



## Collecting and Using Data to Improve Consumer Health

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## Overview

- Why is using data to inform care so challenging?
- How to leverage data to improve care through Population Management
- Capturing, accessing and using data in the Certified Complete Electronic Health Record (EHR) – What to Expect

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## Why is Using Data for Improving Health Outcomes so Difficult?

“The main reason seems to be a lack of integration of health IT into clinical workflow in a way that supports the cognitive work of the clinician and the workflows among (partner) organizations, within a clinic and within a visit.”

Carayon & Karsh, (2010). AHRQ Publication No. 10-0098-EF



## Collecting & Sharing Health Data

### BENEFITS

- >More efficient workflow (e.g. less time spent handling laboratory results)
- >Improved access to clinical data
- >Streamlined referral processes
- >Improved quality of care--Better health outcomes
- >Improved patient safety, including fewer prescribing errors and fewer hospital readmissions
- >Cost savings (e.g. eliminating costs of storing paper records)
- >Downsizing personnel
- >Increased revenue (e.g. government incentives for use of health IT)
- >Pay-for-performance incentives

### BARRIERS

- >**Lack of Leadership**
- >**Lack of strategic plan for data use & health IT**
- >Costs of EHR implementation
- >Cost of establishing and maintaining links between EHRs and HIE networks
- >Security and privacy issues
- >Liability Provider's concern to be held liable for information from outside sources/labs
- >Misaligned incentives (who pays and who benefits)
- >Provider reluctance to relinquish control of patient information to competing systems
- >Technical barriers (e.g. lack of interoperability among EHRs)
- >Lack of IT training and support

Fontaine, Ross, et al. (2010). Systematic Review of HIE in Primary Care Practices, JABPM



## Primary Drivers of Successful Data Collection & Use

- Do you have a **strategic plan** for how data is shared and leveraged to improve care? If you do, is it being used/updated regularly?
- Is your **leadership involved** in the creation, articulation, and monitoring of this plan?
- Are your IT, QI, finance, and clinical leads **meeting regularly** to execute this plan?

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## *Analytics at Work: Smarter Decisions Better Results* by Davenport, Harris & Morison

- > Requirements for analytics:
  - Accessible High Quality Data
  - Enterprise/Future Orientation
  - Analytical Leadership
  - Strategy Targets
  - Analysts

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***Analytics at Work: Smarter Decisions Better Results*** by Davenport, Harris & Morison

- > **Stage One: The Analytically Impaired**
- > The organization lacks one or several of the prerequisites for serious analytical work, such as data, analytical skills, or senior management interest.

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***Analytics at Work: Smarter Decisions Better Results*** by Davenport, Harris & Morison

- > **Stage Two: Localized Analytics**
- > There are pockets of analytic activity within the organization, but they are not coordinated or focused on strategic targets.

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***Analytics at Work: Smarter Decisions Better Results*** by Davenport, Harris, & Morison

- > **Stage Three: Analytic Inspired**
- > The organization envisions a more analytic future, has established analytic capabilities, has a few strategic initiatives under way, but progress is slow often because of lack of leadership, future orientation, reliable data, strategic targets or staffing/analysts.

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***Analytics at Work: Smarter Decisions Better Results*** by Davenport, Harris, & Morison

- > **Stage Four: Analytic Agencies/Companies**
- > The organization has the needed human and technological resources, applies analytics regularly, and realizes the benefits across the organization. But its strategic vision/focus is not grounded in analytics, and it hasn't turned analytics to competitive advantage.

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## ***Analytics at Work: Smarter Decisions Better Results*** Davenport, Harris, & Morison

- > **Stage Five: Analytic Competitors**
- > The organization routinely uses analytics as a distinctive business capability. It takes an enterprise-wide approach, has committed and involved leadership, and has achieved large-scale results. It portrays itself both internally and externally as an analytic competitor.

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## **What is Population Health Management?**

Approach to better managing all aspects of pt. health from wellness to complex care, by assessing health & health provision beyond a single episode of care. PHM helps clinicians assess their entire population and stratify it into various stages across the spectrum of health:

- Those who are well need to stay well by getting preventive tests completed
- Those who have health risks & need to change their health behaviors so they don't develop the conditions they're at risk for
- Those who have chronic conditions need to prevent further complications by closing care gaps and also working on health behaviors

(source: adapted from phytel.com)

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## What are the Components of PHM?

Components of PHM:

1. Knowing what to ask about your population
2. Data registry describing your population
3. Dashboards for making data readable
4. QI Process to respond to the findings

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## What are the Components of PHM?

The questions you want answers to about your population are defined in the Health Home Application:

- Who are we serving? What are the costs?
- What kind of services are they getting, where, & when?
- What is the pt. response to treatment?

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## What are the Components of PHM?

### Data Registry:

- **Patient Demographics:** Sex; Age; Race; Family Hx
- **Administrative Identifiers:** Insurance; Service Claims; Clinician & Team Providing Care; Last touch by clinician
- **Test/Screening Results & Dates:** Screening Scores; Lab Test Values
- **Medications:** Meds from all providers; Rx's last filled
- **Tx Provided:** EBP; Care Pathway Used; Process Indicators
- **Patient Response to Tx:** Patient Health Goals; Did they take recommendations
- **Diagnosis & Comorbidities:** List of Axis I-V dx's



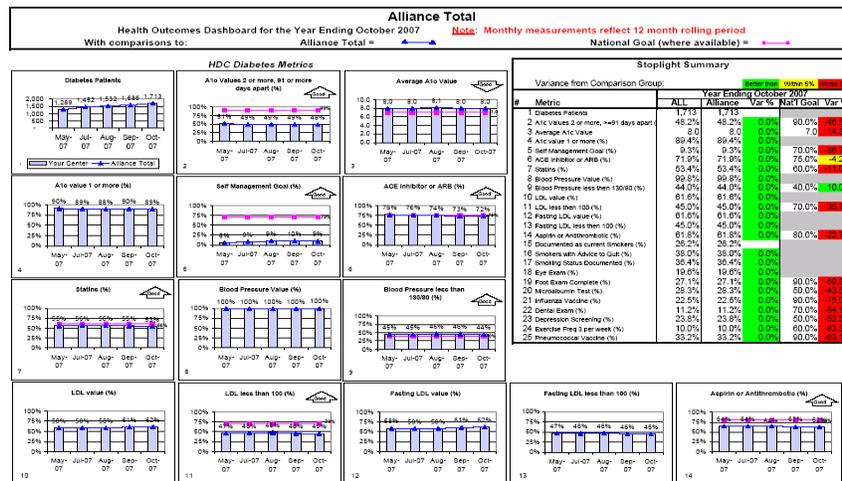
## What are the Components of PHM?

### Dashboards for Clinical & Admin. Staff:

- Should allow the data to tell a story about your patients & the care provided
- Should be Simple to Start--target only a few key aspects of population & their care
- Should be Colorful--use red, yellow, green to draw the eye



## Complex Dashboard...



## Simpler Dashboard...

**Health Outcomes by Provider**  
EHRS Patients January - December 2007  
Smith MD, John      Community Health Center

Measure	Stoplight Analysis			
	Dec-07 Smith MD, John	Dec-07 CHC	Variance from CHC	Dec-07 Alliance Variance from Alliance
<b>HDC Diabetes Metrics</b>				
1 Diabetes Patients	49	401		1,880
2 A1c Values 2 or more, >=91 days apart	65%	50%	-15%	47%
3 Average A1c Value	7.8	7.8	0.0%	7.9
4 A1c value 1 or more (%)	90%	89%	-1%	89%
5 Self Management Goal (%)	35%	38%	+3%	12%
6 ACE Inhibitor or ARB (%)	87%	78%	-9%	70%
7 Statins (%)	79%	61%	-18%	52%
8 Blood Pressure Value (%)	100%	100%	0.0%	100%
9 Blood Pressure less than 130/80 (%)	37%	28%	-9%	41%
10 LDL value (%)	82%	73%	-9%	60%
11 LDL less than 100 (%)	50%	52%	+2%	45%
<b>Preventive Care Metrics for General Population</b>				
1 # Patients	212	2,675		14,637
2 % Visits With Blood Pressure	78%	73%	-5%	89%
3 % Women 50-69 With A Mammogr.	63%	68%	+5%	55%
4 % >=50 Screen for Colorectal Canc	3%	9%	+6%	8%
5 % >=50 With Influenza Vax	39%	18%	-21%	18%
6 % >=65 With Pneumo Vax	87%	59%	-28%	26%
7 % w/LDL	65%	44%	-21%	30%
8 % w/LDL With Last <130	80%	72%	-8%	68%
9 % w/Smoking Status	80%	58%	-22%	44%
10 % Smokers w/ Cessation Interv	41%	56%	+15%	48%



### That's Nice...but...

- Our EMR doesn't have a registry component to help with PHM—stay tuned!
- We don't have an EMR...yet!
- Our IT staff are hard to engage with helping with this!
- Okay I'm sold but where do we start? How do we design this?



### Basic Registry/Dashboard for PHM

Pt Name/ID	Age	Gender	Race	Axis I	Axis II	Axis III	PCP	PCP seen last 6 months? (Yes/No)



## PHM & QI Process

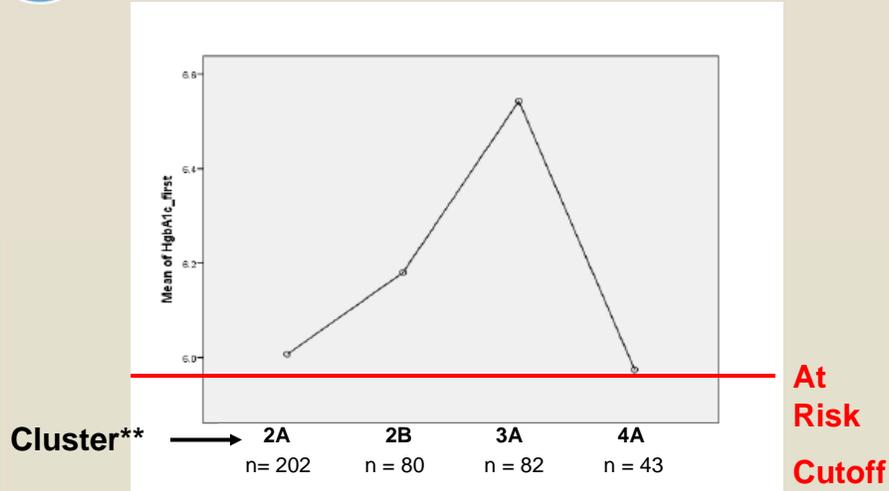
- Once you have some data begin setting up benchmarks & risk cutoffs for the data.

Examples include:

- % Patients seen PCP in last year (benchmark=100%)
  - Risk cutoffs for BMI, A1c, etc.
- Engage staff in Plan-Do-Study-Act Rapid Cycling to see if the data changes as patients begin to receive treatment.



## Southeast, Inc. Differences in HgbA1c by Cluster (at PBHCI Enrollment\*)



\*For enrollees with only a Baseline NOMs at time of analysis; \*\*F (3,403) = 3.0, p < .05



## Tips for getting there from here...

- If you have an EMR, leverage it—more on that in a minute!
- Start by targeting those who do/don't have a PCP & when they were last seen.
- Use the Ohio HH Indicators as a guide.
- Use a simple excel spreadsheet to capture these data.
- Share data & ask staff often to respond to the findings during individual supervision & team meetings.



## What is the Standard for Stage 1 Meaningful Use?

- **As a goal:**
  - Individual providers and patients have routine access to comprehensive patient health information and use it to improve the effectiveness, efficiency and quality of patient care
    - Essential, up-to-date patient information, shared among providers regardless of specialty or physical location
    - Patients access their information: know what it means and how to use it to actively engage in their own care
    - Sharing and access are incorporated into organizational policies and procedures



## As a Set of Objectives and Measures

- Administered by the Center for Medicaid/Medicare Services (CMS), assisted by the state Medicaid agencies
- Implemented in 3 stages: currently in Stage 1
  - Goal is achieved through achieving Objectives and meeting Measures
  - Core Objectives (15)
  - Menu Objectives (select 5 of 10)
  - Total 20 Objectives and Measures
  - Objective – related activities support exchange of health information, patient engagement in treatment, safety of care, security of data

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## Closer Look at a Single “Meaningful Use” Standard

- Each Objectives is clearly stated
  - “Core Objective #5 – Maintain Active Medication List”
- Each Objective has a Measure with a Numerator and Denominator
  - “More than 80 percent of all unique patients seen by the EP have at least one entry (or an indication that the patient is not currently prescribed any medication) recorded as structured data.
- Each Objective has Specifications for Implementation
  - Specifications define terms, explain requirements and offer additional information. Click on #5 in the linked list below:

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## The Incentive Program for Adopting Meaningful Use

- Not required by the federal government
- Implemented through a monetary incentive program in annual awards to individual eligible professionals or “EPs” (in BH, usually psychiatrists and psychiatric nurse practitioners)
- EP awards are usually immediately passed to the provider organization
- Two tracks – one for Medicare, one for Medicaid
- Incentives are not the only reason to participate. Widespread adoption of EHRs and exchanging patient information according to data and technology standards is transforming the health care landscape.



## Certified Complete EHRs

- What is an Electronic Health Record (EHR)?
  - Electronic, or computer-based version of the patient chart, but with several distinct advantages over paper-based information management
- Can be “certified” for Stage 1 Meaningful Use
  - Affirms that the EHR has the **minimum** functionality necessary to implement “Meaningful Use”
  - Does not guarantee a degree of EHR quality, just EHR functionality
- Must be able to implement ALL Core and ALL Menu Objectives



## What You Can Expect From a Certified Complete EHR

- Captures and generates reports that meet national standards for data and technology
- Objectives Include:
  - Medications
    - ePrescribing
    - Computerized Provider Order Entry (CPOE)
    - Drug Interaction (clinical decision support)
    - Drug Allergy List\*
    - Active Medication List\*

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## What You Can Expect From a Certified Complete EHR

- Problem List
  - Diagnoses\*
- Diagnostic test results
  - Includes blood tests, microbiology, urinalysis, pathology tests, radiology, cardiac imaging, nuclear medicine tests, and pulmonary function tests.
- Record AND Chart Vital Signs (BMI, BP, weight, etc.)
- Record Smoking Status (CQMs re: tobacco cessation intervention)
- List of all Patient Allergies

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## What You Can Expect From a Certified Complete EHR

### *Supplies Specific Patient Information Data Sets*

#### > **Exchange Key Clinical Information (Core)**

- Standard (Continuity of Care Record or CCR) includes up to 17 areas of information, but only the minimum data set has to be available
- Minimum data set: includes a “Active Medication List”; patient “Allergy List”; a list of patient diagnosis or “Problem List”; and Diagnostic Test Results (for example, lab results)
- **Does not** include treatment plans, progress, psychotherapy notes
- Must be able to exchange the minimum data set (details in discussion of patient information sharing and exchange)

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## What You Can Expect From a Certified Complete EHR

### *Supplies Specific Patient Information Data Sets*

#### > **Electronic Copy of Patient Health Information**

- Must be able to provide this to the patient within three days upon request
- Same maximum/minimum data set as CCR

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## What You Can Expect From a Certified Complete EHR

### *Supplies Specific Patient Information Data Sets*

- Summary of Care Record for Patient Transitions (Menu #8)
- Provided whenever there is a transition of the patient to another setting of care or provider of care or referral of patient to another provider of care
- Includes same minimum/maximum data set as the CCR

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## What You Can Expect From a Certified Complete EHR

### *Supplies Specific Patient Information Data Sets*

#### **Clinical Summary Record (for each office visit)**

- After-visit summary, relevant & actionable info, instructions
- Patient name, provider's office contact information, date, address, updated medication list, updated vitals, reason(s) for visit, procedures
- Based on clinical discussions that took place during the office visit: updates to Problem list, medications administered during visit, topics covered/considered, time & location of next appointment/testing (if scheduled)
- Tests that the patient needs to schedule with contact information, test/laboratory results (if received before 24 hours after visit), and symptoms.

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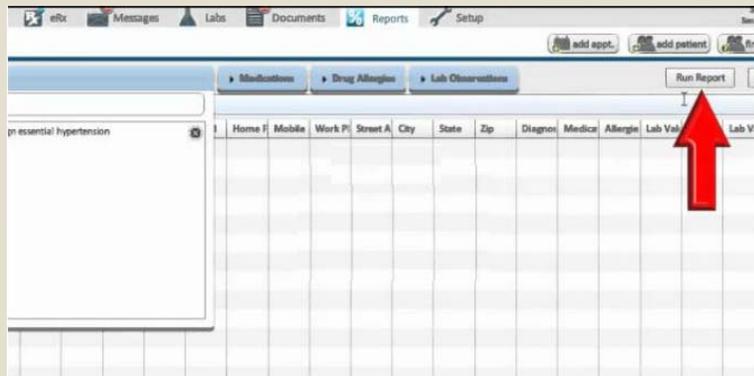
## What You Can Expect From a Certified Complete EHR

- > **Population-based management – Patient Lists (Menu, #3)**
  - Generate lists of patients by **specific condition**
  - Specific purpose is to “use for quality improvement, reduction of disparities, research, outreach”
  - “Specific Condition” are “those conditions listed in the patient Problem List”
  - Usually includes other parameters, especially gender, age, race/ethnicity, less likely to include sexual orientation (can easily be added as a parameter)

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## Getting Population-Based Management Reports \* – Step 1



End user view of screen provides simple access to the reports their EHR security access level allows them to run.

\*All screenshot examples are from a PracticeFusion (vendor) video that can be retrieved here:  
<http://www.youtube.com/watch?v=NCqW3INCLKQ>

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## Getting Population-Based Management Reports – Step 4

The screenshot shows a software interface with a search bar under the 'Problems' tab. The search term 'hypertension' is entered, and a dropdown list of diagnosis codes is displayed. The codes include:

- Dx diagnosis: 348.2 Benign intracranial hypertension
- Dx diagnosis: 365.04 Ocular hypertension
- Dx diagnosis: 401.0 Malignant essential hypertension
- Dx diagnosis: 401.1 Benign essential hypertension
- Dx diagnosis: 401.9 Unspecified essential hypertension
- Dx diagnosis: 405.0 Malignant secondary hypertension
- Dx diagnosis: 405.01 Malignant renovascular hypertension
- Dx diagnosis: 405.09 Other malignant secondary hypertension
- Dx diagnosis: 405.1 Benign secondary hypertension
- Dx diagnosis: 405.11 Benign renovascular hypertension

In this case, the “Problem” button is clicked to reveal a “Search” box, and the search term is “hypertension”. The search shows all of the different diagnoses that the provider can select from.



## Getting Population-Based Management Reports – Step 5

Title	Description
Diagnosis registry	Search patients that have a particular diagnosis or ICD9 code.
Medication report	Search patients that have been prescribed a particular medicine.
<b>Patient Lists</b>	<b>Search patients various combinations of criteria.</b>
Chart notes report	Search all of your practice's chart notes.
H1N1 candidacy report	Search all of your practice's patients for H1N1 risk candidates.
PHR User report	See all of the patients in your practice that have access to their PHR.
Kareo bill report	View all of your bill submissions.
Fax referrals report	View all of the fax referrals you have made.
Drug interactions report	Review the responses to Drug Drug and Drug Allergy interaction alerts.
ONC Stage 1 - Meaningful Use Report	Prepare your submission form to ONC.
ONC Stage 1 - CQM Report	Quality Control Measurements for ONC Stage 1.
e-Prescriptions report	Retrieve a history of all e-Prescriptions per provider.

End user view of screen provides simple access to the reports their EHR security access level allows them to run





## Privacy, Security and Confidentiality

All existing federal and state regulations must be applied to the management of patient information

[“Office of the National Coordinator Guide to HIPAA Privacy and Security in Meaningful Use”](#)

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## Links to Resources

- To find out about individual EHR certification:  
<http://oncchpl.force.com/ehrcert?q=chpl>
- Meaningful Use Objective and Measure Specifications:  
<https://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/downloads/EP-MU-TOC.pdf>
- Patient information that is shared:  
<http://www.corepointhealth.com/sites/default/files/whitepapers/continuity-of-care-record-ccr.pdf>
- Peer-to-peer technical assistance:  
<http://www.healthit.gov/providers-professionals/ehr-implementation-steps>
- Additional National Council Resources  
[http://www.thenationalcouncil.org/cs/HH\\_TA\\_Resource\\_Center](http://www.thenationalcouncil.org/cs/HH_TA_Resource_Center)

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We're here to help!

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