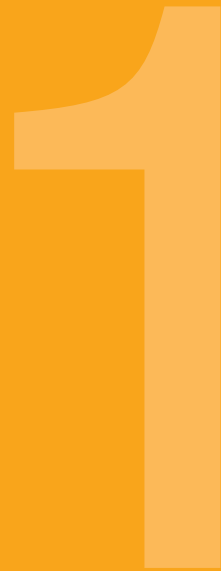


Overview for Public Health Leaders



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INFORMATION TECHNOLOGY IS TRANSFORMING THE LANDSCAPE OF HEALTH AND HEALTH CARE. ELECTRONIC HEALTH RECORDS ARE CHANGING THE WAY IN WHICH HEALTH CARE PROVIDERS ASSESS, TREAT, AND DOCUMENT PATIENT CARE. Electronic health records also hold promise for individuals to gain access to their personal health information and participate more actively in their own health care. Public health agencies must also prepare to meet the electronic health information challenge if they are to deliver on their mandate to protect and improve the health of all people within their jurisdictions.

Behind the electronic health records movement is a national initiative to move from systems that are practice-centric to systems that are person-centric, with the goal of reducing medical errors and creating a more efficient, effective, and safer health care environment. Combining data about an individual's health to create an electronic health record yields more complete and timely information to improve quality of health care. Integrated public health information systems will improve the ability of public health practitioners to conduct accurate population-based surveillance, service delivery, and coordination of care.

Although most public health information systems are categorical, isolated silos that cannot exchange data, the importance of integration is gaining recognition. For example, many child health programs are already experiencing the benefits of integrating an individual's health information from multiple sources to produce, in effect, a child health profile. Physicians who have access to these systems are able to see,

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at a glance, a child's newborn dried blood spot screening and newborn hearing screening results, as well as their immunization and lead screening status.

By accessing an integrated information system, public health practitioners are able to more effectively target and coordinate their outreach efforts, often covering several child health services in a single home visit. Children at risk for high lead levels, for example, can now receive more appropriate nutritional counseling from WIC staff who view the lead screening results. Nurses providing immunizations can see if a child needs a follow-up to a hearing screen. These success stories, along with the national electronic health records movement, have brought the importance of integration to the attention of public health leaders.

The integration of health information systems, however, still faces many challenges. Combining data demands that every public health and health care organization have the ability to correctly identify the personal data being merged into a new record or linked to form integrated information. Strategies for finding and eliminating duplicate records are essential to having an integrated information system that produces accurate, usable data. Without such strategies, the system, and therefore its data, cannot be considered reliable.

A *Connections* workgroup comprising representatives from state and local health departments that are engaged in integrating child health information systems developed *The Unique Records Portfolio*. The *Portfolio* helps guide public health practitioners in developing appropriate strategies, including policies and procedures to minimize, if not eliminate, duplicate records.

Duplicate Records: A Quality Assurance Issue

THE PROBLEM OF DUPLICATE RECORDS FOR THE SAME INDIVIDUAL CHALLENGES ALL PERSON-CENTRIC INFORMATION SYSTEMS. Duplicate records, which can exist in single systems, are even more problematic for systems that integrate an individual's information across programs and other systems. Failure to identify and resolve issues related to duplicate records compromises the quality, credibility, and usability of integrated information systems.

Early developers of immunization registries and child health integration systems grappled with huge backlogs of pending unmatched records. Costly projects had to be established to analyze the causes, apply software solutions, and mount a massive manual effort to resolve the duplicates. Many projects had to suspend or delay the deployment of their systems so that lack of data credibility would not jeopardize the entire integration project.

Deduplication is the set of processes that link, match, and merge data to integrate or create an integrated view of information for an individual. As a quality assurance measure, deduplication ranks as a top management issue and a challenge for integration projects, whether for private health care initiatives or public health.

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In a survey of private health care initiatives working to develop interoperability among their health information systems and create an electronic health record for individuals, 80 percent responded that accurately linking patient data was “very difficult” or “moderately difficult.” When respondents were grouped by advanced stage and early stage initiatives and organizations, 73 percent (advanced stage) and 90 percent (early stage) perceived accurately linking patient data to be very difficult or moderately difficult (Marchibroda & Covich Bordenick, 2005).

Resolving Duplicate Records

THE GOOD NEWS IS THAT IN THE LAST THREE YEARS, NATIONAL INITIATIVES FOR IMPROVING INTEROPERABILITY BETWEEN PRIVATE HEALTH CARE PARTNERS HAVE FOCUSED ON TECHNOLOGY ISSUES OF SYSTEMS INTEROPERABILITY AND THE USE OF STANDARDS IN IMPROVING QUALITY OF DATA. Available technologies to deploy integrated data systems, advances in telecommunications and networks, ubiquitous use of the Internet, and Web services contribute to a body of technical knowledge and practices specifically supporting integration projects and their deduplication processes. Deduplication involves not only software (e.g., matching algorithms), but also organizational (e.g., change management) and people challenges (e.g., staff training). Addressing these challenges is an information systems management responsibility that requires programmatic and technical input, deliberate choices, well-defined activities, and systematic processes.

The Unique Records Portfolio organizes this programmatic and technological knowledge base, with its practices and lessons learned, in formats that help senior management understand the importance and complexity of these issues. The *Portfolio* provides resources and tools to help information systems managers and their staffs engage with technical managers to discuss and apply effective solutions to their integration and deduplication problems. The *Portfolio* also addresses methods to document current practices and to measure the efficacy of deduplication strategy.

To produce high-quality data, an integrated information system must eliminate duplicate records and assign the correct data to each individual. The system requires strategies that include:

- A set of policies and procedures guiding the operation of the integration system.
- A technical architecture that supports the policies and procedures.
- An operational plan or set of activities that address the core data quality goals of the integration system.
- A method of evaluating the deduplication processes to determine how effectively and competently duplicate records are being reduced and resolved.

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SENIOR LEADERS SHOULD LEARN ABOUT THE IMPACT OF THE IMPROVED INFORMATION ON PUBLIC HEALTH PROGRAMS.

What Can Public Health Leaders Do?

PUBLIC HEALTH LEADERS MUST ENCOURAGE THEIR ORGANIZATIONS TO PRESENT A COMPREHENSIVE DEDUPLICATION STRATEGY THAT HELPS VALIDATE THEIR OVERALL INFORMATION SYSTEM INVESTMENT. They can also support the policies, procedures, and strategies by providing essential resources for deduplication project development and implementation. Public health leaders should also insist on receiving periodic evaluation reports on the results of deduplication efforts.

Senior leaders guide the health information system integration project toward meaningful health goals. One of their key roles is to approve the health outcomes performance measures for the integrated information system. Senior leaders should request clear rationale for the overall deduplication strategy and technology architecture choices made to realize the strategy. *The Unique Records Portfolio* provides several tools with key questions that can be asked to help all levels of staff become comfortable with their specific technical choices. Senior leaders should also establish a routine forum or briefing in which they monitor the progress of the integration system project and learn about the impact of the improved information on the public health programs involved in the integration system.

Marchibroda, J. & Covich Bordenick, J. (2005). Emerging trends and issues in health information exchange. *Selected findings from eHealth Initiative Foundation's Second Annual Survey of State, Regional and Community-Based Health Information Exchange Initiatives and Organizations.*

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