Real heroes don't wear capes.
Using HIE Data to Reduce Costs & Improve Care

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Learning Objectives

1. Describe what data sources are available from Arizona’s health information exchange and other sources to support healthcare providers in managing population health and earning VB incentives.

2. Learn methods and strategies for customizing HIE data and services as part of a data management strategy.

3. Present three use cases describing clinical and program strategies that make data actionable and produce measurable changes in quality outcomes and clinical performance.
What is Health Information Exchange (HIE)?

• An electronic health information exchange (HIE) allows doctors, nurses, pharmacists, other health care providers and patients to appropriately access and securely share a patient’s vital medical information electronically—improving the speed, quality, safety and cost of patient care.

• “Real-time” visibility to a patient’s “longitudinal” health record (diagnosis, medications, when were they last seen in an ER, etc.) can vastly improve the completeness of a patient’s clinical history when they present to a health system provider.

• Timely sharing of vital patient information can better inform clinical decision making at the point of care and allow providers to:
  • Improve diagnoses
  • Avoid medication errors
  • Decrease duplicate testing
  • Avoid readmissions
What is Health Current?

• A public-private partnership that improves health and wellness by advancing the secure and private sharing of electronic health information.

• A Data Trustee and Data Manager for the Arizona healthcare community.

• Provide secure access to patient health information for Arizona’s healthcare community.
740 HIE Participants - 7/1/2020
## HIE Operations & Data Exchange

<table>
<thead>
<tr>
<th>Service</th>
<th>Volume at 5/31/2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inpatient Discharges</td>
<td>95.8%</td>
</tr>
<tr>
<td>ED Visits</td>
<td>98.6%</td>
</tr>
<tr>
<td>Patients</td>
<td>13.3M</td>
</tr>
<tr>
<td>Monthly Transactions Received</td>
<td>23.2M</td>
</tr>
<tr>
<td>Monthly CCDs Received</td>
<td>3.3M</td>
</tr>
<tr>
<td>Monthly Alerts Sent</td>
<td>7.7M</td>
</tr>
<tr>
<td>Patient Accessed via Portal (point in time)</td>
<td>155K</td>
</tr>
</tbody>
</table>
HIE as Part of a Comprehensive Population Health Strategy
What is Population Health?

• A simple definition:
  Proactive management of health in a population

• Key components
  • Data Strategy
  • Patient Engagement Strategy
  • Payment Strategy
Data Strategy Decisions

• Where to get the biggest bang for the buck with the least investment?
  • Saves the most money
  • Produces measurable clinical improvement
  • Simple (excel vs. data warehouse/analytics platforms)
  • Supports small, focused changes in clinical & back office workflow
  • Supports more proactive care models
• Examples:
  • Reducing inpatient utilization
  • Improving immunization rates
# Data Sources

<table>
<thead>
<tr>
<th>Source</th>
<th>Strengths/Weaknesses</th>
</tr>
</thead>
</table>
| HIE                                         | • Frequency can be customized to provider need  
• Comprehensive (all treating providers)  
• Part 2 limitations for some providers & services                                      |
| EHR                                         | • Provider services/data only                                                        |
| Claims                                      | • Lagged  
• Contingent on quality, completeness of coding  
• Comprehensive (all treating providers)                                             |
| Staff                                       | • Anecdotal                                                                          |
| Special Data Extracts (ACO, health plan, CIN) | • Targeted  
• May only be partial population based on payer                                      |
HIE Services Used in Population Health

Clinical Reports
Capture & share patient health information with HIE Participants utilizing push/pull and query/response functionality in real time

• Last 90 days of services across all physical health providers. Can include behavioral health services with patient consent.
• Individualized – one patient at a time

Files
Custom clinical data reports on aggregate populations in electronic formats

• Can use 36 month period for population health activities (risk stratification, outreach campaigns, etc.)
HIE Services Used in Population Health

HIE Portal
Secure online access to a consolidated patient record, including specialized view of SMI patient crisis data

• Includes all treating physical care providers. Can include behavioral health services with patient consent.
• Individualized – one patient at a time.
• Used by care managers & clinicians to identify the complete patient history for care coordination, transitions of care, changes, etc.
HIE Portal
Data Available (varies by data source)

- Demographics
- Allergies/Adverse Reactions
- Medications
- Diagnosis/Problem List
- Procedures/Treatments
- Diagnostic Test Results
- Immunizations
- Vital Signs
- Advance Directives
- Payers
- Family History
- Social History
- Clinical Documents
  - Discharge Summary
  - Emergency Room Report
  - Encounter Summary
  - History & Physicals
  - Operative Notes
  - Consultation Notes
  - BH Court Orders
HIE Services

Patient Alerts
Event driven notifications triggered by admissions, discharges, registrations and clinical/laboratory results

• Notification that an identified event has happened to a member of a pre-defined population (e.g. high needs patients, chronic care panels, SMI, condition-specific panels)

• Used by care managers, case managers & clinicians for monitoring care plan activities (e.g. annual labs, needed tests) & utilization of services
Types of Alerts

Admission / Discharge / Transfer (ADT)
- Emergency Department Visits
- Hospital Inpatient Admits
- Outpatient Treatment Visits

Laboratory Results
- By Ordering Provider
- Out of Range Results
- COVID-19 Test Results
Alert Services

Real-time Alerts

• Individualized based on identified event
• Smaller patient panels
• Immediate care team response, next day coordination of care, follow through on tests ordered

Batch Alerts

• Aggregate reports for all patients experiencing the event or condition being monitored
• Larger patient panels
• Can be trended to monitor performance over time at a team/clinic level
Data Management & Monitoring
Getting Started

• Identify gap or outlier to manage & monitor
  • Population (children, SMI, justice involved)
  • Pattern (utilization, gaps in care, no show)
  • Condition (diabetes, CHF, asthma)
  • TIP Measures!

• Identify data sources that align with the target
  • Use more than one
  • Document limitations/qualifiers
Reports

- Standardized reports process & format
  - Supports transparency across the company
  - Supports confidence in the data
  - Actionable focus
  - Supports clinical strategic thinking

Data — Action — Outcome
Considerations for Reports

• Type
  • Normalized (per 1,000) vs frequency based
  • Aggregate vs individual
  • Data vs graphs
• Frequency - establish a rhythm (same report, same meeting, same time of month)
• Timeframe - multi-year trends vs contract year trends
• Audience/Purpose – company-wide vs site/team specific
• Workflow – make data & report review a part of the regular clinical workflow
• Measure, monitor, re-measure – don’t forget to celebrate!
Using Data to Manage High Cost/High Need Populations

Michael Franczak, Ph.D.
Copa Health
Subtitle:

How we use the data from the Health Information Exchange and other data sources to conduct our Population Health program at Copa Health.
Social Determinants of Health (SDOH)
Co-Morbidities
Risk Stratification
Numbers to Action
Functional Risk Analysis
Teamwork w/ Skillful Adaptation
- Tracking outcomes
- Identifying individuals with Emerging Risks
- Track the entire population for key indicators
- Alert campus, teams, BHMP’s and PCP’s of issues
- AHCCCS TIP Program
- Manage Value-Based Contracts
Population Health

- Defined as "the health outcomes of a group of individuals, including the distribution of such outcomes within the group". It is an approach to health that aims to improve the health of an entire human population.

- In order to conduct Population Health activities we need current and accurate data. We also need information that is larger than we have in our own system.
As defined by the World Health Organization (WHO), SDOH are “the conditions in which people are born, grow, live, work and age.

Health is also determined in part by access to social and economic opportunities; the resources and supports available in our homes, neighborhoods, and communities; the quality of our housing; the safety of our homes; the cleanliness and availability of water, food, and air; and the nature of our social interactions and relationships.

The World Health Organization's Commission reported that the SDOH factors were responsible for the bulk of diseases and injuries and these were the major causes of health inequities in all countries.
Social Determinants

- While medical and behavioral health care are vital components of health, research has shown it accounts for only 10% of the factors necessary to support high-quality health for the individuals we serve.
- The other 90% include factors related to the Social Determinants of Health or SDOH.
- Helping participants obtain food boxes, finding housing, preventing evictions and organizing transportation.
Comorbidities

- Approximately one-fourth of U.S. health care expenses are incurred by 1 percent of the U.S. Those few individuals who consume a large share of health care resources have been called *High Risk* or who we will call “Familiar Faces”.

- In contrast, half of the U.S. population incurs only 3 percent of total health care expenses. Psychiatric disorders were among 7 of the top ten most frequent co-morbid triads in the most expensive 5 percent of Medicaid beneficiaries with disabilities.

- Adults who had any mental illness, serious mental illness, or major depressive episodes in the past year had increased rates of hypertension, asthma, diabetes, heart disease, and stroke.
Distribution of health expenditures for the U.S. population, by magnitude of expenditure, 2009

Source: Agency for Healthcare Research and Quality analysis of 2009 Medical Expenditure Panel Survey.
STEEP HUMAN AND ECONOMIC COSTS

Estimated total societal cost of substance abuse in the U.S. is $510.8 billion per year.

Mental disorders: ~$94 billion in lost productivity costs per year.

Alcohol and drug abuse & dependence: ~ $263 billion in lost productivity costs per year.

Economic costs of mental, emotional, and behavioral disorders among youth: ~$247 billion.
CO-MORBIDITY CHALLENGES

Adults who had any mental illness, serious mental illness, or major depressive episodes in the past year had increased rates of hypertension, asthma, diabetes, heart disease, and stroke (new NSDUH analysis, 2008-2009)

Most psychiatric medications, particularly anti-psychotic medications, can cause weight gain, obesity and type 2 diabetes, all of which impact mental conditions such as major depression,

Unless the person is receiving all of their care from one agency, the information on other co-morbid conditions is not routinely available without a health information exchange.

The reasons for Hospital and ER visits are critical for follow-up.
Risk Stratification

- Identifying individuals and their risk of adverse outcomes and excessive utilization is the first step in targeting a population for targeted interventions.
- To do that you need real-time utilization, diagnoses, engagement in treatment and adherence to treatment recommendations.
- We use HIE data, information from the Health Plan and our own clinical record using an algorithm to identify our High Risk list by campus.
- The list is update routinely and an emerging risk list is also maintained.
Number to Action

- Numbers lead to data, data to information, information to knowledge and knowledge to action
Functional Risk Analysis

- Social Determinants and Social Supports
- Biological Conditions, Health Care Utilization and Health Literacy
- Psychiatric Stability
- Hypothesis The Why
- Interventions

Teamwork w/ Skillful Adaptation Interventions are targeted to the most likely function of the behavior
Functional Risk Analysis

What is the targeted intervention most likely to be successful?

Psychiatric symptom stability, substance use?

Acute and chronic medical conditions.

Identify housing stability, food, transportation, etc.

Social Determinants and Social Supports

Biological Conditions, Health Care Utilization and Health Literacy

Psychiatric Stability

Hypothesis

Based on the information gathered what is the most likely purpose of the behavior?

Attendance at psychiatric and other clinic appointments, adherence to medications, participation in other therapeutic interventions, home visit data.

What services does the person use (PCP, Pain Management Clinic, Emergency rooms, etc.)

Does the person follow thru with medications, attend appointments, go to specialists?

Is the person attending to these conditions.

Also identify the social supports available to the person (family, friends, roommates, etc.)
Ed Utilization June 2019- June 2020

ED Admits

---|---|---|---|---|---|---|---|---
220 | 161 | 126 | 142 | 125 | 175 | 154 | 121 | 116

May-19 to Jun-20
Tracking outcomes

- Measure progress monthly and report back to the team
- Remove individuals after sustained progress
- Continue to monitor those removed for a period of time
Identifying individuals with Emerging Risks

- Continue to track the entire population in order to identify additional individual’s usage patterns.
- Add to list and begin FRA process
- Track the entire population for key indicators
- Lab tests, preventative care, and hospital follow-up.
- Alert campus, teams, BHMP’s and PCP’s of issues

The chart shows the count of data for different programs and locations, with data categorized into Reactive, Null, and Non-Reactive.
Using Data to Engage High Risk Members

Mary Jo Whitfield, MSW
Jewish Family & Children’s Services
JFCS - Use of the HIE

- To establish coordination of care and clinical team follow-up with members who frequent Emergency Departments.

- To engage members who are paneled to JFCS but have not been seen regularly, i.e.: Navigate SMI, PCP.

- The HIE provides the information we need to begin our outreach and engagement activities.
JFCS – Active Outreach Protocol

• Send out contact letters to member’s last known address. Document the effort in the EHR.

• Check Jail information line for member information.

• Check with local shelters and homeless service providers on how to coordinate efforts when member is homeless.

• Develop a contact person at other service providers.

• Follow up with information as soon as possible.

• Take notes for the outcome of outreach attempts and document efforts into the EHR.

• When information of other services is present with Paneled Member the service provider is contacted to ascertain the active status of the member.

• Take notes when researching the HIE but do not cut and paste data into the EHR.
JFCS – COVID-19 Pandemic Response

• During the Pandemic the HIE provides important alerts regarding members’ COVID-19 test results.

• The information provided by the HIE has allowed us to better manage member and staff safety in the clinic and the community.
Tracking COVID Through the HIE
Using Data to Manage Patient Care in the COVID Pandemic

Vicki Staples, M. Ed.
Valleywise Health
Valleywise Health’s Relationship with Healthcurrent

• Valleywise Health (formerly the Maricopa Integrated Health System) has actively partnered with Arizona’s HIE for >10 years.

• Kelly Summers, SVP and CIO of Valleywise Health is a Healthcurrent Board of Director member and represents the interests and concerns of Valleywise Health and the patient population of Arizona as it relates to health data.

• Other Valleywise Health leaders, Dr. Tony Dunnigan, for example participates in the Healthcurrent Clinical Advisory Council.

• All participants within Healthcurrent actively participate by both publishing health information data to the exchange, as well as, appropriately subscribing to the consumption of key data from the exchange.
How does Valleywise Health Participate and Utilize Data from Healthcurrent?

- Currently, Valleywise Health publishes all Admission, Discharge, and Transfer (ADT), lab and imaging results, and Continuity of Care Documents (CCDs) from our Epic EMR to Healthcurrent.

- Due to our unique circumstance regarding Behavioral Health, Valleywise Health does not transmit any relative clinical data for our Behavioral Health patients.

- We have recently begun to more effectively integrate the Healthcurrent information more seamlessly within Valleywise Health’s Epic EMR application.
Current Valleywise/HealthCurrent Activities

Operationalization of access to HealthCurrent portal (3+ years)
ADT alerting pilot at Sunnyslope Health Center (~18 months)
Incorporation of portal directly into Epic with single sign-on/patient context (ongoing)
COVID test alerting (enabled 4/22/20)
Real World Examples of Healthcurrent Data Consumption

• With the current COVID-19 Pandemic, Healthcare organizations were quickly looking for data to ascertain whether a patient presenting at their institution had been tested and resulted for the COVID-19 virus perhaps at another healthcare facility?

• Enter Healthcurrent! As previously stated, the vast majority of providers and labs in the Phoenix area publish their results to Healthcurrent!

• In collaboration with both HonorHealth and Healthcurrent, the Valleywise Health Information Technology team was able to build a direct interface between Valleywise Health’s Epic EMR and Healthcurrent specifically for a COVID-19 lab result to be “ingested” into our EMR and most importantly nearly real-time as the patient is being registered!

• This real-time “clinical intelligence” allows for a far more appropriate clinical response upon patient presentation…knowing whether they’re COVID-19 Positive or Negative!
### COVID-19 RESULTS

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
<th>Interpretation</th>
<th>Result Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>[94500-6_3] Overall Result:</td>
<td>Not Detected</td>
<td>NEGATIVE</td>
<td>04/12/2020 3:20 PM</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
<th>Interpretation</th>
<th>Result Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>[7566067645] Coronavirus (COVID-19) SARS-CoV-2 Result</td>
<td>Not Detected</td>
<td>NEGATIVE</td>
<td>04/13/2020 11:37 PM</td>
</tr>
</tbody>
</table>

Data Source: Sonora Quest Lab
Activity Time: 04/12/2020 3:20 PM

Data Source: Banner Estrella Medical Center: HL7
Activity Time: 04/12/2020 3:20 PM

Lab Order: [907080] SARS-CoV-2 RNA, QL, RT PCR (COVID-19) - Swabs
Lab Order: [7558833037] COVID19 SQL
Overview of Steps to Receive and Act Upon Health Current Alerts

- Monitor designated Valleywise Health email inbox for alerts from Health Current
- Alerts delivered to your Valleywise Health email inbox will have NO patient identifying information in them
- You will be re-directed to access a Health Current mailbox which will have the patient identifying information
- Use that information to access the Health Current portal to look up the patient
- Download applicable information
- Scan into EPIC record
- Follow-up as indicated

Step 1: Health Current Alerts are sent to your Valleywise Health Email Inbox

Alerts sent to your Valleywise Health Inbox will have NO patient identifying information. You must log into your Health Current mailbox to find what patient you have received the alert for.

Step 2: Upon Clicking on the Health Current Email in your Valleywise Inbox, you are Re-Directed to your Health Current Inbox

You can request to receive alerts on an individual level or in a batch report for Admissions, Discharges, and/or Transfers, as well as for COVID-19 testing*

*Note: as of 4/21/2020, Valleywise Health has chosen daily batch alerts for ACT, First Episode, and Mesa OP. This can be changed at any time.

Step 3: Log into the Health Current Portal and Look up the Identified Patient

*COVID-19 tests should be found under Laboratory Results within the patient’s Health Current record.
Imagine fully informed health.
Imagine fully informed health