

Developing an Informatics-Savvy Health Department: From Discrete Projects to a Coordinating Program—Part III, Ensuring Well-Designed and Effectively Used Information Systems

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In previous *Management Moment* columns,¹⁻⁴ we have discussed 2 critical strategies for developing an informatics-savvy health department: having a clear and documented informatics vision, strategy, and governance and having a skilled workforce. In this column, we discuss the third essential strategy: having well-designed and effectively used information systems (Figure).

From the perspective of a senior level health official or a middle manager, it is clearly neither necessary nor appropriate to be deeply knowledgeable or skilled in informatics or information technology (IT). But it is necessary and expected in that role to know what questions to ask about information systems, given their expense—often a growing proportion of many programs' budgets. By asking the right questions, leaders can ensure the cost-effective value of the investment in both financial and human resources.

In this column, we provide examples of the types of questions a senior leader or manager could ask. These questions in part are excerpted from "Building an Informatics-Savvy Health Department: A Self-Assessment Tool."⁵

Information System Development and Management Process

Does the agency practice a standard process for requirements definition, system design, implementation, and maintenance of its information system?

Regardless of who designs, builds, hosts, and maintains public health software used in your agency, your programs need to be in charge of the overall information system, specifying what functions that system needs to perform, how information flows, and determining its functions. Only your program staff, often with federal or other guidance, can specify the functional requirements for the systems that support their work. You need to know that all programs are following rigorous processes to identify and document the system purpose and requirements, and for ensuring those requirements are acted upon in system design and development. Some additional questions could be as follows:

- Is the process consistent with the information system development lifecycle²?
- Is the public health purpose clear, concise, and defensible?
- Are straightforward diagrams showing the information flows among internal and external stakeholders available and do those diagrams include plain language descriptions?

Project Management

Has your agency adopted and documented standard project management procedures for information system projects?

Information systems are more than the technology, so it is critical, especially with large complex information systems, to have both an overall project management process directed by the program and an IT project management for the technology. The public health program-level project management provides

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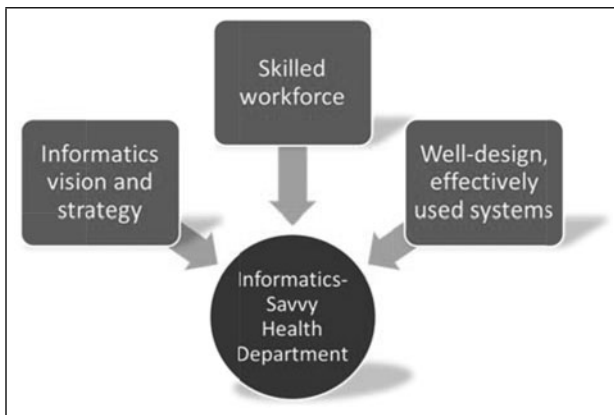


FIGURE Building an Informatics Savvy Health Department

oversight and control of data quality (completeness, timeliness, accuracy), uses of the information, change management communications, priority setting, and other tasks associated with the people and information aspects of information systems, whereas the IT project management will oversee implementation of enhancement requests and other software development and management tasks. Among the practices you will want to inquire about and ensure are as follows:

- Are we following industry best practices for project management?
- Are project charters⁶ created that address issues such as purpose, scope, tasks/methods/deliverables, staff and roles, risk, and timeline and who has approval authority?
- Is a lead person specified to manage the overall project?

Information System Profile

Has the agency conducted an informatics profile/inventory of its information systems and the services/information they provide?

Effectively managing and harnessing the power of your information resources require that you first know what information, applications, and systems you have, including the source and purposes of those information resources and the forms in which they are kept. Collecting and maintaining such data on your information resources would typically be done by an informatics office or your chief information officer. (See the Public Health Informatics Profile Toolkit⁵ for guidance and tools in conducting such an assessment.) Such a profile would answer questions such as:

- How many information systems do we have?

- How many persons (full-time equivalents) are involved in the collection, use, and sharing of information?
- How much do our systems cost us each year?
- Who is trading data with which community partners using what standards?
- Are we exchanging data with these partners consistently across programs?
- What are our programs' information needs, challenges, and aspirational visions and opportunities?

Standards Adoption and Implementation

Does the agency have information systems that use nationally recognized data, vocabulary, messaging, and transport standards?

Public health is part of the larger health information ecosystem, and the source and/or uses of much of your department's information are tied to that ecosystem. This means that your agency and each program must adopt and maintain the health information standards being used throughout the rest of the ecosystem. Doing otherwise incurs unnecessary costs for both your programs and your community partners. Some questions you might add to your checklist can include the following:

- Is someone responsible for monitoring the continually evolving national standards and informing others of changes?
- Is there a systematic process to select, review, and update the standards being used?
- Is there a coordinated process to train on, adopt, and update the standards?

Information Exchange

Does the agency have the capability to securely receive, send, and process data with both clinical/community partners and across programs internally?

For information to be optimally useful, it must be used for as many purposes as allowable under law. "Collect once, use many times" is as true an adage as ever before. Information is rare as a commodity because its value actually increases with use. Once information has met the immediate needs of the program, can it be used as part of broader population health analytics? Could other programs benefit from the data? Other community partners? The public? Among the types of information you would need to know are as follows:

- Is there a plan or roadmap for how the agency will move from paper submissions and Web-based forms to standards-based messages

and documents for exchange; that is, an interoperability roadmap?

- Is there a steering team to coordinate and govern communications and strategy with both community partners and internal programs?
- Do you have a profile for every agency program that includes the level of its ability to share information today?
- Have goals and metrics been established (eg, how many stakeholders will be submitting how much information by when)?
- Are we adhering to any jurisdiction-wide health information exchange strategy, policies, and infrastructure including state or regional health information exchange organizations?

Data Management and Quality Assurance (Internal)

Has the agency adopted procedures for data management and quality assurance for data housed in the agency's information systems?

Public health relies on high-quality information (timely, complete, and accurate) to make good policy decisions. The move to digital management of this information can change workflows and impact the quality of the information received. Larger, more complex systems, in particular, such as immunization and cancer registries, must continually measure the quality of their information and have clear processes for remediation. Some questions you may want to ask are as follows:

- How do we know the quality (accuracy, completeness, timeliness) of the information?
- Do we have established data quality metrics for our systems and are we consistently applying them and taking any necessary action?

IT System Plans and Budgets

Does the agency plan or budget for new IT systems and maintenance on existing systems?

Information systems are a costly investment and costs are increasing. Leaders are held responsible for costs and particularly cost overruns. As a result, leaders should routinely ask questions regarding costs and achieving the best value for the investment:

- Do we have a regular way to assess value and options for reducing costs and improving services?
- How do we pay for this system, both in procurement and over time?

- How do we budget for systems and partition the value with so many systems?
- Are there service-level agreements with central IT to ensure quality and service?
- Have newer approaches such as cloud-based computing services been explored?
- Do we have a fiscal roadmap for new systems, maintenance, and sharing costs?

Shared Services

Do the agency's programs share relevant services across the agency, such as an integrated provider registry, master person index, integration engine, mapping and reporting services, and services that publish information, as well such as sharing of analysis and visualization tools?

As budgets get tighter, and as public health information system projects becoming increasingly standardized, opportunities grow for sharing services or applications that are common across programs. Often these common activities fall into 3 broad areas: collecting information, using the information (including decision support, analysis, mapping), and sharing or disseminating or exchanging the information. Programs may resist such sharing because of perceived lack of control. But the cost of maintaining duplicate services across multiple programs is increasingly indefensible. Questions for the senior leader or manager to ask include the following:

- Have we identified opportunities where 2 or more programs support similar services?
- Have we documented how sharing services and other resources might be implemented?

Summary

For the senior public health leader or manager, asking the right questions is often the best way to ensure that staff members are taking the right course of action. Being informatics-savvy means asking the right questions at the right time in the right way. In addition to asking about the design and use of these systems as noted in this article, questions may be related to information and information system governance or to the training needs of your workforce.¹⁻⁴ Each area contributes in important ways to what is arguably the most important element of an informatics-savvy health department: having an overall and documented informatics vision, strategy, and governance to ensure that your information systems support the overall mission of the public health agency and that you have designated roles and responsibilities to accountably implement that vision and mission.

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. LaVenture M, Brand B, Baker EL. Developing an informatics-savvy health department: from discrete projects to a coordinating program, part I: assessment and governance. *J Public Health Manag Pract.* 2017;23(3):325–327.
4. LaVenture M, Brand B, Baker EL. Developing an informatics-savvy health department: from discrete projects to a coordinating program, part II: creating a skilled workforce. *J Public Health Manag Pract.* 2017;23(6):638–640.
5. Public Health Informatics Institute. Building an informatics-savvy health department: a self-assessment tool. <https://www.phii.org/infosavvy>. Accessed October 26, 2017.
6. Public Health Informatics Institute. Project Charter Template. <http://phii.org/resources/view/9236/project-charter-template>. Accessed October 26, 2017.