Leading the Way...Integrating Technology in a Neuroscience Unit

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Integrating Technology in a Neuroscience Unit

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Abstract:

Healthcare technology can be quite an investment; but an investment in today's technology can lead to a better tomorrow. Hardware, software, clinical applications… there are many advances for any organization to implement. Determining the right technology for the environment is not any easy task; many factors must be examined to clearly define the expected advantages of integrating new technology. A review of key implementations in a Neuroscience Unit will be explored, highlighting the implications of the implementations. Integration of technology to the bedside can present challenges; the team must closely examine the planning and implementation phases of each project. While there is a significant financial commitment in the technology, there must also be a commitment to time, energy and resources for a successful implementation. Commitment must remain evident post implementation of any implementation. Lehigh Valley Health Network (LVHN) has proven a commitment to technological initiatives that lead to a more efficient work process and improved patient care decisions.

Objectives:

- Review the integration of technology to the bedside in a Neuroscience Unit.
- Describe the challenges of integrating technology to the Neuroscience Unit.
- Discuss the implications of investing in technology to the beside of a Neuroscience Unit.

Advantages of Technology:

The healthcare arena has been consistently investing in healthcare information systems which improve medical decision-making while increasing user efficiency. In recent years, healthcare technology has transformed the healthcare workplace. Healthcare networks have adopted information systems at a pace which fits their overall healthcare environment. There are many advantages to early adoption of healthcare technology:

- Comprehensive data to facilitate patient care decisions
- Real time data
- Real time accessibility to patient data
- Clinical efficiency
- Improve quality of care
- Reduce medical errors

Nursing Informatics:

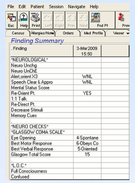
Nursing Informatics is a growing specialty within nursing, which utilizes knowledge from the disciplines of nursing, technology, and computer science. The Informatics Nurse has many responsibilities with the adoption of any new or upgraded clinical application. It is key to analyze the current clinical workflow prior to integrating new technology. The Informatics Nurse assists with analyzing, redefining, designing, implementing and managing complex clinical application projects. Additionally, throughout any project, it is key to bridge the communication between Information Technology (IT) and the end users; the Informatics Nurse is that bridge.

Integrating Technology Implementations in Review:

Clinical Documentation

GE Lastword® 4.3.5

- Comprehensive flow sheet documentation which reflects specialty documentation for Medical/Surgical Neuroscience unit
- Documentation is legible and standardized
- Provider can access documentation remotely to assist with comprehensive patient care decisions
- Results/reports to assist with coordination of care



Electronic Medication Administration (eMAR) and Barcode Medication Charting (BCMC)

- eMAR and CPOE (Computerized Provider Order Entry) implemented prior to BCMC; allowing users to successfully transition medication administration to online charting prior to introducing BCMC
- Assures the 5 Rights of Medication Administration
- Integrates real time medication charting
- Integrates clinical decision alerts throughout work processes
- Inherently reduces medication errors
- Constantly refining the BCMC technology
- Recent purchase of the SwisLog® Robot for medication distribution, using picrings

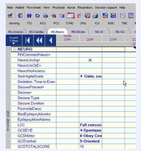
Scheduled Medications

PRN Medications

Metavision®

MetaVision® by iMDsoft®

- Complete online documentation system developed to streamline documentation and retrieval of patient data
- System provides flexibility to customize views for Neuroscience specialty; inclusive of Neuro, Stroke, Spinal Assessment forms
- System provides automated retrieval of information through interfaces to equipment/monitors
- Data retrieval for quality improvement
- Remote ICU with 24/7 provider coverage



Web Based Applications

Lehigh Valley Health Network has employed the use of several web based applications to augment documentation and the electronic medical record. The web based applications have been developed to compliment the current applications. Examples of web based applications introduced in the Neuroscience Units:

- **Pharmacy Communication Tool -** online web document which allows the nurse to communicate electronically to the pharmacy
- **Total Parenteral Nutrition (TPN) -** online web document which allows provider to enter IV nutritional needs for the patient
- **Krames® -** online web application which allows the nurse to document patient education.
- **Menon® -** Medication Reconciliation and Discharge Instructions; online web application which allows various users to document home medication list, reconcile medications across the continuum to home through discharge instructions

Discharge Template

Menon® Discharge Instructions

- Discharge templates designed to facilitate instruction to the patient
- Specific instructions are legible and incorporated into the discharge form
- Streamlines discharge documentation to the patient
- Various types of functionality within the templates, such as checkboxes, fill in the blanks, radio buttons, pick lists

References:

- Collins, J. (2001). Good to Great., pp 144-164.
- Goldsmith, J. (2004). Investing in clinical IT. Healthcare Financial Management., pp.58(8): 66-69.
- Laying the Foundation – for integrating health care IT. Retrieved June 10, 2008, from http://findarticles.com/p/articles.
- Pearson, M.L., et al. (2008). Spreading nursing unit innovation in large hospital systems. Journal of Nursing Administration., 38(3): 146-52.
- Scalise, D. (2005). Where the patient and technology meet. Hospitals & Health Networks., 79(8):34-6, 40, 42.

Challenges of Integrating Technology:

1. *Investment*

- Outline desired outcomes
- Develop strategic initiative
- Analyze return on investment (ROI)
- Weigh pros versus cons of investment
- Evaluate various systems
- Evaluate the current environment for hardware and work processes
- Assess and solidify the upper management commitment to the project

2. *Planning Challenges*

- Conceptualize the current versus prospective work process
- Assure upper management commitment
- Solicit involvement from users throughout the network utilizing pre and post implementation meetings
- Assure application is clinician driven for early adoption
- Dedicated physician champion
- Outline project go-lives; many projects have dependencies

3. *Implementation Challenges*

- Interfaces between clinical applications
- Education; evaluate the best methodology and materials for specific unit
- Development of super users & go-live support
- Adoption/acceptance
- Parallel go-live projects
- Evaluation post implementation
- Downtimes; scheduled versus unscheduled

Implications of Investing in Technology:

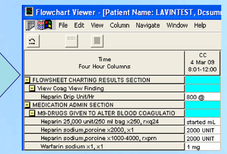
1. *Increased efficiency*

- One time entry of data
- Point of care testing/results
- Standardization of documentation and reports
- Standardization of best practices utilizing evidence based practice
- Streamlined handoff communication
- Automated data retrieval for quality improvement

2. *Comprehensive Patient Care Decisions*

- Real time documentation
- Automated data collection
- Remote 24/7 ICU utilizing integrated technology from several applications
- Remote accessibility to data utilizing customized views which collate common elements to assist with patient care decisions

EXAMPLE: Anticoagulation view which pulls data from lab results, medication administration, and flow sheet charting



Conclusion:

Investing in healthcare technology is clearly the path for healthcare networks, but the path could have many challenges along the way. The implementation must be closely examined for advantages, return on investment, project challenges, and implications. Lehigh Valley Health Network is dedicated to providing the highest quality of care, and the integration of technology can assist with such a goal.