Public Health Informatics Competencies—Defining the Specialty

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Monday, November 5, 2007

Washington, DC
APHA 2007

Centers for Disease Control and Prevention

Overview

- **Intro and Background**

- **Definition of Public Health Informatician**

- **Process for developing competencies**

- **Example competency statements and edits**

- **Next steps / Potential Uses**

Problem

- Inadequate understanding of the field of public health informatics ("isn't that just IT?")

- Insufficient number of public health informaticians

- "Informaticians" without adequate training

- Lack of clear career ladders for informaticians

- Prior efforts to define the field largely focused on the non-specialist

- No prior national effort to define competencies for the public health informatician

What is PH informatics?

- The systematic application of information and computer science and technology to public health practice, research, and learning.

- Good global definition; but specifically, what does the workforce need to <u>know</u>, <u>practice</u> and be able to <u>do</u>?
What competencies are needed?

Need

- **Definition of the profession at various levels of practice**

- **National process to define competencies**
  - Including definition of a public health informatician
  - Accounting for changes in public health practice, evolution of the field of informatics

- **Partnership between CDC and Univ WA, thru ASPH cooperative agreement**
  - With participation from many others

Rationale

- **Definition of needed skills for hiring**

- **Method to evaluate, reward, promote workers**

- **Roadmap for training existing workforce**

- **Guidelines for academia**

- **Improved ability to define the field**

- **Utility for any certification process**

Definition of Competency

- *The knowledge, skills, and abilities demonstrated by organization or system members that are critical to the effective and efficient function of the organization or system*

  Center for Public Health Practice, Emory University

Our Goal: Develop Competencies for Public Health Informaticians

- Development of core competencies for *effective* public health informatics practice (beyond just informatics)

- Expected levels of proficiency

- Future: translation to curriculum

Competency Construct

I. **Skill Domain Area**

1. **Competency A**

    i.   **Sub-competency**

         a. **Sub-sub competency/learning objective**

         b. **Sub-sub competency/learning objective**

    ii. **Sub-competency**

    iii. **Sub-competency**

2. **Competency B**

    i.   **Sub-competency**

    ii. **Sub-competency**

Developing Competencies

- Review prior work

- Recruit team with cross-cutting representation
  - In-Person meetings and conference calls
  - Definition of a public health informatician
  - Decision to follow COL framework for PH
  - Defined skills and abilities needed for informaticians in state local and federal public health agencies and in research
  - Refined into competency statements *organized into 13 areas with Sub*-Competencies and their sub-sub-competencies

- *Nationally validated with external experts (n=20)* and public comment survey (n=86)
- Re-visit with original team via conference calls
- Product: a consensus set of competencies for public health informaticians

Invited representatives from:

- Academic Organizations (UW, Emory, Johns Hopkins, UC Davis)
- State Health Departments (ASTHO)
- Local Health Agencies (NACCHO)
- Federal Public Health Agencies (CDC and National Library of Medicine (NLM))
- American Medical Informatics Association (AMIA)
- Informatics-focused Non-profits (Public Health Informatics Institute and National Association of Public Health IT (NAPHIT))

Consensus team members

- Milt Corn, National Library of Medicine
- Jac Davies, INHS (former WA DOH)
- Don Detmer, AMIA
- Seth Foldy, Milwaukee
- Larry Hanrahan, WI Div. of Public Health
- Ginny Hare, NAPHIT
- Bryant Karras, Univ of Washington
- Denise Koo, CDC
- Marty Laventure, MN Dept. of Public Health
- Cecil Lynch, UC Davis
- Kathy Miner, Emory School of Public Health
- Patrick O'Carroll, DHHS
- Janise Richards, CDC
- Nancy Roderer, Johns Hopkins
- Tom Savel, CDC
- Ed Sondik, CDC

Definition of Public Health Informatician

Public health professional who works in either practice, research, or academia, and whose **primary** work function is to use informatics to improve the health of populations.

- Developing applications for PH priorities,
- Studying how information is organized and used,
- Evaluating this work scientifically.

- Expertise in a given area, but competent in both **informatics and public health**

Senior Public Health Informatician

- policy advisor and leader
- bringing special expertise in the areas of:
  - information architecture
  - information resource management planning
  - enterprise-level information systems design and integration
  - organizational change management
- organizational strategic planning in use of data & IT
- oversees implementation and operation of information technology projects and systems
- academic or research setting
  - conceives of and carries out innovative new research projects
  - investigating the application of informatics methods and techniques
  - evaluates public health informatics systems

Context: Competency Framework for Public Health Professionals

- Analytic Assessment

- Basic Public Health Sciences

- Communication

- Community Dimensions of Practice

- Cultural Competency

- Financial Planning and Management

- Leadership and Systems Thinking

- Policy Development/Program Planning

- Source: Council on Linkages between Academia and Public Health Practice

13 Competency Areas

Public Health Informatician	Senior Level Public Health Informatician
1. Supports development of strategic direction for public health informatics within the enterprise	1. Leads creation of strategic direction for public health informatics
2. Participates in development of knowledge management tools for the enterprise	2. Leads knowledge management for the enterprise
3. Utilizes standards	3. Assures utilization of standards
4. Assures that knowledge, information and data needs of project or program users and stakeholders are met	4. Assures that knowledge, information and data needs of users and stakeholders are met
5. Supports information system development, procurement, and implementation that meet PH program needs	5. Assures that information system development, procurement, and implementation meet PH program needs
6a. Manages IT operations related to project or program (for public health agencies with internal IT operations)	6a. Assures effective management of IT operations (for public health agencies with internal IT operations)
6b. Monitors IT operations managed by external organizations	6b Assures adequacy of IT Operations managed by external organizations
7. Communicates with cross-disciplinary leaders and team members	7. Communicates with elected officials, policy makers, agency staff and the public
8. Evaluates information systems and applications	8. Assures evaluation of information systems and applications
9. Participates in applied public health informatics research	9. Conducts applied public health informatics research
10. Contributes to the development of public health information systems that are interoperable with other relevant information systems	10. Assures that public health information systems are interoperable with other relevant information systems
11. Supports use of informatics to integrate clinical health, environmental risk, and population health	11. Uses informatics to integrate clinical health, environmental risk, and population health
12. Implements solutions that assure confidentiality, security, and integrity, while maximizing availability of information for public health	12. Develops solutions that assure confidentiality, security, and integrity, while maximizing availability of information for public health
13. Conducts education and training in public health informatics	13. Contributes to progress in the field of public health informatics

Competency 3→ Leverages Standards

- Sub-competencies:
  - Communicate to staff origin and role of standards relevant to projects and information systems within the enterprise
  - Establishes framework for adoption and use of standards
  - Assures use of data standards in projects and systems →
  - Contributes to standards development efforts
  - Plans orderly migration to a standards-based framework minimizing disruption to established systems and practices

Sub-competency →Assures Use of Data Standards

- ## Sub-sub-competencies:
  - Identifies relevant standards and implementation guides related to vocabulary, messaging, data normalization, meta data, object modeling, technology, and security
  - Assures that standards and appropriate implementation guides are incorporated into requirements
  - Assures that the right standards are chosen for the project
  - Assures that standardized data and messaging is leveraged for data reuse and automation of workflow

Competencies: Senior PHI vs. PHI

- Senior PHI
  - Creates strategic direction for public health informatics
  - Oversees management of IT project portfolios

- PHI
  - Supports development of strategic direction for public health informatics within the enterprise
  - Manages IT projects

Public Feedback Survey
Quorum (goal of >50)

- 469 hits -- most just looked but logged off
- 126 people with one or more answer.
- **86** people with 20 or more
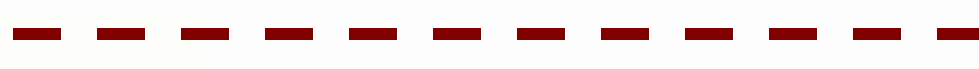- 61 made it to the end (>100 questions)

Importance

- How important is this competency or sub-competency?

  5 (Most Important)

  4

  3 (Moderately Important)*

  2 ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─   threshold

  1 (Unimportant)

  *all rated at least 3

Agreement

- Do you agree with this competency or sub-competency?

Approve **(all > 85% agreement)**
Approve with Minor Edits
Requires Major Revision
Reject

Qualitative Analysis

- **Informatics versus information technology**
  - How much authority the informatician should have vs. CIO
- **Research**
  - Controversial topic for some (particularly at local level)
- **Length of competencies a mixed bag**

Next Steps

- Refine competencies language
- Adopt final version (by working group)
- Endorse of final version (by partners) and enter CDC clearance process
- Continue to spread word
  - Presentations at APHA in DC and AMIA in Chicago
- Disseminate of competencies and supporting documents -publish on the web and in literature

Uses of the Competencies

- Practitioners
  - Assessing current skills
  - Creating career development plans
  - Planning specific training to meet educational needs
- Employers
  - Creating career ladders for employees
  - Developing position descriptions and job qualifications
  - Developing training plans for employees
  - Assessing informatics capacity of an organization
- Educators
  - Designing education programs that meet needs of public health agencies
  - Incorporating critical elements of informatics practice into existing coursework

Lessons Learned

- Importance of broad input
- Integration of SME and workforce expertise
- Critical role of Jac Davies
- Utility for facilitating dialogue with academia
- Competencies more than "just" informatics
- Informatics harder than epidemiology!

Acknowledgments

- Members of Working Group
- External reviewers
- Public feedback survey participants
- Informal feedback and contributions from Faculty and Students at UW
- UW Center for Public Health Informatics Staff

Questions ?

For more information, please see:
cphi.washington.edu/competencies

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Competencies for Applied Epidemiologists in Governmental Public Health Agencies

please see:
www.cdc.gov/od/owcd/cdd/aec
or
www.cste.org/competencies.asp

ASPH Cooperative Agreement

Investigator-initiated proposal (Bryant Karras, MD, as Principal Investigator) convened/funded by Denise Koo, MD, MPH, from the Office of Workforce and Career Development at CDC through an Association of Schools of Public Health cooperative agreement with the University of Washington Center for Public Health Informatics

ASPH/CDC Project#S3447-24/24

Prior Work

- Public Health Informatics: a Consensus on Core Competencies (PhD Dissertation) –*Janise Richards*
- Informatics Competencies for Public Health Professionals - *Patrick O'Carroll and the PHI Competencies working group*
- Epidemiology Competencies - *Denise Koo* / CSTE
- Council on Linkages Between Academia and Public Health Practice (Competencies for PH professionals)–*PHF*
- Health Communication and Informatics Competencies for the MPH - *ASPH*
- Informatics Competencies for Nurses –*N Staggers*
- Health and Medical Informatics Competencies – *IMIA*

Does Everyone Have to Be Competent in ALL Competencies?

- Competencies represent a menu of core competencies

- Informaticians not expected to be equally competent in all areas

- The competencies represent a continuum of applied informatics practice, not a single point in time in an individual's career

...ALL Competencies?

- Job descriptions vary between public health agencies, depending on the needs and resources of the agency, the setting, and the scope of the agency's responsibilities

- Different contnt areas of applied public health (e.g., infectious disease, chronic disease, environmental) may emphasize different competency areas

- An individual's particular position may place a greater emphasis on particular competencies.