Health Information Technology in the Emergency Department

Purpose

The emergency department is one of the most time and resource-intensive care settings, and the urgent and episodic nature of the care provided requires timely access to patient information. As a result, it is important for emergency nurses to be aware and knowledgeable of Health Information Technology (HIT) and how it can improve nursing practice and enhance communication and collaboration with other providers to improve patient care.

The purpose of this ENA Topic Brief is to provide information about HIT that is essential to emergency nurses and to prepare them with the rationale for the inevitability of deploying an electronic medical record in the emergency department.

Overview

HIT significantly enhances the ability to deliver quality care in the emergency department. The automation and instant accessibility to patient health information improves clinical outcomes, throughput and patient safety, and ensures compliance with federally mandated criteria (see Meaningful Use).\(^2,3\)

HIT is an umbrella term that encompasses a number of distinct components including:

- Electronic Medical Record (EMR)
- Electronic Health Record (EHR)
- Barcode Medication Administration (BCMA)
- Patient Health Record (PHR)
- Health Information Exchange (HIE)
- Electronic Prescribing (ePrescribing)

The EMR is “the electronic record of health-related information on an individual that is created, gathered, managed and consulted by licensed clinicians and staff from a single organization who are involved in the individual’s health and care.”\(^4\) The EMR accumulates and stores data from a variety of applications (clinical documentation, order entry, laboratory, radiology, pharmacy, registration, etc.), which become integrated into a single electronic record for the patient.
The EHR is the aggregate record which can span multiple visits across multiple locations and providers. The EHR is designed to reach beyond any single organization or provider that collects the information and focuses on the total health of the patient.

BCMA (also referred to as Closed Loop Medication Administration) is a system that uses barcodes for identification of both the patient and the medication. Scanning both barcodes allows for the system to compare the elements necessary to confirm the “Five Rights” of medication administration. It can also require secondary verification for high-risk medications and accurate documentation in an electronic medication administration record (eMAR).

The PHR is an electronic record that is maintained by the patient and includes information such as emergency contacts, allergies, illnesses, conditions, medications and immunizations. PHRs are typically offered to individuals at no charge by a variety of sources, including insurance carriers (including Medicare), retailers and even software providers. The patient may designate who has authorized access to this secured information. The belief is that patients and families who actively participate in their own health care will use this information to provide efficiency and important safeguards when emergency or routine care is sought.

An HIE describes the movement of health information electronically across multiple organizations. An HIE can operate on several levels. At the public health level, HIEs may accumulate data regarding immunizations and vaccinations. HIEs may also be used for syndromic surveillance by collecting and processing data, which can facilitate detecting, identifying or characterizing outbreaks of disease or injury. At the individual provider level, HIEs help to ensure that the most current patient information is available to allow for optimal decision-making and improved care coordination. Optimally, the exchange of health information will also reduce duplication of services, resulting in lower overall costs. The Nationwide Health Information Network Exchange includes Federal, State, regional and local health information organizations. Stakeholders are developing standards and policies that will govern the secure exchange of health information over the internet.

Electronic Prescribing, or ePrescribing, instantly transmits a prescription to a waiting pharmacy which saves time, saves money (potentially, by offering generic alternatives) and improves on safety by checking allergies, potential drug interactions and avoiding the guesswork of handwritten prescriptions.

**HIT in Practice**

**Standardization**

Historically, emergency department practitioners have designed paper flowsheets to expedite and standardize the process of documentation. The forms are designed to meet the documentation needs of 90% of the patients presenting to the emergency department. Paper forms are generic and static and do not always allow for the individualization required for a complex environment. As a result, handwritten narratives are often employed. The documentation becomes less prescriptive and may be illegible. Clinical documentation in an EMR system promotes both standardization and individualization. For example, electronic flowsheets and notes may be automatically “customized” for the patient based on presenting problems or diagnoses. This helps to guide the clinician toward recommended and required documentation.

Standardized electronic order sets may also be used to streamline order entry and to leverage best practice. Electronic order sets utilized through CPOE (computerized provider order entry) provide the ability to use evidence-
based practice and clinical decision support. Additionally, the orders, results and documentation entered into the EMR are legible and instantly retrievable by multiple providers at the same time. Therefore, data elements like allergies, home medications, past medical history, height, weight, vital signs, etc. can be gleaned from the EMR in real-time no matter where the patient is physically located.

Clinical Decision Support

It is not only care providers who have instant access to data entered into the EHR. Powerful clinical decision support engines integrated with the EMR/EHR have proven to enhance patient safety and delivery of care. By definition, Clinical Decision Support (CDS) is “HIT functionality that builds upon the foundation of the EHR to provide persons involved in care decisions with general and person-specific information intelligently filtered and organized, at point of care, to enhance health and health care.” An example of CDS is drug-allergy checking. If a provider enters an order for a drug to which the patient has an identified allergy, the EMR/EHR alerts the provider. CDS may also use sophisticated algorithms to identify potential patient problems such as venous thromboembolism.

Transition of Care

In addition to providing emergency care, the emergency department is also responsible for communicating the details of that delivery of care. This may be directed to patients at the time of discharge, to ancillary services during the episode, to primary care providers and to care providers in the inpatient setting. This transition of care, or handoff, requires clear, succinct communication of critical data elements to ensure seamless follow-up. While the majority of handoffs are unremarkable, they become exposed when a patient’s outcome is jeopardized. Technology plays an important role in improving that information exchange. Data in the EMR may be extracted in the form of printed reports. For example, ‘after-visit summary’ reports may be designed to extract data elements required for a primary care physician follow-up such as presenting problem, treatments rendered, immunizations received, prescriptions, etc. Similarly, a summary for transition from the emergency department to the inpatient setting or another health care facility may be configured. This report would be more detailed and could potentially include vital sign trends, intake and output totals, etc.

Meaningful Use

The EMR has demonstrated the ability to improve patient outcomes and the cost of delivering that care. It is estimated that Medicare and Medicaid will cost taxpayers $806 billion in 2013. As a result, the Federal government, a significant stakeholder, has embraced HIT.

The Health Information Technology for Economic and Clinical Health (HITECH) Act (a component of the American Recovery and Reinvestment Act of 2009) provides for financial incentives to hospitals and eligible professionals who implement certified EHRs and demonstrate Meaningful Use. Meaningful Use criteria insure that the implemented system provides functionality geared toward optimizing patient care in terms of quality and efficiency.

Emergency departments embarking on this journey must select, upgrade to or design an EMR that is certified for Meaningful Use. A list of certified health IT products is available on the website of the Office of the National Coordinator for Health IT at http://onchpforce.com/ehrcert?q=chpl.
Certified EHRs need to be implemented by September 2014 to allow for Stage I attestation – attestation toward Meaningful Use will result in federal financial incentives. Failure to demonstrate Meaningful Use by 2015 will result in penalties in the form of decreased reimbursement for Medicare and Medicaid.

Conclusion

ENA recognizes the ongoing and increasing importance of technology and informatics in the practice of emergency nursing. The ENA supports and encourages the active involvement of its members in the selection, design, implementation and optimization of systems and devices that will facilitate improved patient care and safety, population health and nursing process.

Definitions of Terms

**EMR:** Electronic Medical Record; A digital version of a patient’s chart for a single episode of care. The EMR accumulates and stores data from a variety of applications (clinical documentation, order entry, laboratory, radiology, pharmacy, registration etc.) which become integrated into a single electronic record for the patient.

**EHR:** Electronic Health Record; An aggregate record which can span multiple visits across multiple locations and providers. The EHR is designed to reach beyond any single organization or provider that collects the information and focuses on the total health of the patient.

**BCMA:** Barcode Medication Administration; A system that uses barcodes for identification of both the patient and the medication to improve patient safety.

**ePrescribing:** Electronic prescribing; Transmission of a prescription to a waiting pharmacy.

**HIE:** Health Information Exchange; The movement of health information electronically across multiple organizations.

**HIT:** Health Information Technology; An umbrella term which encompasses a number of distinct components that enhance the ability to deliver quality care. The components include EMR, EHR, BCMA, PHR, HIE and ePrescribing.

**HITECH Act:** Health Information Technology for Economic and Clinical Health (HITECH) Act, which provides for financial incentives to hospitals and eligible providers who implement certified EHRs and demonstrate Meaningful Use.

**Meaningful Use:** To receive federal financial incentives, hospitals and eligible providers must demonstrate Meaningful Use to ensure that an implemented EHR provides functionality toward optimizing patient care in terms of quality and efficiency.

**PHR:** Personal Health Record; An electronic record maintained by the patient.
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References


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