3241.0 - Health IT Applications and Disease Registries

Building capacity to use disparate electronic medical records and clinical information systems for health outcomes research

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### Learning Objectives

- To introduce an ongoing chronic disease quality improvement initiative spanning primary care, public health, and academia
   To understand benefits of and challenges in using electronic health records for health outcomes research and quality of care improvement
   To understand how electronic health records and electronic patient registries can work in tandem
   To explore potential public health uses of electronic health record/patient registry generated data



### Definitions – EHR and Registry

• <u>Electronic Health Record</u>\*: "An electronic record of healthrelated information on an individual that conforms to nationally recognized standards and that can be created, managed, and consulted by authorized clinicians and staff across more than one health care organization"

 Individual focused, with the purpose of collecting, sharing, and using health information for the benefit of that individual

Registry\*: "An organized system that uses observational study methods to collect uniform clinical and other data to evaluate outcomes for a population defined by a particular disease, condition, or exposure, that serves one or more predetermined scientific, clinical or policy purpose" – Population focused, and designed to fulfill specific purposes

rce: Agency for Healthcare Research and Quality

# EHR potential

Broadly defined, EHRs are intended to:

- store clinical information for use in patient care and are intended to allow efficient, secure and accurate data sharing
- offer decision support for patient care
- improve the management of medical information
- reduce health disparities among safety-net clinics
- improve patient care at reduced cost

# EHR challenges

Successful implementation historically difficult, beginning in the 1960's

- Especially difficult in small, rural practices
- Common barriers:
  - views that EHR technology interferes with clinical judgments
  - lack of trust in EHRs to safely, securely store medical records
    lack of standards in data formatting and lack of interoperability
  - time, training and monetary investments to adequately use the systems
  - the necessity of local leadership to champion the system
  - difficulties in determining whether an EHR meets practice needs
  - difficulties in organizational redesign
    lack of readiness to implement

### EHR challenges

- Adding to the challenge
- EHRs are intended to help document patient care; not population level tracking and analysis • Often lacking data management tools
- Even large, resource-rich and organizations experience difficulties in:
  - structure, consistency and completeness of data capture and coding
  - ability to retrieve data due to free text entries rather than discrete data fields
  - data reliability due to issues in data entry/management

### Integrating EHR data with a patient registry

- Each EHR has it's own unique data structure
  - Used CDEMS (relational database) to create a standardized data set
    - > Developed a mapping process for each EHR
      - > ID the key data elements and where stored in the EHR
      - > Map the data transfer (extract, transform, load [ETL])
    - > Standardize naming conventions across systems
  - Formed a principal dataset, comprised of:
    - > Demographics > Laboratory results
    - > Diagnoses
    - > Services results > Visit information / Vitals > Other measures
  - Data placed into SAS for analysis





## Experiences from the field

Key indicators benchmark groups of patients (i.e., patients with a specific health condition) relative to their progress in meeting specific goals.

- Common metrics:
- High blood pressure
  - % of patients with HTN with blood pressure <140/90</li>
  - Diabetes
  - % of patients with DM-1 or DM-2 with their last HbA1c value <7.0
     Asthma
    - % of patients with asthma with documentation of an asthma action plan

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# Upcoming publication

Baus A, Hendryx M, Pollard C. Identifying Patients with Hypertension: A Case for Auditing Electronic Medical Record Data. (Accepted for Publication 7/21/2011). *Perspectives in Health Information Management* 

Supplemental Registry Tool – Goal Letters							
	August 24, 2011 Ms. Fn_1038 Ln_1038	Sample 123 Highw Cityville, V Phone (30 Fax: (30	e Clinic vv 26555 04) 555-5555 04) 777-7777				•
24	Dear Ms. Ln_1038,						
The te	This letter is to inform yo	u of your r	most recent lab	and service results:			
		C	urrent	Goal	Previor	15	
ALC: NO	Blood Pressure	3/21/2011	132/84 💛	Less than 130/80	3/1/2011	110/52	
	Body Mass Index (BMI)	3/21/2011	33.47 🔴	Between 23 and 27	3/1/2011	33.65	
	HbA1c (%) (3 month control)	3/21/2011	6.8 🕓	Less than 6.5 to 7.0%	11/17/2010	6.8	
	HDL or "Healthy" Cholesterol	3/21/2011	43 🔴	More than 40 mg/dL	8/25/2010	50	
	LDL or "Bad" Cholesterol	3/21/2011	ଜ 😑	Less than 70 to 100 mg/dL	8/25/2010	76	
and the second sec	Total Cholesterol	3/21/2011	136 😐	Less than 200 mg/dL	8/25/2010	154	
	Your health is important to us. Our goal is to keep you healthy so that you can live a long life with diabetes. Your doctor will be receiving a copy of this report. Please make an appointment with your doctor to review this report by February 2012.						
	Thank you,						
	Outreach Team						

Ms. Fn\_104 Ln\_104 Dear Ms. Ln\_104, This is to remind you that your doctor regularly. The As you know, regular offic prompt treatment of health have been visiting a We hope that you will to staff is dedicated to hell needs

Thank you, .....

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Suddleme	ntal Registry Tool – Reminder Letters		
	8.7	•	
	Sample Clinic		
	123 Highway Drive.		
	Cityville, WV 26555		
	Phone (304) 555-5555		
	Fax (304) 777-7777		
	August 24, 2011		
	MS. Fn_104 Ln_104		
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#### Benefits to primary care & public health

#### Benefits to primary care:

- 1. Close monitoring of patients by health condition
- 2. Detection of patients at risk for developing or undiagnosed with health conditions
  - > Without need for time/resource intensive searching
- Provides basis for quality improvement interventions
   Using information that is gathered via routine office activities (nondisruptive intervention)

#### Benefits to public health:

- 1. Standardized data for surveillance, monitoring, program planning
- Longitudinal data for analysis, detecting trends
- 2. Ability to grow programs in context of transitions to EHRs

and clinics shifting from one EHR to another

## Contact information

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