*Bridging Health and Health Care --*

*Thursday, August 20, 2015*                                        *3:00 -- 4:00 pm ET*

# The Public Health Information Technology (PHIT) Maturity Index:  *A method for evaluating and enhancing PHIT effectiveness*

*To download today's presentation & speaker bios, see the 'Resources' box in the top right corner of the screen.*

*PHSSR NATIONAL COORDINATING CENTER AT THE UNIVERSITY OF KENTUCKY COLLEGE OF PUBLIC HEALTH*

**PUBLIC HEALTH** || **SERVICES & SYSTEMS RESEARCH**
**PRACTICE-BASED RESEARCH NETWORKS**

# Agenda

**Welcome: Rick Ingram, DrPH,** National Coordinating Center for PHSSR, and Assistant Professor, U. of Kentucky College of Public Health

*"The Public Health Information Technology (PHIT) Maturity Index:  A method for evaluating and enhancing PHIT effectiveness"*

**Presenters: Ritu Agarwal, PhD,** Co-Director *ragarwal@rhsmith.umd.edu,* and **Kenyon Crowley, MBA, MSIS, CPHIMS,** Deputy Director *kcrowley@rhsmith.umd.edu,* Center for Health Information and Decision Systems, Robert H. Smith School of Business, University of Maryland

**Commentary: Dushanka V. Kleinman, DDS, MScD**, Associate Dean for Research & Professor, Dep't of Epidemiology and Biostatistics, School of Public Health, U. of Maryland *dushanka@umd.edu*
**Thomas Lewis, MD,** Chief Information Officer, Primary Care Coalition of Montgomery County *Tom_Lewis@PrimaryCareCoalition.org*

**Questions and Discussion**

PUBLIC HEALTH | SERVICES & SYSTEMS RESEARCH PRACTICE-BASED RESEARCH NETWORKS

# Presenters

**Ritu Agarwal, PhD**

Senior Associate Dean of Faculty and Research

Robert H. Smith Dean's Chair of Information Systems

Co-Director and Founder, [Center for Health Information and Decision Systems](#)

Robert H. Smith School of Business, U. of Maryland

**Kenyon Crowley, MBA, MS, CPHIMS**

Deputy Director

Center for Health Information & Decision Systems

Robert H. Smith School of Business

Doctoral Student, University of Maryland iSchool

# PHSSR Research-In-Progress Webinar

## The Public Health IT Maturity Index: *A Method for Evaluating and Enhancing PHIT Effectiveness*

**August 20, 2015**

# Partners



With support from



**National Coordinating Center** for Public Health Services and Systems Research (**PHSSR**), based in the **UK** College of Public Health

# Background

▶ Pressing need to improve integration and coordination across somatic, behavioral and social services

▶ Efficiency challenges

▶ Range of technology choices, strategies and policies available

▶ Opportunity to leverage data and information systems more effectively

▶ Lots of investment, unclear ROI

# Project Aims

▸ 1) Assess the implementation of an EHR designed to better integrate the public health and primary care delivery systems

▸ 2) Measure and document the effects of an EHR for public health and primary care integration, especially on improved behavioral health management at individual and population levels

▸ 3) Develop a tool, the Public Health Information Technology Maturity Index, that captures the capacity of diverse IT systems to inform improvement in public health systems

# Methods

▸ Aim 1) Pre and post-implementation interviews, observations and surveys of staff and patient focus groups

# Survey Constructs

| Construct | Meaning |
|-----------|---------|
| *Information Strengths* | The characteristics of the Information currently available in the system in terms of its perceived comprehensiveness, quality and accessibility. |
| *Information Gaps* | The intensity of perceived issues in the process of acquiring and using information with the current system(s). |
| *EHR Impacts* | The perceived potential influence and benefits that EHR usage would deliver. |
| *Perceived Usefulness* | The perceptions that system use would aid in accomplishing tasks in an efficient and effective way |
| *Perceived Ease of Use* | The degree to which a person believes that using a particular system would be easy to learn and may perform tasks with system with little effort. |
| *Future Use Intentions* | The willingness of a person to adopt, increase use and explore the system. |
| *Knowledge about the System* | The extent to which the users perceive they know how to use, why to use and receive adequate system support. |
| *Training* | User satisfaction with the training programs. |

# Pre-EHR Implementation Survey Analysis
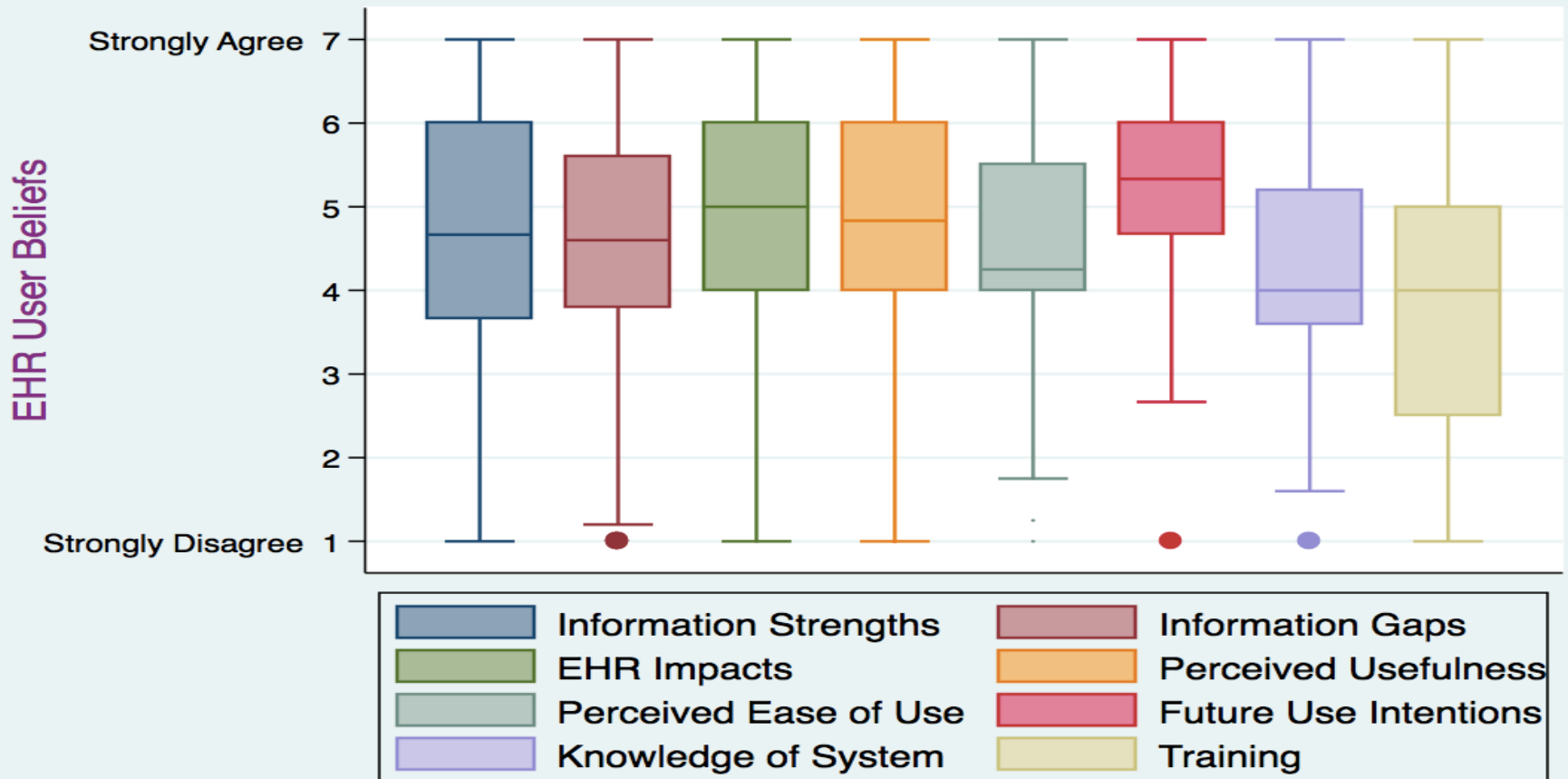
# Early-EHR Implementation Survey Analysis
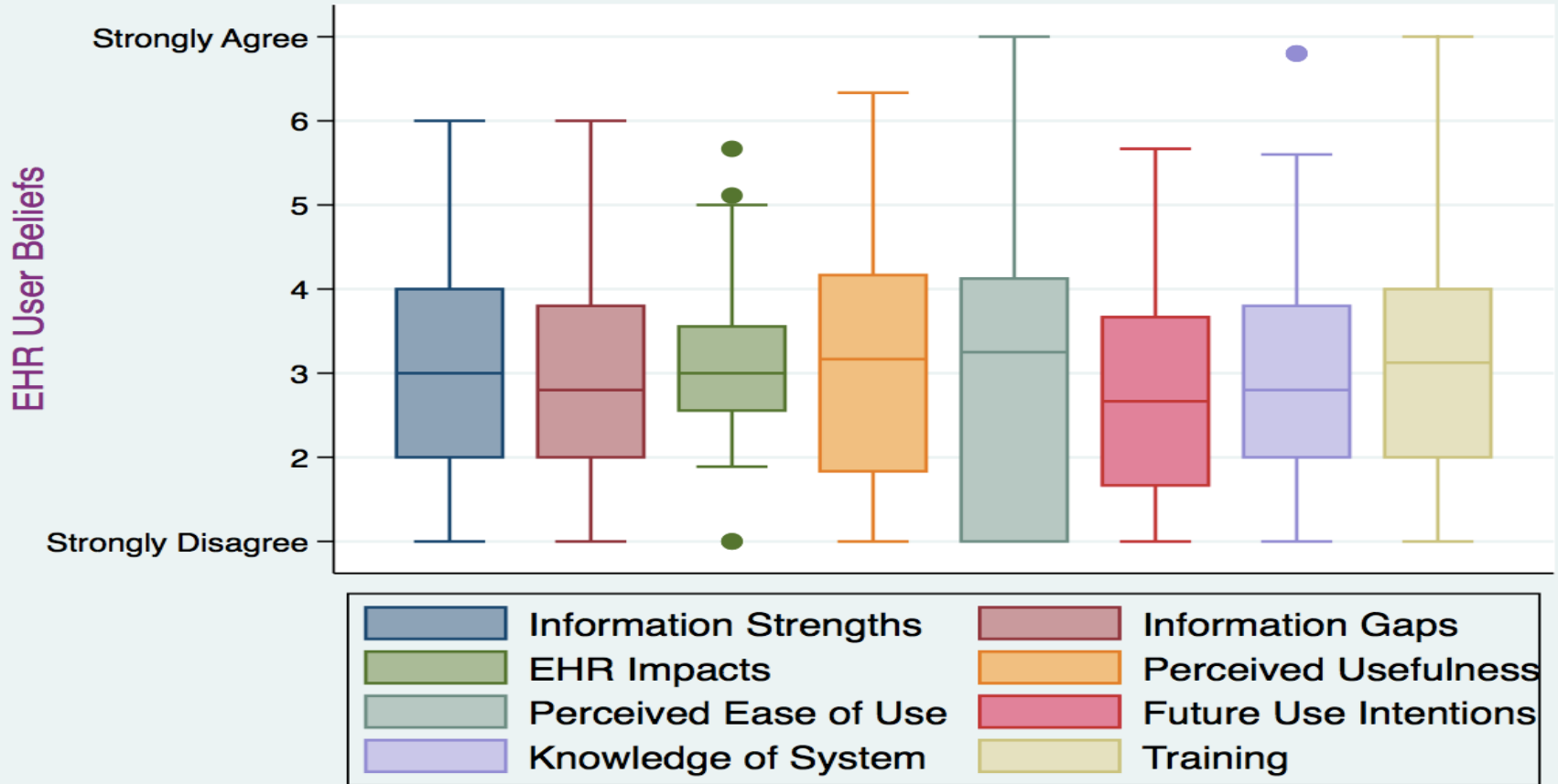
# Information use issues

▸ "...some of their stuff in the SMART [old system], some of their stuff in the shared drive....  Yes, and some stuff in  paper, the hard copy. Where I've seen it create some delays or problems is that if we have a signed consent to exchange information with someone, let's say the primary therapist would have gotten that, sometimes you don't remember all the places; and let's say a probation officer is on the phone and you aren't quite sure if you got that release, you either have to say I have to call you back or if you keep a copy of it in your room you can find it. If not, you have to go downstairs and look in the chart. That takes a lot. I know sometimes there have been duplications of getting releases because no one knew where a release was. With the electronic record, I can see that would be all together and if we wanted to see if we had a release, just click and we can carry on..."

# Coordination gaps

▶ "…when a person comes in, we do a complete biopsychosocial; so it's at that point that we identify medical needs, psychiatric needs, social needs, housing needs, financial needs – we identify all those. Then, if the person has not obtained a connection for those services, we say this is where you need to go…. Now, we don't know if someone has already sought [social] services already unless the person tells us …"

- Psychiatric nurse at substance abuse clinic

# Positive expectations

▸ "…I look forward to having the electronic records here in the government because it's needed and it will be more efficient, it certainly will cut down on some of the repetitiveness and it will cut down on the amount of time that you spend reporting and tracking down information…"

- Behavioral health staffer

# Early implementation issues

▸ People have difficulty getting information

▸ EHR System feels designed for single practice… within own groups (clinical and behavioral) difficult to support unique needs for behavioral and public health services

▸ Limited configuration capability

▸ Reporting requirements not being met

▸ (Not all bad… additional visibility being gained)

# Methods

▸ Aim 2) Measure and document the effects of EHR implementation through behavioral health case studies and quantitative measures

# Case studies

▸ Homeless with chronic condition and severe mental illness, "frequent ER flyer"

▸ Mental outpatient counseling services (substance issues and need of social services)

▸ Medication management of mentally ill

▸ Population management, surveillance and outcomes for behavioral health

# Methods

▸ Aim 3) Synthesize extensive review of literature, strategic goals for forward-looking health systems as defined by leading multi-stakeholder groups, relevant standards and policies, and evidence generated through this study's primary research

# PHIT Maturity Index (Initial Draft Model)

**PHIT Maturity Index**

| Scale and Scope of Use | PHIT Quality | Digital Literacy and PHIT Competency | Community Digital Infrastructure |
|---|---|---|---|
| • Nature of Use<br>• Extent of Use | • System Quality<br>• Information Quality<br>• Interoperability and Standards<br>• Privacy and Security | • Access<br>• Community Digital Literacy Level<br>• Community Digital Literacy Training<br>• Workforce Competency | • Internet Access and Use<br>• CIT budget allocated / available<br>• Community Partner Infrastructure<br>• Open data and Innovation |

# Scale and Scope of PHIT Use

▸ The Scale and Scope category of PHIT Use refers to what types of systems are being used, applied to what activities, and the breadth of system use.

▸ Sub-dimensions:

- Nature of Use
- Extent of Use

| Category | Sub-Category Elements | Element Attributes | Details |
|---|---|---|---|
| Scale & Scope | Nature of Use | Types of Systems | Administration |
| | | | Surveillance |
| | | | EHR and Practice Management Systems |
| | | | Registries |
| | | | Digital Consumer Resources 1 |
| | Extent of Use | Data Types Exchanged | Note: May need to list all data types -- do a PH data inventory |
| | | Reporting | Report Generation |
| | | Breadth - Foundational capabilities of PH | Assessment (Surveliiance, Epidemilology and Laboratory Capacity) |
| | | | All Hazards Preparedness/Response |
| | | | Policy Development/Support |
| | | | Communications |
| | | | Community Partnership Development |
| | | | Organizational Competencies |
| | | Breadth - Foundational areas of PH | Communicable Disease Control |
| | | | Chronic disease and Injury Prevention |
| | | | Environmental Public Health |
| | | | Maternal, Child and Family Health |
| | | | Access to and Linkage with Clinical Care |
| | | | Behavioral Heath |
| | | Depth of usage | Workforce % usage of EHRs |
| | | | System diffusion across HD staff |

| Sub-Category Elements | Element Attributes | Details | STAGE 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|
| **Nature of Use** | Types of Systems | EHR and Practice Management Systems | Some sites use EHR and PMS | All somatic care sites use EHR and PM systems | All somatic care and behavioral health sites use EHR and PM systems | All somatic, behavioral, and social services sites use EHR and PM systems |
| | | Registries | Some sites use registries | All somatic care sites use registries | All somatic care and behavioral health sites use registries | All somatic, behavioral, and social services sites use registries |
| | | Digital Consumer Resources | Some digital consumer resources are provided | Digital consumer resources are provided by somatic care sites | Digital consumer resources are provided by all somatic care and behavioral health sites | Digital consumer resources are provided by all somatic care, behavioral health and social services sites |

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# PHIT Quality

▶ The *Quality of PHIT* category seeks to capture the degree of "excellence" embedded in the PHIT.

▶ Sub Dimensions:

- System Quality

- Information Quality

- Standards and Interoperability

- Privacy and Security

| Category | Sub-Category Elements | Element Attributes |
|---|---|---|
| **Quality** | **System Quality** | Reliability |
| | | Easy to Use / Usable |
| | | Usefulness |
| | | Maintenance |
| | | User Satisfaction |
| | **Information Quality** | Availability of Relevant Information |
| | | Accuracy |
| | | Timeliness |
| | **Interoperability & Standards** | The extent to which diferent systems adhere to standards and are able to communicate |
| | | Interoperability types |
| | **Privacy** | Privacy |
| | **Security** | Security |

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# Digital Literacy and PHIT Competency

▸ The Digital Literacy and PHIT Competency category refers to the set of skills and knowledge that are essential for productive interactions with technology-based tools.

▸ Sub-dimensions:

- Digital Literacy Level (Community)
- Digital Literacy Training (Community)
- PHIT Training (Workforce)
- PHIT Competency (Workforce)

| Category | Sub-Category Elements | Element Attributes |
|---|---|---|
| **Digital Literacy and PHIT Competency** | **Digital Literacy Level (community)** | Adult Literacy Rate |
| | | Gross Enrollment Ratio (Secondary and Tertiary) |
| | | Number of People active on Social Platforms |
| | **Digital Literacy Skills (Community)** | Effectiveness |
| | **Digital Literacy Training (Community)** | Existence |
| | | Use |
| | **PHIT Training (Workforce)** | Existence and Use |
| | **PHIT Compentency Level (Workforce)** | Skill |

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# Community Digital Infrastructure

▶ The category of Community Digital Infrastructure which refers to how "wired" (i.e. degree of broadband digital connectivity) a community is and the degree to which public health ecosystem partners have implemented digital systems and have the ability to exchange information electronically with the HDs.

▶ Sub-dimensions:

- Internet Access and Use

- IT Budget allocated/available

- Community Partner Infrastructure

- Health Information Exchange

- Open Data and Innovation

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| Category | Sub-Category Elements | Element Attributes |
|---|---|---|
| **Community Digital Infrastructure** | **Internet Access and Use** | Active mobile-broadband subscriptions |
| | | Fixed(wired) – broadband subscriptions |
| | | Households with a computer |
| | | Households with Internet access at home |
| | | Individuals using the Internet |
| | **IT Budget Allocated/Available** | Perecntage of budget applied towards IT |
| | **Community Partner Infrastructure** | Hospitals in comunity that are wired |
| | **Health Information Exchange** | HIE connectivity |
| | **Open Data and Innovation** | Secondary data provisioning |

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# Data sources

| Categories | Sub-Category Elements | Element Attributes | Primary Survey Data | Secondary Data |
|---|---|---|---|---|
| **Quality** | **System Quality** | Reliability | ★ | |
| | | Easy to Use / Usable | ★ | |
| | | Usefulness | ★ | |
| | | Maintenance | ★ | |
| | | User Satisfaction | ★ | |
| | **Information Quality** | Availability of Relevant Information | ★ | |
| | | Accuracy | ★ | |
| | | Timeliness | ★ | |
| | **Interoperability & Standards** | Standards | ★ | ★ |
| | | Interoperability types | ★ | ★ |
| | **Privacy** | Privacy | ★ | ★ |
| | **Security** | Security | ★ | ★ |

# Next Steps

- EHR Implementation Final Go-Live was July 7$^{th}$
- Post-implementation data collection and analysis
- Currently undergoing a Delphi Study with initial PHIT Maturity Index
- Finishing phase one of project February 2016
- Future
  - Comparative assessment of PHIT maturity across multiple systems

# Engage with us

▸ Follow project the blog

  ▸ https://blogs.rhsmith.umd.edu/phit/

▸ Comment on the initial model at

  ▸ http://go.umd.edu/PHITMaturityIndexDraft

▸ Twitter

  ▸ @healthIT

▸ Email

  ▸ chids@rhsmith.umd.edu

# Commentary

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# Questions and Discussion

**Tell us what you think about the PHSSR webinar series:**

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## Upcoming Webinars – Sept 2015

**Wed, Sept 2 (12-1pm ET)**

INVESTIGATING CHARACTERISTICS OF TRIBAL PUBLIC HEALTH SYSTEM ORGANIZATION & PERFORMANCE

Julia Heany, PhD, Program Director, Michigan Public Health Institute

**Wed, Sept 9 (12-1pm ET)**

ADOLESCENT AFIX: MULTI-STATE RANDOMIZED CONTROL TRIAL TO INCREASE ADOLESCENT IMMUNIZATION THROUGH VACCINE PROVIDER BEST PRACTICES

Melissa Gilkey, PhD, MPH, UNC Gillings School of Global Public Health

**Thurs, Sept 17 (1-2pm ET)**

MODELING SUPPLY CHAIN SYSTEM STRUCTURE TO TRACE SOURCES OF FOOD CONTAMINATION

Stan Finkelstein, MD, MS, MIT and Harvard Medical School & Abigail Lauren Horn PhD , Engineering Systems Division, MIT

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# Thank you for participating in today's webinar!

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http://bit.ly/Webinar_Survey

**For more information about the webinars, contact:**
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