

Healthcare Information Technology (HIT) Reform:

The Challenge for Maternal and Child Health Programs

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What's HIT all about?

The federal government has made a major commitment to oversee the creation and use of electronic health records (EHR) and secure, two-way data sharing among trusted healthcare partners. An EHR is essentially a longitudinal electronic record of patient health information generated by one or more encounters in any care delivery setting. The exchange of health data among such systems is called interoperability. State MCH program staffs have key questions to ask themselves:

- What does our program need to receive from providers (and their EHRs) in the new world of electronic health data?
- What does our program need to transmit electronically to another program or EHR?

MCH program people, without becoming IT experts, need to have a basic understanding of EHRs and their certification standards for health data exchange (interoperability).

Public health professionals also need to understand what is meant by what is called “meaningful use” of EHRs. Meaningful use of an EHR includes requiring healthcare providers to participate in public health immunization biosurveillance or even newborn screening registries. The purpose is to build the foundation for more timely and accurate reporting from hospitals to states, to local and regional health care providers for better health care and outcomes as well as reporting to federal partners and ultimately to the National Center for Health Statistics.

Introduction

It is a challenging time in healthcare today, and transformation at the federal level is impacting public health dramatically. Recent changes have been propelled by legislation known as the Health Information Technology for Economic and Clinical Health (HITECH) Act (2009). The Office of National Coordinator (ONC) for Healthcare Information Technology, a part of US Health and Human Services (HHS), and the Centers for Medicare and Medicaid Services have incentivized the health sector to implement EHRs and to incorporate standards for information exchange.¹



¹ http://healthit.hhs.gov/portal/server.pt/community/healthit_hhs_gov_home/1204

As new standards evolve, new language and acronyms arise. We sometimes feel like we are paddling through a can of alphabet soup. Yet because these “acronyms” are likely to influence how children in MCH programs receive care, they deserve our attention. We’ll address some of these in the paragraphs that follow.

What does HIT mean for MCH Programs?

Maternal and Child Health (MCH) programs should be welcomed partners in these efforts to improve communications and reduce errors. After all, MCH is responsible for a child’s first interactions with public health. Early Hearing Detection and Intervention (EHDI), Newborn Bloodspot Screening (NBS), the Hepatitis B vaccination and Vital Registration are all examples of newborn encounters between public health and providers that reflect early quality care and set the stage for healthy growth. Getting these encounters “right” is a big step towards a healthy developmental path for our children. Indeed, it means we have addressed not just care delivery but also communication among providers, and between providers and public health. Let’s look at three examples of how public health might be different in the new world of EHR standards and interoperability. Here are three scenarios being tested (and in some cases implemented) today in MCH programs.

Case study 1 is a simple portrayal of a foreseeable future in an EHDI Program where standards facilitate the transfer of information from a Birthing Facility EHR to the EHDI Program and from a hearing screening device to the EHDI information system (IS).

This is one of OZ System’s own! Baby Don IV, born August 16th 2011. We love it when we get a birth announcement followed by “and he passed his hearing screening!”.



CASE STUDY 1: Interoperability

Baby Joseph is born at St. Elsewhere Hospital. The Labor and Delivery nurse, Nancy, sends a message from her EHR to the State EHDI IS. When the newborn, arrives in the nursery, his electronic health screening record in the EHDI IS is waiting for him. Joseph’s demographic and family contact information are already in the health screening record, saving the screener time and duplicative data entry effort. The baby boy is screened with automated auditory brainstem response (AABR) technology and passes the screening in both ears. The screening device is configured to transmit the screening results to the EHDI IS automatically, matching it to his health screening record. The screener selects his record and reviews next steps. She notices that the pediatric care provider’s (PCP) name was not available initially, so she adds it in the record. For this newborn, care is complete. The Public Health EHDI program team has configured the EHDI IS to send a care plan to the baby’s pediatric care provider’s EHR, summarizing screening results, risk factors if known and next early hearing care steps for the baby. The care plan reminds the PCP to ask the family about risk factors for delayed or progressive hearing loss at the baby’s first well child check-up. At the end of the month, the State EHDI team runs a Quality Report detailing how many newborns were screened before they were discharged. Happily, this baby qualifies.

Case study 2 demonstrates how effective data exchange and automated alerts following Newborn Bloodspot Screening can improve outcomes for individual children.



CASE STUDY 2: Quality Assurance

While all steps in Baby Joseph's hearing screening were flawlessly executed, an error occurred following his Newborn Bloodspot Screening (NBS). Just after his heel stick, the nurse was distracted by an emergency. Joseph's filter paper card and the cards of two other infants dropped behind a desk and did not get delivered to the newborn screening laboratory. Because the EHR sent the same birth notification message to the NBS program as the EHDl program, NBS staff was alerted by their Information System when screening results were not received as expected from the newborn screening laboratory. The families were called and all promptly returned for screening. Having an accurate denominator is essential for public health to assure that newborns receive necessary and timely care. A notification of birth or a notification to a state laboratory that a filter paper card is on its way allows the State a unique opportunity to improve care.

Case study 3 represents potential improvements to provide more timely information for vital registration.



CASE STUDY 3: Facilitating Vital Registration

Immediately after Baby Joseph's birth, nurse Nancy reviews the EHR's Labor and Delivery Summary (LDS) including documentation such as the mother's and baby's demographics, actual labor and newborn characteristics. Nurse Nancy reads that augmentation of labor was calculated based on oxytocin administration. Once Nurse Nancy's documentation is complete, she signs off so the Vital Registration (VR) staff at the birthing facility can make a request for an electronic version of the Facility Worksheet from Public Health. This way the critical information from the LDS on mother and baby can populate the Vital Records Worksheet. Pre-population saves the VR staff at the hospital, time and effort. The staff is glad to see the information on why oxytocin was administered as it can sometimes be complicated to find that piece of data. VR staff reviews the Worksheet for completeness and accuracy and submits it to the Vital Registration Information System at the State, improving data timeliness and accuracy as well as facilitating State submission to the National Center for Health Statistics. Baby Joseph is just leaving the Birthing Facility when his record arrives at the State.

What does MCH staff need to use HIT effectively?

Staff members in maternal and child health programs need to have a basic knowledge of:

- **Certification of Electronic Health Records**
- **Standards for Health Information Exchange**
- **Meaningful Use of an Electronic Health Record**

We know these topics are somewhat dry for those in clinical and public health fields, so we will be brief.

- **Certification of Electronic Health Records**

Certification of an EHR is undertaken generally by vendors who provide hospital and ambulatory care EHR systems.² HHS will use a permanent certification program to authorize organizations to certify EHR technology, beginning in 2012. Though this does not have a direct impact on public health, certification criteria may be adopted for public health information systems if there is an appropriate certifying body in the future.

- **Standards for Health Information Exchange**

Some of the certification requirements for EHRs are that they communicate using specific guidelines called standards. Health Level Seven (HL7) is the organization that develops many of these standards. These guidelines or data standards are rules that allow information to be processed and shared by health care entities consistently and easily. Theoretically, this ability to exchange information should minimize the tendency for health care to be geographically isolated and inconsistent in quality³.

The healthcare EHR must have the technological capability, functionality, and security to send information to other systems, including public health, using messaging standards. How your maternal and child health information systems can receive this information is important knowledge. What standards are supported by your system and its application? Know the specifics. For example, if an EHR provided your program with HL7 2.51 immunization messages, can you accept them? Emily Berry, a public health epidemiologist on our staff will ask our public health partners, “What does your MCH program need to receive data from providers (and their EHRs)?” And its converse, “What does your program need to transmit information to another EHR?”

These two questions are most important for MCH staff to be able to answer since healthcare providers spending millions of dollars on EHRs are requesting, and even demanding, that their vendors offer information systems that reduce duplicate data entry for staff. Duplicate data

² According to the final rule (75 FR 36158), published in the Federal Register on Jan. 7, 2011

³ http://en.wikipedia.org/wiki/Health_Level_7

entry by providers to public health is costly, time consuming and increases the potential for errors.

- **Meaningful Use of an Electronic Health Record**

The healthcare organization (a hospital or provider) must confirm that it can use their EHR in a manner that improves patient care. There are tasks providers must demonstrate to meet meaningful use requirements. Health and Human Services published the Final Rule in July 2010. Several are of interest to public health, including patient care summaries, public health laboratory reporting, quality measurement, syndromic surveillance, and immunizations⁴. Certain public health legacy systems may be unable to receive information using these new interoperability standards, but it was not a critical shortcoming, , What may change that is this concept of “meaningful use”.

Care organizations, also known as eligible providers, receive substantial federal incentive pay to meet meaningful use requirements as of 2011, and continuing for three to five years depending on State decisions. Meaningful Use 2011 aims to enhance care coordination, engage families in care, ensure privacy and improve public health. The capability to use a certified system to exchange information related to a patient, and to assess and report on quality measures, is essential. If the providers can accomplish an item by submitting to public health, they might be interested in doing so, and an immediate benefit is that maternal and child health programs could receive more complete, accurate, and timely information. In the long run, use of HIT will enhance MCH program quality.

So what’s the downside for maternal and child health programs? First, depending on the age of an information system, it may not be capable of accepting data electronically using the new standards. For example, there are Vital Registration systems that may accept manual entry into a software application, but are unable to accept electronic entry. Second, if an MCH program has recently implemented a new information system (IS) for EHDI or NBS, there may be limited capital to change it to receive different messages. In both cases, there is always a cost to develop new capabilities, and being able to receive one HL7 message into an immunization registry, sadly, doesn’t mean the same format will work for EHDI.

Meeting the Challenge

It is requisite, in our view, that public health systems’ vendors begin to offer flexible data receipt and transmission capabilities and that MCH staff requires these capabilities. There are solutions that OZ Systems and other vendors can provide that do not require totally redesigning systems. Certainly new systems can be provided on efficient platforms that can help integrate your child health programs. There are also less expensive answers that may allow your program to receive the benefits of HIT.

⁴ <http://edocket.access.gpo.gov/2010/pdf/2010-17207.pdf>

Conclusion

Meaningful use of an EHR may include requiring health care providers to transmit data to MCH programs. MCH programs can take advantage of the meaningful use requirements and certified health information systems by electronically receiving data. As an initial step in the process, evaluate the capability of your existing information systems and identify short and long term goals for interoperability. This is an opportunity to reduce program silos and eliminate the delivery of duplicate, inefficient, and frequently inaccurate data to providers. Indeed, best practices, evidenced-based practices or standard of care rules can be implemented for MCH programs. These rules can be encoded in the public health IS for consistency and for monitoring and quality improvement efforts. This is another reason HIT improvements can be exciting for MCH programs. Now is the time to plan for a sustainable long-term solution.

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OZ Systems is a privately held group of companies founded in 1996 by Ken Pool, M.D. and Terese Finitzo, Ph.D. Their efforts in newborn and child screening have led to innovative information management tools for state and national programs, hospitals, and health care and early childhood education providers.



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