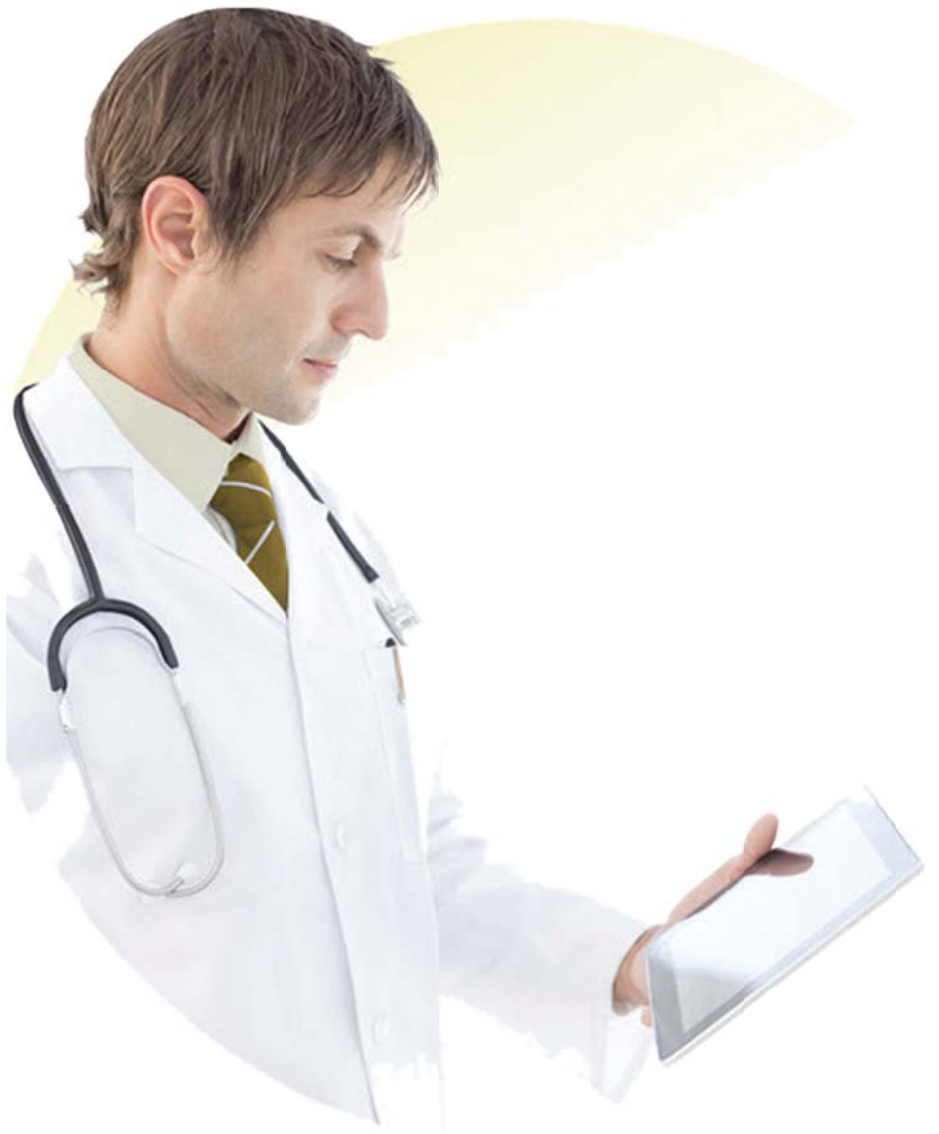




HIMSS Analytics

HIMSS Analytics Stage 7 Case Study

Lancaster General Health



Profile

Lancaster General Health (LG Health) is a 631-licensed bed not-for-profit health system with a comprehensive network of care encompassing Lancaster General Hospital (LGH) and Women & Babies Hospital, including a Level III-B Neonatal Intensive Care Unit. Outpatient services are provided at the Downtown and Suburban Outpatient Pavilions, along with additional Outpatient Centers and Express and Urgent Care locations throughout the region. Pennsylvania College of Health Sciences is a private, co-educational, Middle States-accredited four-year college offering a variety of associate and baccalaureate degree and certification programs in healthcare. Other system organizations include: Affilia Home Health; Lancaster Rehabilitation Hospital, in partnership with Centerre-Healthcare; Horizon Healthcare Services; and Lancaster General Health Physicians, comprised of nearly 300 family doctors and specialists and more than 40 offices throughout the area.

Designated a Magnet hospital for nursing excellence, LGH has been recognized regionally and nationally for clinical excellence and patient safety; and ranked nationally by U.S. News & World Report as one of the best hospitals for 2013-14 and 2014-15 in four specialties. In December 2013, Lancaster General Health achieved HIMSS Analytics EMR Adoption ModelSM Stage 7 and was validated as Stage 7 on the HIMSS Analytics Ambulatory EMR Adoption ModelSM in December 2014.

The Challenge

Lancaster General Health has been a pioneer with their adoption of medication safety technology to improve the safety of the medication use process. Despite the use of smart pump technology, manual pump programming errors were still occurring. Smart pump data was driven by the nurse choosing to engage smart pump technology and the programming of the pump within the established rule set. Unfortunately, this data set was not robust in identifying pump programming errors as the drug library rule set had no tie to the rate/dose contained within the medication order. Smart pump integration links the medication order to the infuser channel creating an environment that eliminates manual pump programming while providing a standardized approach to pump programming. By linking the pump to the medication order, a robust data set would be available to drive practice and process changes associated with the administration of intravenous medications.

Implementation Overview

Lancaster General Health began the journey to smart pump integration in 2005 by selecting the Hospira Plum A+ wireless infusion device. Working with Cerner Bridge Medical and Hospira, Lancaster General Health established a large interdisciplinary team to establish auto programming (the ability for the smart infusion pump to be programmed off the medication order). This team, consisting of a pharmacists, nurses, biomedical engineer staff, interface specialists, and other information services staff established all aspects of a technology solution that allowed the order to populate the infusion pump by a point to point unidirectional interface and wireless communication. Lancaster General Health began the implementation of an enterprise electronic health record in 2009 with Epic. At this point, development began on a bidirectional interface that would send the infusion order information to the pump as well as bring information from the infusion device into Epic (volume

infused, dose titrations, stop times). The bidirectional interface has been live since 2013 across inpatient and outpatient settings throughout Lancaster General Health. This implementation enhanced patient safety and staff efficiency while creating a robust platform for organizational learning around the infusion of intravenous medications.

Resulting Value / ROI

- Use of a bar code driven work flow that links the patient, medication order, and the infusion channel to reduce the occurrence of manual pump programming errors. The pump programming is “checked” against the actual medication order.
- Ability to increase staff efficiency by displaying each pump adjustment in the electronic health record for the nurses to document.
- Improvement in the accuracy of the medical record by capturing the complete infusion pump activity of continuous and titratable infusions to support informed decision making.
- Ability to program from the medication order ensuring a safety net for medications that are rare in use (may not be in your smart pump drug library) or that are introduced to respond to formulary shortages.
- Introduction of a standardized, bar code driven workflow that requires the nurse to focus on the administration of one intravenous medication at a time.
- Creation of a complete data source to improve practice and processes associated with smart infusion device use.

Lessons Learned

- Smart Pump integration requires organizations to establish a three way partnership among the electronic health record vendor, the smart pump vendor, and the health care system.
- End-user adoption is achieved by understanding how nurses use infusion devices. Infrastructure investment (wireless network) and wireless pump technology are critical to the success of the integration platform.
- Smart pump integration has many interrelated parts. Identify an organizational expert to oversee testing, adoption, and vendor relationships to ensure optimal use of the technology platform.
- Smart pump integration creates a robust data source. Organizational learning should drive improvements in the day-to-day use of the pump. In addition, this technology platform is young, and



health care organizations should commit to sharing knowledge to support industry adoption and prevent patient harm.

Lancaster General Health is a national leader in Smart Pump integration. Use of these integrated pumps ensures safety, efficiency, and accuracy to significantly reduce the programming error risks from traditional infusion pumps.

Thomas E. Beeman, PhD.

President & CEO

LG Health