

Integrating the Operating Room and Surgical Data in the Patient's EHR

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Overview

Integrating the Perioperative EHR into the global patient EHR is essential to assuring a consistent clinical narrative about the experiences and findings about a person's healthcare. The adoption of new interoperability standards by the Health and Human Services Department (as recommended by HITSP and the ONC) make this integration much more seamless. This allows hospitals to implement the best solution provider by care area regardless of the HIS platform, and further negates the need for a broad but shallow house-wide solution that offers minimum department functionality. This paper will explore the manners, mechanism and the importance of interoperability in integrating the critical Perioperative EHR into the global patient EHR.

The Importance of Perioperative Data in the EHR

The perioperative environment is often viewed by the rest of the hospital as an episodic island of data that operates outside the normal workflow of the hospital. This could not be farther from the truth. Data drives decisions and the decisions that are made in the perioperative environment are critical to both the health of the patient and the hospital. The OR is a primary source of hospital-based errors. So it is essential that the perioperative data be integrated into the information flow of the hospital. The interoperability of all the institutions systems is crucial to the correct information being available at the right time and place. According to recent HFMA studies, today's OR is the economic engine of most hospitals – accounting for up to 60% of a hospital's revenue and some 35%-40% of the hospital's expense. Over 60% of the hospital's margin typically comes from surgical patients. Based on data from DJ Sullivan Healthcare Consulting's database of 700+ OR's, each empty but open OR suite costs a hospital an estimated average of \$1,000 per hour (including pre/post op staffing and anesthesiology costs).

The Role of Interoperability in the Perioperative Environment

Demographics

Having critical patient physical information and identifiers ensures that care is properly administered to the appropriate patient in the appropriate manner. Using the standards developed by the IHE, the perioperative system is able to fully participate in the communication and update of all relevant patient data including appropriate physical and patient identifications.

Problem List

A list of the pertinent information on the physical condition of the patient is crucial to delivering the necessary care based on their medications, co-morbidities and past health history. Using the XDS.b and XPHR standards, the perioperative collection and availability of the problem list to the global EHR is achieved without customized interfaces.

Allergies

Knowing a person's allergies prior to a surgical event is part of the Joint Commission and World Health Organization required preoperative checklist. There are over 21,000

potential allergies defined by NIST standards that are now part of the medical record. Knowing a person's allergy information is half the battle, while recording and notifying all the caregivers is the other half. Also being able to capture the nature and severity of a patient's allergies is key for clinicians to make informed decisions regarding medication administration.

Medication History

Providing the clinical provider a list of the current and past medications is essential in preventing errors or inducing a possible allergic reaction. Populating the medical reconciliation document from this information is crucial in ensuring that the patient is receiving the right medications at the right time. The perioperative care event can provide this information to other important care areas through the use of structure code vocabularies, such as RXNorm and SnoMed-CT.

Medical and Surgical History

Knowing a patient's past medical and surgical history allows caregivers to provide the appropriate plan for the care event knowing their current condition, past procedures and family history. Smoking history and alcohol use are important factors in determining the type and level of anesthetic care. This data, especially in outpatient surgical procedures, is critical in communicating to caregivers outside the operating rooms with the information that they need to make appropriate care decisions.

Vital Signs

Automatic acquisition of a patient's vital signs eliminates transcription errors, improves the quality of records, and allows the assembly of large electronic archives of vital sign data. The ability to capture physiologic data from a variety of medical devices ensures correct and accurate data in the patient record. The concern with data archiving in standard formats opens many possibilities for further analysis of the collected data sets. Medical devices' interoperability ensures that data can be transferred from any device to the perioperative system, and ensures semantic interoperability by using a consistent standard nomenclature. The perioperative system can then transfer this data to the EHR via an IHE XPHR or HITSP C32 document.

HHS Quality Indicators

SIS maintains or contributes to 8 quality measures defined within the "meaningful use" criteria established by the ONC that need to be communicated to the HHS via the adopted standards recommended by the HITSP.

- VTE prophylaxis within 24 hours of arrival
- VTE discharge instructions
- Incidence of potentially preventable VTE
- Infection SCIP Inf-2 Prophylactic antibiotics consistent with current recommendations
- Iatrogenic pneumothorax in non-neonates
- Foreign body left after procedure, age under 18 years
- Infection SCIP Inf-1 Prophylactic antibiotic received within 1 hour prior to surgical incision
- Infection SCIP Inf-3 Prophylactic antibiotics discontinued within 24 hours after surgery end time

Conclusions

The perioperative experience is the most invasive phase in a patient's care. Therefore, the information for the care of that patient must be current, accessible, accurate, and consistent, which is achieved using the standards that are now available for interoperability.