Welcome to NASTAD’s Health Systems Integration Data Consultation and Workshop

Wifi: SSO WIFI 35
Password: 2023830000
Welcoming Remarks
Murray Penner
Opening Activity
The Health Informatics and Claims Data Landscape: Building Capacity for Public Health Informatics

Kelsey Donnellan, MPH(c)
Fellow, Health Systems Integration
Overview

- Introduction to NASTAD’s Health Systems Integration team
- Connections: From Health Informatics to Improved HIV Outcomes
- Consultation Goals
Health Systems Integration (HSI)

Our Team

Amy Killelea, JD
Sean Dickson, JD MPH
Edwin Corbin-Gutierrez
Kelsey Donnellan, MPH(c)
CONNECTIONS:
from HEALTH INFORMATICS to IMPROVED HIV OUTCOMES
Connections

- Health Informatics Landscape Overview
- Value Proposition
- From access to information
- From data to information
- Data in Action and Action Items
Medicaid Claims Background

- May be collected and housed within the Medicaid office or through third party organizations, such as Medicaid managed care organizations (MCOs)
- Depending on the data sharing agreement (DSA), personally-identifiable or aggregate data
- Time frame for access is set by the DSA
Sources of Data

Medicaid Claim(s)
Accessing Medicaid Claims Data

(1) Patient Notification and consent

(2) Services/procedures and diagnosis are coded based on CMS standards

(3) House data from Medicaid providers and MCOs

(4) Health department receives data based on data sharing agreement

(5) Health department fulfills data strategy
Major Uses of Medicaid Data

- Match with HIV surveillance data
- Collaborate between HIV programs and Medicaid to coordinate care services
- Assess testing gaps among Medicaid beneficiaries
- Identify people not in care nor prevention services
- Monitor PrEP uptake
Relationship to Health Equity

- More than 30% of people living with HIV enrolled in Medicaid
- Inform outreach efforts for Medicaid beneficiaries
- Monitor overall health expenditures of beneficiaries living with HIV, including care and treatment not related to their HIV diagnosis
APCD Background

- Established by state legislation starting in 2007
- Aggregate public and private payer claims
- Designed to capture population-level trends, not individual level data
- Can take months from date of service to reach APCD
Sources of Data

- Qualified Health Plans (on- and off-Marketplace)
- Medicaid, Medicaid MCOs
- Dental benefit managers
- Pharmacy benefits managers
- Third-party administrators

APCD
Accessing APCD Data

1. Patient Notification and consent
2. Services/procedures and diagnosis are coded
3. De-identify data and run analysis
4. Health department receives data
5. Health department fulfills data strategy
Major Uses of APCD Data

- Determining the capacity and distribution of health care resources to inform Medicaid managed care contracting
- Comparing the cost of care and treatment by provider and geographic location
- Cross matching with HIV Surveillance to track out of care populations
Relationship to Health Equity

- Improve transparency in health care
  - Compare service utilization among hospitals, geographic regions, racial groups, etc.
  - Provide data for value based outcomes

- Analyze cost-effective interventions at population level
HIE Background

- Shift towards HIE following Meaningful Use EHR incentive program
- Administered by public, private, or hybrid organizations
- Designed to make patient records available for all participating providers, which may include Medicaid
- Available on the same day of service
Sources of Data

- Hospitals
- Providers & Provider Groups
- Laboratories & Pharmacies
Accessing HIE Data

(1) Patient Notification and consent

(2) Services/procedures and diagnosis are written into EHR

(3) House data from participating providers and hospitals

(4) Health department receives data based on query

(5) Health department fulfills data strategy
Major Uses of HIE Data

- Assess testing gaps
- Identify people not in care nor prevention services
- Identify trends in sexually transmitted infection (STI) and seroconversion to inform outreach interventions
- Monitor PrEP uptake
- Coordinate care services
Relationship to Health Equity

- Allows authorized users to appropriately access patients’ vital medication information, regardless of where they were seen last.
- Improve the speed, quality, safety and cost of patient care by keeping patient information together.
Leveraging Claims Data and Electronic Health Records
Improving Outcomes

- **Augment** HIV surveillance efforts
  - Collect data after out-of-pocket max has been met
  - Understand connection between whole person health care services and HIV-related services

- **Support** services coordination and outcomes-based interventions across the HIV Care Continuum
  - Identify gaps through GIS mapping or stratified queries to compare groups of people or particular services
Improving Outcomes, con’t

- **Implement** targeted interventions based on community risk and geography
  - Translate population-level trends to outreach efforts and staff development

- **Monitor** pre-exposure services utilization, including pre-exposure prophylaxis (PrEP) uptake
  - Stratify queries to identify Truvada for PrEP
Accessing Information

- **Consider** eligibility considerations
  - Who can access, and how often can they access the databases?

- **Develop** data strategy
  - Set objectives, timelines, and staff protocols
  - Outline levels of data, technical infrastructure requirements, and compliance with confidentiality considerations

- **Consider** staff and infrastructure, along with associated costs

- **Establish** data use or data sharing agreement
From Access to Information
# Types of Access

<table>
<thead>
<tr>
<th>Defined Individuals</th>
<th>Personally-Identifiable</th>
<th>Aggregate Data</th>
<th>Access Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrolled in ADAP</td>
<td>To track service utilization by individuals or research treatment effectiveness for subpopulations.</td>
<td>To identify trends across the state for clients and people engaged with the state health department in any capacity.</td>
<td>State health department must be authorized to access client-level data and develop patient panels, in accordance with HIPAA and state laws.</td>
</tr>
<tr>
<td>Name</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical ID #12345</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race and ethnicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD4 count and viral</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>load</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Populations with Attributes</th>
<th>Personally-Identifiable</th>
<th>Aggregate Data</th>
<th>Access Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD4 of 500</td>
<td>To identify people not linked or retained in care. Case managers can provide necessary support based on the client’s information.</td>
<td>To detect gaps in surveillance efforts by payers, providers, and hospitals.</td>
<td>State health department must develop stratification algorithms for desired attributes.</td>
</tr>
<tr>
<td>HIV (+)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PrEP User</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
From Data to Information
Types of queries

- Foundational querying aggregate data
- Develop a stratification algorithm for aggregate data
- Coding and querying personally-identifiable data
  - Temporal
  - Biological
  - Geographic
Consultation Goals
Develop a Data Strategy

- Objectives
- Timelines
- Type of data
- Technical infrastructure requirements
- Compliance with confidentiality considerations
- Staff protocols
Learning Objectives

- Understand how to analyze data from APCDs, HIEs, and Medicaid Claims databases
- Identify ways to engage with the community to develop strategies for data collection
- Establish next step in developing data sharing agreements
- Outline data strategy development
  - Including health informatics staff capacity, infrastructure, and software
Contact Us

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Edwin Corbin-Gutierrez
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(202)434-8008
Public Health Information Exchange for Local Health Departments

• Lilly Kan, MPH
• Senior Director, Infectious Disease & Informatics
• February 9, 2017
**LOCAL HEALTH DEPARTMENT (LHD) INFORMATICS USE**

The State of Health Informatics Capacity and Needs of Local Health Departments. Unpublished data.

<table>
<thead>
<tr>
<th>Uses</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting and finance</td>
<td>70.3%</td>
</tr>
<tr>
<td>Programmatic reporting</td>
<td>64.6%</td>
</tr>
<tr>
<td>Surveillance</td>
<td>63.4%</td>
</tr>
<tr>
<td>Billing</td>
<td>60.7%</td>
</tr>
<tr>
<td>Clinical records management</td>
<td>58.3%</td>
</tr>
<tr>
<td>Quality improvement/assurance activities</td>
<td>47.4%</td>
</tr>
<tr>
<td>Program Improvement</td>
<td>41.7%</td>
</tr>
<tr>
<td>Human Resources Management</td>
<td>22.9%</td>
</tr>
<tr>
<td>Do not know</td>
<td>8.2%</td>
</tr>
<tr>
<td>None of the above</td>
<td>2.5%</td>
</tr>
<tr>
<td>Other</td>
<td>1.8%</td>
</tr>
</tbody>
</table>

$n = 324$
## CURRENT LEVEL OF LHD ACTIVITY IN INFORMATION TECHNOLOGY SYSTEMS

<table>
<thead>
<tr>
<th>System</th>
<th>Implemented</th>
<th>Implementation in process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immunization registries</td>
<td>85%</td>
<td>3%</td>
</tr>
<tr>
<td>Electronic disease reporting systems</td>
<td>79%</td>
<td>3%</td>
</tr>
<tr>
<td>Electronic lab reporting</td>
<td>49%</td>
<td>8%</td>
</tr>
<tr>
<td>Electronic health records</td>
<td>37%</td>
<td>24%</td>
</tr>
<tr>
<td>Health information exchanges</td>
<td>17%</td>
<td>19%</td>
</tr>
</tbody>
</table>

n=459

Source: National Association of County and City Health Officials (NACCHO) 2016 National Profile of Local Health Departments
### CURRENT IMPLEMENTATION OF INFORMATION TECHNOLOGY SYSTEMS BY SIZE OF POPULATION SERVED

**Percent of LHDs that have implemented technology**

<table>
<thead>
<tr>
<th></th>
<th>Immunization registries</th>
<th>Electronic disease reporting systems</th>
<th>Electronic lab reporting</th>
<th>Electronic health records</th>
<th>Health information exchanges</th>
</tr>
</thead>
<tbody>
<tr>
<td>All LHDs</td>
<td>85%</td>
<td>79%</td>
<td>49%</td>
<td>37%</td>
<td>17%</td>
</tr>
<tr>
<td>Small (&lt;50,000)</td>
<td>84%</td>
<td>78%</td>
<td>45%</td>
<td>33%</td>
<td>16%</td>
</tr>
<tr>
<td>Medium (50,000–499,999)</td>
<td>85%</td>
<td>81%</td>
<td>55%</td>
<td>42%</td>
<td>20%</td>
</tr>
<tr>
<td>Large (500,000+)</td>
<td>93%</td>
<td>86%</td>
<td>64%</td>
<td>59%</td>
<td>17%</td>
</tr>
</tbody>
</table>

n=459

*Source: National Association of County and City Health Officials (NACCHO) 2016 National Profile of Local Health Departments*
IMPLEMENTATION OF INFORMATION TECHNOLOGY SYSTEMS OVER TIME

Percent of LHDs that have implemented technology

- Immunization registries: 75% in 2008, 85% in 2010, 85% in 2013, 85% in 2016
- Electronic disease reporting systems: 74% in 2008, 79% in 2013
- Electronic lab reporting: 48% in 2008, 49% in 2013
- Electronic health records: 8% in 2008, 6% in 2010, 14% in 2013, 17% in 2016
- Health information exchanges: 19% in 2008, 19% in 2010, 23% in 2013

Source: National Association of County and City Health Officials (NACCHO) 2016 National Profile of Local Health Departments
ACTIVITIES PERFORMED AT OR FOR LHDS

Percent of LHDs Reporting Activities Performed At or For Local Health Departments

<table>
<thead>
<tr>
<th>Activities Performed</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extracts data from information systems</td>
<td>69.5%</td>
</tr>
<tr>
<td>Uses and interprets quantitative data</td>
<td>66.4%</td>
</tr>
<tr>
<td>Uses and interprets qualitative data</td>
<td>55.1%</td>
</tr>
<tr>
<td>Uses statistical or other analytical software</td>
<td>39.7%</td>
</tr>
<tr>
<td>Uses geographic information systems</td>
<td>45.0%</td>
</tr>
<tr>
<td>Conducts business process analysis and redesign</td>
<td>24.0%</td>
</tr>
<tr>
<td>Develops requirements for informatics system development</td>
<td>19.7%</td>
</tr>
<tr>
<td>Provides project management</td>
<td>35.8%</td>
</tr>
<tr>
<td>Acts as ‘super users’ for your information systems</td>
<td>35.8%</td>
</tr>
<tr>
<td>Maintains (modifies content of) a web site</td>
<td>72.1%</td>
</tr>
<tr>
<td>None of the above</td>
<td>10.3%</td>
</tr>
</tbody>
</table>

The State of Health Informatics Capacity and Needs of Local Health Departments

Infrastructure

Only two in five LHDs rate their IT infrastructure as good or excellent.

State-governed and small and medium LHDs are less likely to rate their IT infrastructure as good or excellent.

Electronic Information Systems

29% Still use paper records for storage of clinical data

- Small LHDs are even more likely to use paper records
  - Size of population served
    - Small: 37%
    - Medium: 18%
    - Large: 12%

31% Use a vendor-built electronic health record (EHR) system; 8% use a custom-built or open source EHR system

- Large LHDs are more likely to use an EHR system
  - Size of population served
    - Small: 26%
    - Medium: 53%
    - Large: 72%

9% Provide no clinical services (therefore EHR systems are not applicable)

For more information, contact NACCHO at phinformatics@naccho.org
The State of Health Informatics Capacity and Needs of Local Health Departments

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  - Small: 26%
  - Medium: 53%
  - Large: 72%

9% Provide no clinical services (therefore EHR systems are not applicable)
ENTSITIES SENDING OR RECEIVING ELECTRONIC HEALTH INFORMATION WITH LHDS

<table>
<thead>
<tr>
<th>Entity</th>
</tr>
</thead>
<tbody>
<tr>
<td>State department of health and/or human services</td>
</tr>
<tr>
<td>Laboratories</td>
</tr>
<tr>
<td>Hospitals</td>
</tr>
<tr>
<td>City/county departments/program outside local health department</td>
</tr>
<tr>
<td>Primary care clinics</td>
</tr>
<tr>
<td>Pharmacies</td>
</tr>
<tr>
<td>Long-term care facilities</td>
</tr>
<tr>
<td>Home health agencies</td>
</tr>
<tr>
<td>Health or county-based purchasing plans</td>
</tr>
<tr>
<td>Jail/correctional health</td>
</tr>
</tbody>
</table>

LARGEST CHALLENGES FOR LHDS

- HIPAA, privacy, or legal concerns: 40%
- Lack of or access to technical support or expertise: 37%
- Competing priorities: 36%
- Unclear about value of return on investment: 28%
- Do not know exchange partners’ ability to electronically exchange health information: 28%
- Subscription rates for exchange services are too high: 27%
- Insufficient information on exchange options available: 22%
- Lack of support from leadership: 22%
- Exchange partners do not have the ability, interest, or incentive to electronically exchange information: 20%
- Inability of our organization's EHR system to exchange electronic messages in standardized format: 15%
- Limited broadband/internet access: 9%

n = 277

### Percent of Local Health Departments by Interoperability Status

<table>
<thead>
<tr>
<th>Local health department jurisdiction population</th>
<th>None</th>
<th>Most Systems</th>
<th>Some Systems</th>
<th>All Systems</th>
<th>Don't Know/Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;50,000</td>
<td>29.4%</td>
<td>6.2%</td>
<td>0.9%</td>
<td>31.1%</td>
<td></td>
</tr>
<tr>
<td>50,000-499,999</td>
<td>17.7%</td>
<td>30.4%</td>
<td>2.2%</td>
<td>43.4%</td>
<td></td>
</tr>
<tr>
<td>500,000+</td>
<td>6.9%</td>
<td>3.8%</td>
<td>69.5%</td>
<td>30.2%</td>
<td></td>
</tr>
<tr>
<td>All LHDs</td>
<td>24.0%</td>
<td>6.1%</td>
<td>1.3%</td>
<td>38.5%</td>
<td></td>
</tr>
</tbody>
</table>

• Care coordination and continuation of care difficulties
• Difficulty coordinating activities across different programs within local health departments
• Different levels of observation for different data make data integration difficult
• Duplication of effort
• Delay in detecting outbreaks
• Loss of efficiency in information retrieval due to multiple log-on requirements
• Timeliness of data jeopardized
• No real use of interoperable systems
## HIV CLINICAL SERVICES PROVIDED BY LHDs

### Clinical programs and services provided directly in the past year

<table>
<thead>
<tr>
<th>Program/service</th>
<th>% LHDs</th>
<th>Program/service</th>
<th>% LHDs</th>
<th>Program/service</th>
<th>% LHDs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immunization</td>
<td></td>
<td>Treatment for communicable diseases</td>
<td></td>
<td>Other clinical services</td>
<td></td>
</tr>
<tr>
<td>Adult immunizations</td>
<td>90%</td>
<td>Tuberculosis</td>
<td>79%</td>
<td>Laboratory services</td>
<td>38%</td>
</tr>
<tr>
<td>Childhood immunizations</td>
<td>88%</td>
<td>Other STDs</td>
<td>63%</td>
<td>School-based clinics</td>
<td>34%</td>
</tr>
<tr>
<td>Screening for diseases/conditions</td>
<td></td>
<td>HIV/AIDS</td>
<td>35%</td>
<td>Oral health</td>
<td>28%</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>84%</td>
<td>Maternal and child health services</td>
<td></td>
<td>Asthma prevention and/or management</td>
<td>22%</td>
</tr>
<tr>
<td>Other STDs</td>
<td>65%</td>
<td>Women, Infants, and Children (WIC)</td>
<td>66%</td>
<td>Home health care</td>
<td>20%</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>62%</td>
<td>Home visits</td>
<td>60%</td>
<td>Correctional health</td>
<td>13%</td>
</tr>
<tr>
<td>Blood lead</td>
<td>61%</td>
<td>Family planning</td>
<td>53%</td>
<td>Substance abuse</td>
<td>11%</td>
</tr>
<tr>
<td>High blood pressure</td>
<td>54%</td>
<td>Early and periodic screening, diagnosis, and treatment</td>
<td>38%</td>
<td>Comprehensive primary care</td>
<td>11%</td>
</tr>
<tr>
<td>Body Mass Index (BMI)</td>
<td>53%</td>
<td>Well child clinic</td>
<td>29%</td>
<td>Behavioral/mental health</td>
<td>10%</td>
</tr>
<tr>
<td>Diabetes</td>
<td>34%</td>
<td>Prenatal care</td>
<td>27%</td>
<td>Emergency medical services</td>
<td>4%</td>
</tr>
<tr>
<td>Cancer</td>
<td>32%</td>
<td>Obstetrical care</td>
<td>8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiovascular disease</td>
<td>25%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

n = 1,461–1,899

Source: National Association of County and City Health Officials (NACCHO) 2016 National Profile of Local Health Departments
Digital Bridge

The Digital Intersection of Health Care and Public Health

About the Initiative
Representatives from public health, health delivery systems, and health information technology have agreed to improve the health of our nation by creating a bidirectional information flow between public health and health care. Electronic case reporting (eCR) is a natural first step toward achieving the vision. Capitalizing on existing methods for clinical data capture and exchange has potential to increase data consistency, completeness, and timeliness of public health surveillance data.

The approach for this project is based on public-private partnership motivated by mutually beneficial outcomes. These outcomes include improved data for public health and clinical practice and lower costs for information sharing.

Activities

Governance
An interim governance body is forming this fall, with equal representation from public health, health care delivery systems, and electronic health record vendors. Workgroups will focus on specific issues and report up to the governance body. These workgroups will seek input from existing eCR and other health data interoperability efforts.

Proof of Concept: eCR Pilot Sites
A proof of concept for eCR will be established. The proof of concept phase will consist of pilot demonstrations in various jurisdictions. Pilot sites, including organizations that are currently exploring eCR, will be recruited by early 2017 and results from these pilots are expected to be available by July 2017.

The Robert Wood Johnson Foundation agreed to be the neutral convener for the proof of concept phase, and Dr. John Lumpkin has agreed to chair the initial governance body. Deloitte Consulting and the Public Health Informatics Institute will provide program support.

Next Steps
Sustainability plans and processes (succession planning and participation from a wider audience for governance and workgroups) will be developed.

While the initial pilot activity will focus on electronic case reporting for infectious diseases, the governance principles and the infrastructure improvements that are developed should also be applicable to chronic conditions and other public health issues. This effort is intended to identify a consistent, nationwide, and sustainable approach to using health care’s EHR data to improve public health surveillance. Through more efficient data sharing, the digital bridge initiative will empower both public health and health care with the information needed to improve their constituents’ and patients’ health.

http://phii.org/digital-bridge
EFFORTS TO ADDRESS CHALLENGES (CONTINUED)
Thank you!

lkan@naccho.org