Informatics-Savvy Organization in Public Health: Vision, Strategies and Resources

For a list of resources, go to http://bit.ly/2aK9cUb
Learner Objectives

• Demonstrate best practices for public health leadership seeking to incorporate informatics into their agency’s strategy.

• Describe three strategies your agency can use to assess your informatics capacity and develop an implementation or enhancement plan.

• Identify three strategic actions you can take in your agency to build or enhance informatics capacity.
Our goals

• Provide an engaging and stimulating learning experience
• Spark new ideas and strategies
• Provide practical tools and tips
Faculty and Contributors

• Bill Brand, MPH
  – Public Health Informatics Institute
• Bryant Karras, MD, MPH
  – Washington State Department of Health
• Martin LaVenture, PhD, MPH
  – Minnesota Department of Health
• Wu Xu, PhD
  – Utah Department of Health

• Special thanks to:
  – Bree Allen and Sam Patnoe, Minnesota Department of Health
  – Kim Peifer, Washington State Department of Health
The Framework
Defining “Informatics-Savvy Health Department”

- Skilled workforce
- Informatics vision and strategy
- Well-design, effectively used systems
Defining “Informatics-Savvy Health Department”

Informatics Vision & Governance
- How the agency uses information and IT
- Organizational approach to interoperability
- Effective relationship with community partners and IT
- Policies to ensure confidentiality, security and data integration

Skilled Workforce
- Strategies to improve informatics knowledge and skills
- Informatics unit with agency-wide responsibilities
- Program managers with knowledge and skills in informatics principles, methods and tools

Well-designed & effectively used systems
- Information systems effectively meet the information needs, workflows and practices of staff and programs
- Interoperable systems
- Sound project management principles guide IT projects
The Format
For each of the three components...
• Vision, governance, and leadership - WA
  – One state response - MN

• Skilled workforce - MN
  – One state response - UT

• Well designed, effectively used systems - UT
  – One state response - WA
Your role

- Be thinking critically about how you might apply the stories, tools and tips in your setting
- Record your idea on your Notes page
- Ask questions
- Review the resources when you get home
- Take action!
Key Elements of an Informatics-Savvy Health Department

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Developed by Bill Brand, MPH, Public Health Informatics Institute; Marty LaVenture, PhD, Minnesota Department of Health; Priya Rajamani, PhD, University of Minnesota; Wu Xu, PhD, Utah Department of Health.
Informatics Team formed at WA DOH
- Informatics Project WG established
- Environmental Agency Scan

Planning and Informatics-savvy Assessment with PHII
- Agency wide program interviews
- Draft Informatics Roadmap

Presentation of Roadmap Draft
- In person workshop with agency and outside representatives
- Prioritization of objectives

Feedback and Finalization of Roadmap
- Presentation of updates
- Comment period
- Finalization

Informatics Roadmap finalized: Jan 22, 2016
Who did we “Assess”? 

• Washington DOH Programs across the 6 divisions 
  - Environmental Public Health
  - Disease Control and Health Statistics
  - Office of the Secretary
  - Prevention and Community Health
  - Health Systems Quality Assurance
  - Health Technology Services

• Local Health Jurisdictions
  - Whatcom County
  - Seattle & King County
  - Spokane County

• Tribal Associations and Indian Health Services
What did we find?

Vision, Strategy, and Governance

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 5</td>
<td>Systematic, ongoing efforts underway with quality improvement activities to align results with guiding vision, strategies and performance metrics</td>
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WA DOH

<table>
<thead>
<tr>
<th>Level</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 2</td>
<td>2</td>
</tr>
<tr>
<td>Level 0</td>
<td></td>
</tr>
</tbody>
</table>

Level 5 - Optimized
Level 4 - Measured
Level 3 - Defined
Level 2 - Managed
Level 1 - Initial
Level 0 - Absent
Informatics Roadmap

Goals: Vision, Strategy, Governance

- Improve efficiency of intra/inter-partner data exchange and effective use of data
- Create an Information Governance framework that addresses multi-disciplinary information management
Mission: To improve population health through timely and actionable information

Goals
- Broad long-term aims that define accomplishments of the mission

Objectives
- Specific realistic targets needed to accomplish the goal

Actions
- Steps taken to accomplish objective

Washington State Informatics Roadmap

Mission: To improve population health through timely and actionable information
Tool

Building an Informatics-Savvy Health Department Self Assessment

http://phii.org/infosavvy

Resources for evaluating responses and creating a plan from assessment results – see “Informatics-Savvy Assessment Support” folder

http://bit.ly/2aK9cUb
Tip: Assess “Effectively” and “Affectively”

1. Assess across the agency

2. Value is in the discussion – facilitate the assessments in person

3. Have the right people in the room – staff to management level
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Vision, Governance, and Leadership

- Establish leadership role/responsibility as the State Informatics Director
- Assess readiness for e-health and HIE
- Create an e-public health shared vision and strategic roadmap
- Accelerate informatics training and education
- Coordinate operational activities and set priorities
- Maintain a strong assessment and evaluation program
What do we do?
(Internal strategies)

Coordinate meaningful use (CMS incentive program) activities
- Manage MU registration application and process
- Focus on a few programs – electronic lab reporting, immunizations, cancer reporting, newborn screening

Technical assistance
- Respond to inquiries (e.g., standards, informatics training)
- Provide outreach and education

Support informatics needs of other MDH programs
- Offer training, assessment, and project support
What do we do?
(External strategies)

Coordinate and support the MN e-Health Initiative
(public-private collaborative)
- Manage workgroups to address specific issues
- Develop guidance documents
- Convene stakeholders to discuss issues and needs
- Assess and conduct studies

HIE oversight
- Certify entities that provide HIE services
- Coordinate HIE infrastructure - MNHIN

Provide funding to providers/communities/partners
- Administer MN SIM e-health grants

Technical assistance
- Respond to inquiries
- Provide outreach and education
Tool: Informatics Profile

http://www.phii.org/resources/view/150/public-health-informatics-profile-toolkit
(also available in Dropbox: http://bit.ly/2aK9cUb)
Tip: Using Informatics to Change Public Health Practice

An **INFORMATICS SAVVY ORGANIZATION** is one that has an informatics-skilled workforce, a disciplined approach to information system design and use, and reliably managed IT operation.

**PH INFORMATICS** implies a disciplined approach to information systems design and use that drives improvements in public health practice.

Adapted by: Marty LaVenture, Bill Brand, Minnesota Department of Health, Karen Zeleznak, Bloomington Division of Public Health, 2005
Key Elements of an Informatics-Savvy Health Department

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What is Public Health Informatics?
Informatics as Multi-Discipline Training

Information science
Computer science
Cognitive science
Organizational science
Etc.

Basic Informational Sciences
Public Health Informatics
Public Health Domain

Epidemiology
Lab sciences
Nursing
Policy analysis
Maternal and Child Health
Environmental health

Source: Adapted from Dr. Charles Friedman, *What informatics is and isn’t*, JAMIA, Oct 2012
Example Informatics Workforce Roles and Responsibilities

<table>
<thead>
<tr>
<th>Executive/Leadership Role</th>
<th>Manager/Program Leader Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plans, directs, and formulates policies, sets strategies, and provides the overall direction of agency’s informatics activities.</td>
<td>Directs, manages, and executes day to day operational objectives of public health programs.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Professional Role</th>
<th>Health/Clinical (Licensure) Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applies specialized informatics knowledge, informatics theories, concepts, methods, and tools to ensure effective programmatic use of information and information technology.</td>
<td>Applies informatics theory and practice to the design and use of clinical information systems within a public health agency, or in the design of public health information or decision support systems to better support health/care.</td>
</tr>
</tbody>
</table>

Source: 2013 - CDC, Public health Informatics Institute/Minnesota Department of Health with input from ASTHO & NACCHO Members
PHI Training Opportunities

Practice-based fellowships for new and existing staff (SHINE)

Academic degrees and certificates (Public Health Informatics Certificate, MHI, PhD)

Online, synchronous and asynchronous programs for existing staff and leaders (Informatics Academy)

Partnerships and mentoring (student projects, collaborations with health departments)

Adapted from Brian Dixon, Regenstrief Institute, 2016
Minnesota Example Activities, 2004-2016

- **Academic degrees and certificates**
  - Graduate degrees in health informatics (MHI, PhD) from University of Minnesota School of Public Health

- **Online, synchronous and asynchronous programs**
  - AMIA 10x10 – Health Information Exchange for Population Health
  - PHII Informatics Academy: Business Process Requirements

- **Partnerships and mentoring**
  - Student mentoring/projects from University of Minnesota Nursing Informatics Program
  - Collaborative efforts with external partners – this workshop!

- **Practice-based fellowships**
  - SHINE Fellowships
    - Two current HSIPs and one I-TIPP
Tool: Interoperability for Public Health Agencies

**Question 2.4 Training**

Do staff members have regular and ongoing access to training for informatics or health information technology?

<table>
<thead>
<tr>
<th>Check Box</th>
<th>CMM Level Name</th>
<th>General Description</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>0 - Absent</td>
<td>No capability is evident; “starting from scratch.”</td>
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PHII Agency Interoperability Tool, 2016
Tool: Interoperability for Public Health Agencies

Interoperability for Public Health Agencies: A Self-Assessment Tool

February 15, 2016

Building an Informatics-Savvy Health Department: A Self-Assessment Tool
Tip: Apply for a SHINE Fellow
Key Elements of an Informatics-Savvy Health Department

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Skilled Workforce
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Well-designed & effectively used systems
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Health Informaticians

- Department-level Informatics Office (2007)
- Informaticist Job Descriptions (2011)
- Health Informatics Managers (Division-level)
- Senior Health Informaticists (Bureau-level)
- Health Informaticists (Major System or Program-level)
- Information Security Officers hired under the informatics positions.
Informaticians as Integrators

Current and Proposed Structure to Enhance Interoperability

**STRATEGIC**

- **Inputs:**
  - Collaboration Opportunities
  - Interoperability Opportunities
  - Project/Use Cases
  - Department wide Services
  - Common Solutions Inventory
  - Policy and Data Sharing
  - Future Visioning

- **Outputs:**
  - List of Projects
  - Portfolio of UDOH Services
  - Well documented guidelines for internal data sharing
  - UDOH Future Vision
  - Enterprise Architecture

**TACTICAL**

- UDOH Change Management Committee
- Architecture Standards Team (AST)
- Privacy & Security Network Meeting
- Legal and Privacy Committee
- UDOH Informatics Peer Network

**UDOH Sub-Committees, Networks and Meetings**

- Defined as Needed (e.g. Clinical Data and QI)
- Defined as Needed (e.g. UDOH Data Standards)
- Defined as Needed (e.g. Distributed Analytics)

As-needed Groups
Peer-to-Peer Training

- Department-wide Monthly Informatics Brown Bags since 2007
- Department-wide Informatics Peer Network since 2013
- On Job Training Through Common Responsibilities
  - Project management/Project Plan
  - Business Case Development
  - Use Case Development
  - Requirement Development
  - IT Contract Management
  - Analytics Development
  - IT Service Level Agreement Management
  - System Security Plan & Risk Assessment
As the need for informatics expertise grows, so does the need for informatics job descriptions. PHII partnered with CDC, ASTHO and NACCHO to develop four template job descriptions, from entry level to Chief Informatics Officer for an agency.

• Set the upper limit of the salary high
• Help supervisors to understand what are and what are not Informaticians’ responsibilities
• Provide across-agency communication forum for program-based informaticians.
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Utah Department of Health’s Definition of Population Health:
UDOH integrates its practice with health systems and payers to fully address determinants and outcomes of health in the Utah population and its sub-populations.
# PopHealth Informatics Needs

<table>
<thead>
<tr>
<th>Domain</th>
<th>Public Health Informatics</th>
<th>Population Health Informatics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Source</td>
<td>Public health data</td>
<td>+ clinical &amp; other sources</td>
</tr>
<tr>
<td>Data Model</td>
<td>Disease/event centric</td>
<td>+ person, people, community-centric, relational, integrated</td>
</tr>
<tr>
<td>Interoperability</td>
<td>Silo systems</td>
<td>+ linkage and real-time exchange are required</td>
</tr>
<tr>
<td>User</td>
<td>Public health professionals</td>
<td>+ diverse external users</td>
</tr>
<tr>
<td>Analytics</td>
<td>Standard public health measures, pre-defined conditions</td>
<td>+ flexible aggregations, user-defined measures and populations</td>
</tr>
</tbody>
</table>
## Public Health Internal Interoperability Needs Assessment

<table>
<thead>
<tr>
<th>UDOH System Interoperability Level</th>
<th>Current Capability</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong></td>
<td></td>
</tr>
<tr>
<td>Non electronic data- No use of IT to share information</td>
<td></td>
</tr>
<tr>
<td>Examples include paper, mail, and phone call.</td>
<td>0</td>
</tr>
<tr>
<td><strong>Level 2</strong></td>
<td></td>
</tr>
<tr>
<td>Machine transportable data</td>
<td>5</td>
</tr>
<tr>
<td>Examples include fax, email, and unindexed documents.</td>
<td></td>
</tr>
<tr>
<td><strong>Level 3</strong></td>
<td></td>
</tr>
<tr>
<td>Machine Organizable Data</td>
<td>12</td>
</tr>
<tr>
<td>Structured messages, unstructured content. Human action required.</td>
<td></td>
</tr>
<tr>
<td><strong>Level 4</strong></td>
<td></td>
</tr>
<tr>
<td>Machine interpretable Data</td>
<td>6</td>
</tr>
<tr>
<td>Structured messages, standardized content- including HL7 messages</td>
<td></td>
</tr>
<tr>
<td>No human action required.</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL ASSESSED MAJOR SYSTEMS</strong></td>
<td>23</td>
</tr>
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</table>

*The Center for Information Technology at the National Institutes of Health Four Levels of Data Interoperability*
UDOH Interoperable Assessment Results

**Overall Score**

<table>
<thead>
<tr>
<th>Core Capability</th>
<th>Scores %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Need</td>
<td>90.00%</td>
</tr>
<tr>
<td>Stakeholder Community</td>
<td>75.00%</td>
</tr>
<tr>
<td>Planning Process</td>
<td>68.67%</td>
</tr>
<tr>
<td>Technical Capabilities</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Well-positioned to realize value of information sharing and exchange. Capable of realizing value, but improvements are needed to realize full potential.
Tools for Interoperability Needs Assessment


• Utah Department of Health Interoperability Needs Assessment Data Collection REDCap Tool ([kdavis@utah.gov](mailto:kdavis@utah.gov)) based on Public Health Informatics Profile Toolkit and NIEM Interview Framework

• The National Alliance for Health Information Technology and HIMSS uses the Center for Information Technology definition based on the original article: Walker, Jan, et al. "The value of health care information exchange and interoperability." *Health affairs* 24 (2005): W5. Additional definition starts under "Analytic Framework" page W5-11 [http://content.healthaffairs.org/content/early/2005/01/19/hlthaff.w5.10.full.pdf+html](http://content.healthaffairs.org/content/early/2005/01/19/hlthaff.w5.10.full.pdf+html)
• Department-wide planning, coordination and management are key success factors.
• Well-designed shared services in
  ➢ Metadata management
  ➢ Terminology management
  ➢ Common data model and standards
  ➢ Master Person Index and Provider Directory
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<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Notifiable Conditions – DCHS, PCH, EPH</td>
</tr>
<tr>
<td>Syndromic Surveillance – DCHS</td>
</tr>
<tr>
<td>Hospital Acquired Infection – DCHS</td>
</tr>
<tr>
<td>Lab Results – DCHS</td>
</tr>
<tr>
<td>Births, Deaths, Fetal Deaths – DCHS/CHS</td>
</tr>
<tr>
<td>Hospitalizations – DCHS/CHS</td>
</tr>
<tr>
<td>Immunizations Surveillance System – PCH</td>
</tr>
<tr>
<td>Cancer Registry – PCH</td>
</tr>
<tr>
<td>Newborn Hearing – PCH</td>
</tr>
<tr>
<td>Prescription Drug Monitor – HSQA</td>
</tr>
<tr>
<td>Trauma &amp; Emergency Services – HSQA</td>
</tr>
<tr>
<td>Abortion Data – DCHS</td>
</tr>
<tr>
<td>Death with Dignity Data – DCHS</td>
</tr>
<tr>
<td>Incident and adverse events report – HSQA/CHS</td>
</tr>
<tr>
<td>Birth Defects Surveillance System – DCHS</td>
</tr>
<tr>
<td>Integrated Licensing and Regulatory System – HSQA</td>
</tr>
<tr>
<td>Child Health Intake Form – PCH</td>
</tr>
</tbody>
</table>
Surveillance Functions

**Registry**
Identifiable data used to track health diagnoses, vital status, and/or procedures for defined patient population

Example: Cancer Registry, Syndromic Surveillance

**Case Management**
Identifiable data; Longitudinal management of a case-patient

Example: Disease Surveillance System

**Care Delivery**
Identifiable data used primarily for clinical decision support; Requires bi-directional exchange w/ healthcare system

Example: Prescription Monitoring Program, Immunization Information System

**Survey**
De-identified data used to track population health

Examples: BRFSS

**Licensing**
Data tracked for regulatory purposes to grant licenses

Examples: Integrated Licensing and Regulatory System

**Environmental Health Data**
Geographically organized data (non person-based)

Example: Air quality data
Tool: Enterprise Surveillance


Adapted from CDC “Surveillance Data Platform (SDP) Shared Services” Presented to Joint Public Health Informatics Task Force, June 15
Brian Lee, Chief Public Health Informatics Officer, Office of Public Health Scientific Services, CDC

**Healthier WA Constituencies:**
- Government Partners (Federal, State, Local)
- Executives, Unit Leaders, Managers,
- Providers
- Citizens Advocates, Community Groups (e.g., ACH’s)
- Operational Analysts, Business Analysts, QA Analysts
- Quantitative Analysts

**Potential data sources:**
- **HCA**
  - ProviderOne
  - Pay1
- **DSHS**
  - ACES (eligibility)
  - CSDB (clients & services)
  - Behavioral Health
  - RDA
    - PRISM
    - Integrated client services database
- **DOH**
  - Clinical Care Data (e.g., Clinical Care and Case Based Data
  - Epidemiology & Informatics
  - Population Datasets – Vital and Health Statistics
- **TBD**
  - All Payer Claims Database
- **OneHealthPort**
  - HIE
  - Link4Health (CDR)
- **HealthPlanFinder**
  - QHP Payer Data
Reflections

What are the opportunities to incorporate informatics into your agency's priorities?

What do you least know about your agency's informatics capacity?

What are the next steps you will take to build capacity?

For a list of resources, go to [http://bit.ly/2aK9cUb](http://bit.ly/2aK9cUb)
Final thoughts

• Remember to review the list of resources

• The framework is a work in progress; please share your ideas

• There is no one perfect way to build and organize informatics in your health department; the key is to continually identify the next best step to take, whether large or small.
Thank you!

• Bill Brand, bbrand@phii.org
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