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Developing an Informatics-Savvy Health Department: From Discrete Projects to a Coordinating Program Part II: Creating a Skilled Workforce

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As we have noted in prior columns in this Management Moment series, building an informatics-savvy health department represents a central opportunity and challenge for public health agencies.[1-3] To achieve the outcome of an informatics-savvy health department—that is, one skilled in using information and information technology to achieve the agency mission—managers and leaders should commit to (1) creating a shared vision and governance approach guided by effective leadership, (2) creating a skilled workforce, and (3) ensuring well-designed and effectively used information systems. In this article, we discuss the steps needed and questions to be asked to create a skilled workforce with needed informatics knowledge and competencies.

Roles and Responsibilities

In seeking to build workforce capabilities in informatics, it is useful to plan for 2 complementary strategic pathways: (*a*) adding informatics specialist/informatician positions to your workforce; and (*b*) building informatics knowledge and skills across much of your remaining workforce, including anyone who works with information and/or information technology.

Depending upon the size of your agency and your level of informatics-readiness, you should consider positions in any or all of these areas[4,5]:

a. *Executive informatics role* (the "architect-strategist"): This position provides agency-wide leadership and decision making on a range of informatics issues. The position plans, directs, and formulates policies, sets strategies, and provides the overall direction of the agency's informatics activities, development, and services, within the parameters of any governing bodies. This position may carry a job title such as chief public health informatician or chief informatics officer or even chief information strategist. This role links directly with the concept of the health agency as the chief health strategist within the Public Health 3.0 paradigm.[6,7]
b. *Management informatics role* (the "translator"): These individuals have program management responsibilities for which informatics skills and knowledge are needed to enable translation of concepts and best practices into program operations. This position directs, manages day-to-day operations of public health programs, and supervises the activities of program personnel, particularly those responsible for large and/or costly information systems such as immunization or cancer registries. This position may carry a title of program director or manager.
c. *Professional informatics role* (the technical informatics expert): These individuals apply specialized technical informatics knowledge such as standards, informatics theories, concepts, methods, tools, and structured process to ensure effective programmatic use of information and information technology. Often the role includes coordinating work across agency programs, such as for Meaningful Use and interoperability readiness and response. The position may carry a title of informatician, informatics analyst, or specialist.
d. *Clinical/nursing informatics role*: These individuals apply informatics theory and practice to the design and effective use of clinical information systems within a public health agency or in the design of public health information

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The authors declare no conflicts of interest.

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DOI: 10.1097/PHH.0000000000000658

or decision support systems to better support clinical care. The position may provide specific clinical informatics expertise to establish informatics policies, practices, and procedures within a program or across the agency or in coordinating the procurement of and training on a new electronic health record (EHR) for the agency. Job titles for this position may include medical or nursing informatician or clinical informatics specialist.

Deciding on these roles is naturally dependent upon your agency priorities. To decipher these priorities, you should ask a few questions:

- Do you need a more coordinated, strategic, and credible action plan to the Meaningful Use and other national interoperability standards? If so, then consider adding staff in an executive or professional role.
- Is the agency procuring a new EHR system? If so, consider adding someone in a professional or clinical role.
- Is your agency seeking to fill vacant management positions that oversee a large registry or other public health information systems? Consider adding (or developing) staff with management-level informatics competencies.
- Is your agency needing to "liberate" your data so that it is more widely and effectively available to the public? Consider adding someone in an executive role.
- Do the current needs or budgets not justify a full-time position at this time? If you are in a local health agency, consider joining with other agencies or regionally to share staff like you might do with other specialists such as regional epidemiologists.

Addressing Skill and Competency Needs

Recruiting and staffing the agency

Agencies should develop a strategic approach to recruiting and staffing the agency. This process is often initiated by the development and use of position descriptions that are used for recruiting and staffing purposes. Model position descriptions[4] for the 4 roles noted earlier have been developed by the Public Health Informatics Institute (PHII) and are useful as a starting point in the recruiting process, whether focused internal to the agency or outside of the agency. In addition to recruiting and staffing the agency using this approach, training and development of existing staff to enhance competency are also recommended, particularly in the face of hiring restrictions.

Training and development of existing staff

Using the framework noted earlier, training and development experiences can be identified to supplement existing informatics competency on a case-by-case basis. Staff will need to develop new competencies as well as access ways to stay current in the ever-changing world of informatics. Resources that we find useful and relatively inexpensive allow for training to be accomplished through online courses that can fit into an employee's existing work schedule. Courses or learning experiences that emphasize direct application of the learning to current work practices are to be preferred to those that are primarily academic in nature with little practice relevance. Sources for such learning experiences include PHII courses such as those offered through the PHII Informatics Academy.[8] The Centers for Disease Control and Prevention has provided a range of excellent fellowship opportunities through project SHINE. Finally, degree programs or courses in public health informatics in schools of public health and graduate information schools provide an in-depth treatment of a range of informatics issues.

Providing Justifications and Incentives

Although these approaches to addressing agency informatics workforce needs are logical, it is often challenging to actually implement recruiting, training, and career development activities in the face of other competing priorities. As noted in a prior column,[3] leaders seeking to build an informatics-savvy health department are often confronted with major informatics challenges such as implementation of Meaningful Use requirements, electronic case reporting for notifiable disease, syndromic surveillance system development, and other priorities. We recommend linking workforce development activity to high-priority, agency-critical informatics activities to provide a compelling justification for staff development and competency building. Furthermore, linking to the established public health informatics competency framework[9] may provide a useful conceptual foundation to guide competency development efforts. These competencies include the following:

- *Principles and strategy*: The ability to apply informatics principles and strategic thinking;
- *Standards and interoperability*: The ability to apply informatics standards to ensure interoperability of disparate systems; and
- *Project management*: The ability to practice project management and use a rigorous structured approach to information system projects.

Summary and Conclusions

In an excellent report of 49 key informant interviews with public health leaders and informatics professionals in local health departments, Leider and colleagues[10] found that the top barrier to enhance agency informatics capabilities is lack of staff capacity, followed closely by lack of funding. They point out that access to timely or real-time data and interoperability of information systems is a top leadership priority. However, lack of a robust informatics-trained (or competent) workforce remains a major barrier to achieving these goals.

To address this major barrier, we urge public health leaders to commit to enhancing workforce informatics competency as a central strategy to improve population health and encourage collaboration between public health and health care. The process of doing so begins by developing an **understanding of the needed roles and responsibilities** as they relate to agency strategic priorities. Then, **adding informatics staff or enhancing informatics competency of existing staff** becomes the central challenge. Using published **job descriptions and competency sets** can help in this process. A **range of learning and development opportunities** do exist to facilitate this effort. Finally, we recommend that **the task of workforce development should be tied to a mission-critical priority** (eg, electronic case reporting, electronic medical record use, enhanced preparedness surveillance systems, achieving population health goals, and addressing equity issues) to prioritize the critical need to build workforce informatics capacity. Strengthening the public health informatics workforce is central to achieving the vision of building an informatics-savvy health department and achieving a more connected, equitable, and healthier communities.

References

1. LaVenture M, Brand B, Ross DA, Baker EL. Building an informatics-savvy health department—part I, vision and core strategies. *J Public Health Manag Pract*. 2014;20(6):667-669.
2. LaVenture M, Brand B, Ross DA, Baker EL. Building an informatics-savvy health department—part II, operations and tactics. *J Public Health Manag Pract*. 2015;21(1):96-99.
3. Baker EL, Brand W, Davidson A, LaVenture M, Singletary V, Smith P. Building the business case for public health information systems. *J Public Health Manag Pract*. 2016;22(6):603-606.
4. Public Health Informatics Institute. Workforce position classifications and descriptions. http://www.phii.org/resources/view/6423/workforce-position-classifications-and-descriptions. Accessed May 1, 2017.
5. Dixon BE, McFarlane TD, Dearth S, Grannis SJ, Gibson PJ. Characterizing informatics roles and needs of public health workers: results from the Public Health Workforce Interests and Needs Survey. *J Public Health Manag Pract*. 2015;21(suppl 6):S130-S140.
6. DeSalvo KB, O'Carroll PW, Koo D, Auerbach JM, Monroe JA. Public Health 3.0: time for an upgrade. *Am J Public Health*. 2016;106(4):621-622.
7. DeSalvo K, Wang C. Health informatics in the Public Health 3.0 era: intelligence for the chief health strategists. *J Public Health Manag Pract*. 2016;22(6)(suppl):S1-S2.
8. Public Health Informatics Institute. http://www.phii.org. Accessed May 1, 2017.
9. Public Health Informatics Institute. Applied Public Health Informatics Competency Model. http://www.phii.org/resources/view/9462/applied-public-health-informatics-competency-model. Accessed May 1, 2017.
10. Leider JP, Shah GH, Williams KS, Gupta A, Castrucci BC. Data, staff and money: leadership reflections on the future of public health informatics. *J Public Health Manag Pract*. 2017;23(3):302-310.