have different priorities than researchers, resulting in delays in implementations and training
 - May charge for software modifications
 - Challenging to find the ‘right’ person at the vendor for collaboration on requests
 - Implementation, version upgrades, enhancement requests typically take longer to implement than planned



Using EHRs for Research: Setting the Stage (III)

- Limitations of EHRs for Research Studies
 - Most EHR systems are perceived to be too “bulky” and do not allow for streamlined data entry
 - Providers often use one system to enter data and a different system for analysis and reporting
 - Many traditional EHR systems lack flexibility and have limited – or highly complex – reporting systems



Using EHRs for Research: Setting the Stage (IV)

- Challenges of Structured Data Entry
 - Inconsistent input of data into EHRs
 - Many physicians prefer to hand write notes and/or dictate, and resist structured data entry
 - Limited resources available to train practice staff on required fields for data entry
 - “We’ve always done it this way!”



Today's Presenters

- David R. Mehr, MD, MS - William C. Allen Professor, Director of Research, Dept. of Family and Community Medicine, University of Missouri-Columbia School of Medicine
- Rainu Kaushal, MD MPH - Chief of the Division of Quality and Medical Informatics at Weill Cornell Medical College
- Melissa Honour - Administrative Director, Center Healthcare Informatics and Policy at Weill Cornell Medical College
- Barbara Lund, MBA, MSW – Project Director, Massachusetts eHealth Collaborative, AHRQ NRC TA Lead



Dr. David Mehr

Implementation Issues and Solutions



Issues

- Delayed implementation
- Difficulty communicating
- Software not functioning properly
- Plan for Maintaining functionality



A few Project Details

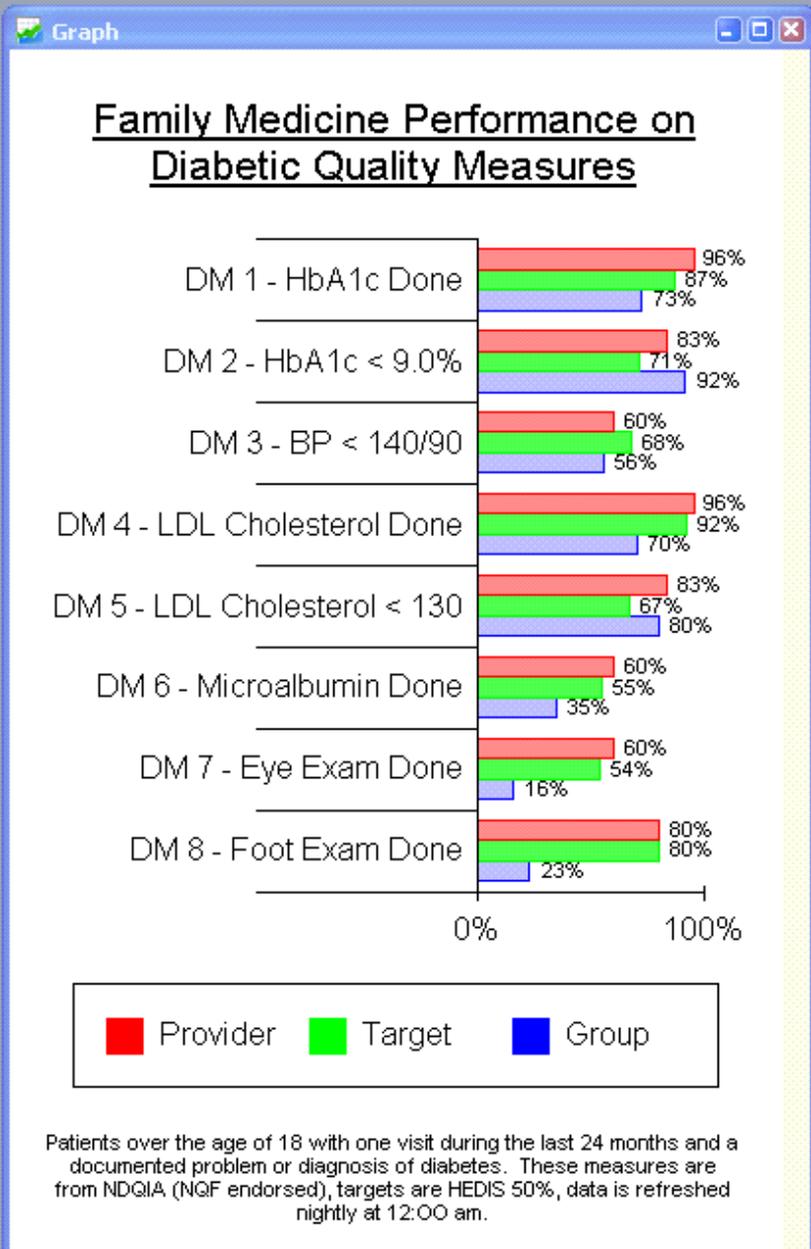
- MU/Cerner Collaboration on tools for chronic illness care: “Medical Home Project”
- AHRQ R18 to evaluate quality improvement
 - Registry function and analytics (quality performance measures)
 - Pt web portal—IQ Health (Healthe)

Primary Care P... [Close] [Max] [Min]

Green Team

Primary Care P... [Close] [Max] [Min]

Kochendorfer MD, Karl M



Grid

Primary Care Provider Group Primary Care Provider

Measure	Outcome	# Patients
DM 1 - HbA1c Done	Done	24
	Not Done	1
	Not in Measurement Group	1
DM 2 - HbA1c < 9.0%	Controlled	20
	Not Controlled	4
	Not in Measurement Group	1
DM 3 - BP < 140/90	Controlled	15
	Not Done	10
DM 4 - LDL Cholesterol Done	Done	24
	Not Done	1
DM 5 - LDL Cholesterol < 130	Controlled	20
	Not Controlled	4
	Not in Measurement Group	1
DM 6 - Microalbumin Done	Done	15
	Not Done	10
DM 7 - Eye Exam Done	Done	15
	Not Done	10
DM 8 - Foot Exam Done	Done	20
	Not Done	5



IQHealth Home Page



University of Missouri
HEALTH CARE

Patient Online



POWERED BY
CERNER
IQHEALTH

FUSION ZTEST [Switch Account](#)

[Home](#) | [Connections](#) | [Conditions](#) | [MyHealth](#) | [Reference](#) | [Account](#) | [Consumer](#) | [Help](#) | [Log Off](#)

Home Search for in 

Inbox

Stay connected with my healthcare providers New Message

You currently have no new messages in your inbox.

Health Record

My life, my health. Update Record | My Info | Conversion Calculator | Print Record

To view your health record, select which data to view and then click a section.
Click **Personal** to display self-entered data. Click **Clinical** to display data from your healthcare provider.

View My Records for: Personal Clinical

- ▶ Allergies
- ▶ Clinical Results
- ▶ Health Issues
- ▶ Immunizations
- ▶ Medications
- ▶ Notes
- ▶ Surgeries/Procedures

Quick Links

Links important to me.

Message My Physician's Office 

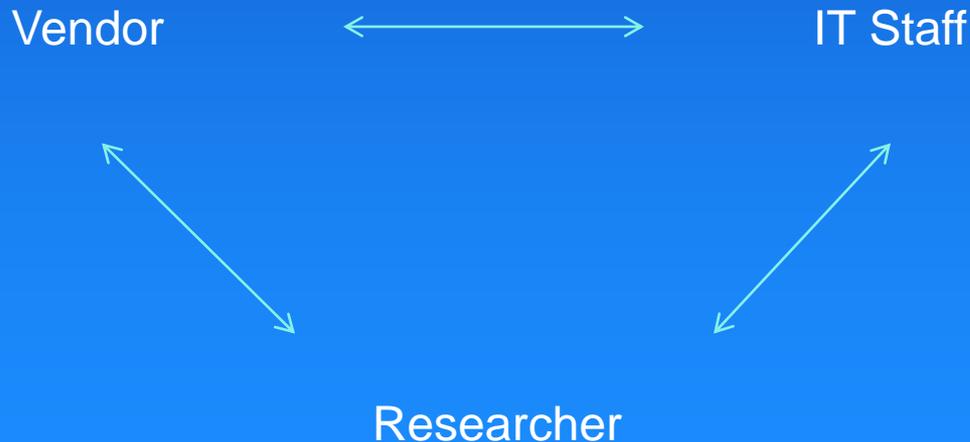
-  Schedule an Appointment
-  Change or Cancel Appointment
-  General Message
-  Request a Medication Refill

Manage My Account 

-  Change My Password
-  Update My Email Address
-  Add a Family Member to My Account

Delayed Implementation

- Find out where the problem lies
- Communicate
- Consider becoming involved in implementation





Communication

- Different vocabularies and approaches
- Successful collaboration requires a substantial time to learn to communicate and work together



Software Problems

- Even if it works in mock environment, it may not work in production
 - Be sure users have good ways to communicate problems
 - Learn who can troubleshoot problems and develop relationships with them
- Workflow and usability issues may not be recognized before implementation in production



Maintenance

- Code upgrades may break functioning systems
 - Need for ongoing vigilance
- Identifying IT staff who will maintain and update systems is crucial



Good Things Can Happen

- In our case, developing a productive working relationship with our vendor led to an institutional-vendor partnership to further development of new products and research



Summary

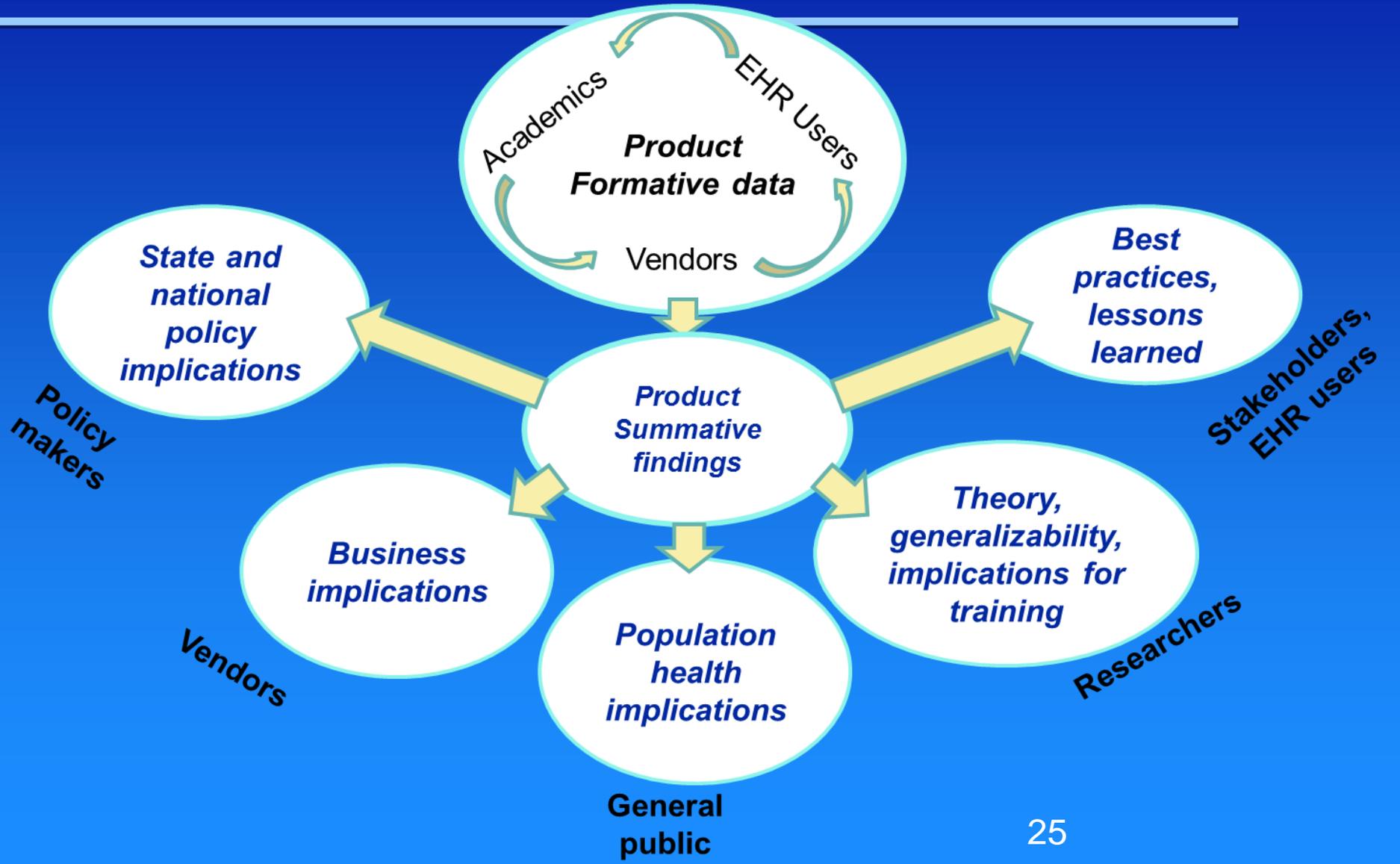
- Find out where the problem lies
- Communicate
- Develop approaches to bringing together key people and insuring system maintenance



**Dr. Rainu Kaushal
and
Melissa Honour**

**Center Healthcare Informatics and
Policy at Weill Cornell Medical
College**

Research Model





Reasons and considerations for collaboration:

The Academic Perspective

■ Study Design

- Understand the priorities and intentions of the designers and builders of a system
- Align academic and vendor language
- Understand potential customizations by users
- Understand the clinical research laboratory: who is using the system, how they are using the system, and where the system is being used
- Understand which data elements and for whom data are stored and can be accessed from the system
- Request changes in vendor product to accommodate research requirements
- Formative versus summative study



Reasons and considerations for collaboration:

The Academic Perspective

■ Funding

- Actual financial support
- In kind support

■ Collaboration agreements and data use agreements

■ Authorship and acknowledgement considerations

■ Dissemination

- Implement results of research studies
- Disseminate results of research studies

How do you interact?



Relationships
Shared Value



Reasons for collaboration *vendor perspective*

- Increase client satisfaction
 - if grantee is working with clients using products
- Creditability of research
 - reputation
- Expertise and knowledge
 - improve product and implementations
- Marketing and sales
 - disseminate positive results



Power in numbers !

- Situation: the cost benefit of “one of request” often perceived by vendor as not as beneficial
- Solution: ***Collaboration*** with multiple grantees or academic institutions and approach the vendor from group perspective
 - Example: 15 academic centers with shared goals for collaboration with vendors
 - Mission statement agreed upon all parties



Example: Group prioritization on shared goals

Top 10 priorities for research collaboration	Top 10 priorities for Vendor
Medication Safety	eMar
CDS *	Documentation
Medication Reconciliation*	Med Reconciliation*
Alert monitoring & dashboard*	Order Management*
Order Management*	Reports
Data Access & Management	Alert Management*
Clinical documentation	Filters
Research	CDS*
Data Display	Order sets
* APPEAR ON BOTH LISTS	



Additional opportunities

- User Group Conferences
 - Great opportunity to network !!
 - Opportunity to disseminate results

- Online User Community
 - Vendors actively participate
 - Clients engagement very high !!

- Product Development workshops



Disseminate your research expert advisors to vendors

- Does your research help vendor *differentiate* in the market or *stay ahead*?
 - ACO, Patient Centered Medical Home
 - Mobility solutions
- Does your research answer *profitable vendor questions*?
 - Benefits of HIT
 - Quality, Economic & Satisfaction
 - User Satisfaction
 - Adoption
 - Profiles of users who adopt systems
- Does your research help them *innovate*?
 - Population health
 - Clinical decision support applications



Disseminate your research expert advisors to vendor executives

- Trusted relationship with leadership
 - Guide them on priorities
 - Align their goals with federally funded projects, HIT policy
- Example: Vendor Advisory Board
 - Members: CIO, CQO, COO representation from hospitals & academic centers
 - Quarterly meetings with Vendor leadership
 - Goal: prioritize and review vendor product and service strategies
- Benefit Vendor:
 - Expert advise & market the advisory board
- Benefit Research:
 - relationships building and access to decision makers



Barbara Lund

**Massachusetts eHealth
Collaborative**



Pre-implementation Considerations

- Determine desired end-state based on practice and research goals
- Understand exactly how EHR needs to be configured prior to implementation
- Pay close attention to impact on practice workflow
- Standardize whenever possible
- Leverage 'Meaningful Use' - unique opportunity to support common data entry and extraction



Post-implementation Considerations

- Practice remediation - train/re-train for consistent and standardized use
- Use discrete data elements whenever possible
- Encourage automation of lab results and other data elements from interfaces
- Leverage MU as much as possible
- Work with practice to establish policies and procedures for data entry and use



EHR and HIE Vendors

- Some vendors more flexible than others for upgrades, enhancements
 - SAAS, ASP, In-office servers, etc.
- Ensure there is adequate time to work with vendor on enhancement requests – then double it!
- Initial vendor selection - work closely with practice to determine best “fit” for practice



Implementing Quality Reporting in the Practice (I)

- Identify reporting needs
- Align reporting criteria whenever possible
 - Patient Centered Medical Home, PQRI, Meaningful Use
- Conduct practice readiness assessment
 - EHR vendor capabilities
 - Remediation needs
 - Practice staff capabilities, bandwidth, readiness to change



Implementing Quality Reporting in the Practice (II)

- Practice remediation
 - Implement workflow and EHR documentation changes
 - Train staff
 - Every staff member needs to work at their highest level
 - Incentive programs will inevitably benefit entire staff
- Data extracted is only as good as the data entered
 - Emphasize the importance of understanding where the data comes from
 - Use quality reports to make staff accountable
 - Produce reports on a consistent basis to show improvement in data entry
 - Acknowledge the extra effort that staff members have put forth

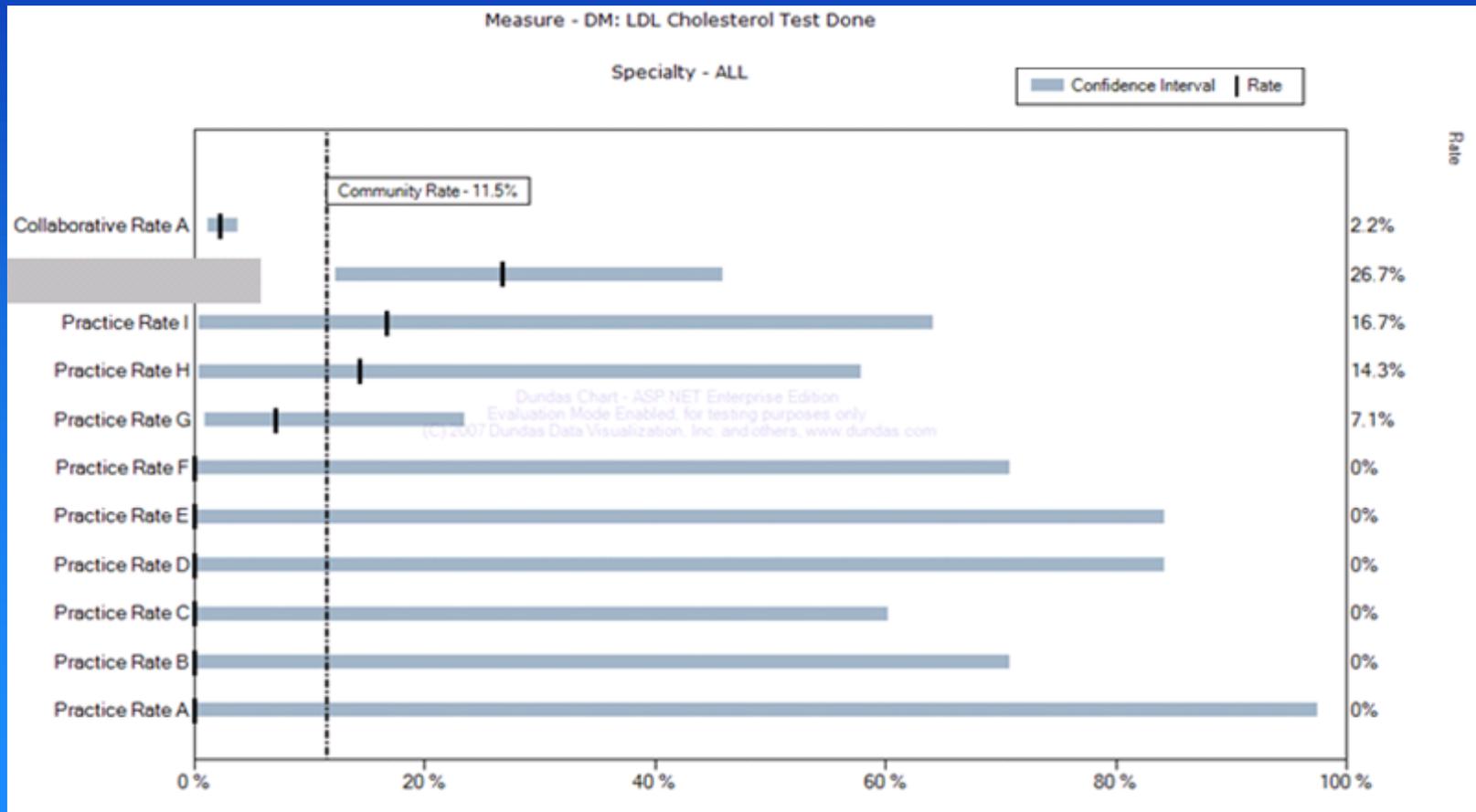


Quality Data Center (I)

- Quality data center/warehouse
 - Enables automated extraction and aggregation of clinical data
 - Reduces errors
 - Less impact on the practice
 - Manipulate data for various reporting needs
 - Peer comparison
 - Benchmarking

Quality Data Center (II)

■ Example of a Peer Comparison Report





Discussion

- We welcome your comments and questions
- Reminder: press *6 to mute; press * 7 to un-mute
- Questions may also be submitted via 'Chat' feature on webinar console at any time



Final Comments

- Discussion Summary
 - Will be distributed to all Webinar participants
- Evaluation Form
 - Online survey will be sent to each participant at conclusion of Webinar
 - We value your input
 - Thank you for joining us today!



Panelist Bios

David R. Mehr, MD, MS

Dr. Mehr is the William C. Allen Professor and Director of Research at the Curtis W. and Ann H. Long Department of Family and Community Medicine, University of Missouri, Columbia, MO. He has degrees from the University of California at Santa Cruz (AB, 1972), the University of California at San Francisco (MD, 1976), and the University of Michigan (MS in Clinical Research Design and Statistical Analysis, 1989). He completed residency training in Family Medicine at the University of Missouri (1976-79) and practiced in Columbia, Missouri for nine years before completing a fellowship in Geriatric Medicine (1990) at the University of Michigan. After two years on the faculty there, he joined the Department of Family and Community Medicine at the University of Missouri in 1992. He spent a year as a visiting scholar at the VU University Medical Center in Amsterdam (2000-2001).

Dr. Mehr has over 80 publications, has received three major federal grants, served on the NIH's HSOD study section, and currently serves on AHRQ's HCQER study section.

mehrd@health.missouri.edu



Panelist Bios

Rainu Kaushal, MD, MPH

Rainu Kaushal, MD MPH is the Director, Center for Healthcare Informatics and Policy, Chief of the Division of Quality and Medical Informatics at Weill Cornell Medical College, Director of Pediatric Quality and Safety for the Phyllis and David Komansky Center for Children's Health at New York-Presbyterian Hospital, and the Executive Director of the Health Information Technology Evaluation Collaborative (HITEC). She is currently an Associate Professor in the Departments of Pediatrics, Medicine and Public Health.

Dr. Kaushal is an expert in quality, patient safety and health information technology (health IT). Dr. Kaushal is engaged in research, patient care, management and operations activities at Weill Cornell Medical College and New York-Presbyterian Hospital, all geared toward using health IT to optimize the value of health care today

rak2007@med.cornell.edu



Panelist Bios

Melissa Honour, MPH

Melissa Honour recently joined the Center for Healthcare Informatics Research and Policy at Weill Cornell Medical College and serves as the Administrative Director for the center. In addition to her operational role, she is active in informatics research and teaching focused on the evaluation of technology on operational, clinical and financial outcomes. Additionally she is interested in developing models to increase the collaboration between health information technology vendors, academic researchers and federal and state organizations.

Prior to joining Weill Cornell Medical College, Melissa held multiple positions in the electronic health record vendor community including Senior Product Director for Clinical Analytics at Allscripts and Senior Consulting Director at Eclipsys. She has served on multiple HIT workgroups including the Quality Tiger Team and HIMSS HIT outcome workgroups.

Ms. Honour holds a Graduate Certificate in Medical Informatics from Oregon Health Sciences University and a Master's Degree in Public Health from Boston University with a concentration in Epidemiology.

meh2019@med.cornell.edu



Panelist Bios

Barbara Lund, MBA, MSW

Barbara Lund is a Project Director at the Massachusetts eHealth Collaborative. She served as a Senior Pilot Executive where she led one of MAeHC's community pilot projects, overseeing community implementation of EHRs and HIE. She was responsible for coordination of stakeholders and vendors, strategic planning, physician and community engagement and project troubleshooting.

She also led the New York Regional Extension Center Program efforts for MAeHC and is currently involved with the New Hampshire Health Information Exchange project. Ms. Lund is currently the Technical Lead for AHRQ's Health IT project, in conjunction with Booz Allen Hamilton. She is responsible for providing support to Health IT research grantees nationally, and designing and running numerous webinars on health IT research topics for grantees.

Ms. Lund earned a master's degree of clinical social work from Smith College and an MBA from Simmons School of Management. Ms. Lund has held positions with electronic health record and personal health record vendors, healthcare payer organizations, in medical practice management and clinical practice settings.

blund@maehc.org