CLOSED LOOP MEDICATION – BEST PRACTICES

Jon H. Fridriksson, MD
Chief Executive Women’s and Children’s Services
Landspitali – The National University Hospital of Iceland
HIMSS EMR Adoption Model
Landspitali – The National University Hospital of Iceland
October 2014

The hospital acute care has an EMRAM Score of 3.2. This is slightly above European average, but clearly below most hospital in advanced countries like the United States, Denmark or the Netherlands.
HIMSS EMR Adoption Model
Landspitali – The National University Hospital of Iceland
October 2014

- Improve usability of electronic order processes through tighter system integration / introduction of a centralized CPOE
- Improve Medication Management, e.g.:
  - No CDS for drug interaction, cumulative dosing and dose-range checking
  - No barcode enablement of medications for pharmacy or nursing (e.g. no use of ADMs) → barcodes are used for stock tracking, but not for improving patient safety
  - No auto-identification for blood products or human milk
  - Second line validation of orders by clinical pharmacists is not done hospital-wide
  - Chemotherapy and TPN are very labor-intensive (e.g. manual copying of information between different systems)
  - POC Administration: Some medications are dispensed at ward level, no POC documentation (typically done for 6-7 patients in one go after ward round), no positive patient identification (through auto-id techniques)
  - No comprehensive usage of incident reporting system (e.g. pharmacy hardly knows about ADEs)
KEY FINDINGS

Landspitali shows a mixture of (highly) mature to less mature areas in terms of IT infrastructure, IT usage and IT governance. The highest potential for future efficiency and process improvements around the EMR lies with Clinical Documentation, Decision Support and Medication Safety.
Medication errors

• Can **harm** patients
• Some of the most **common preventable adverse events** in hospitals
• Can **increase length of stay and healthcare cost**
Classifications

• Many systems in use – no universally agreed upon standards
• Simple and often used
  – Prescribing
  – Preparation
  – Administration
The 5 Right of Medication Administration

- The right patient
- The right drug
- The right dose
- The right route
- The right time
Closed Loop Medication Administration

**Medication Order** (by authorized clinician)
Medication order entered into CPOE/ePrescribing system, pass CDS and flow to Pharmacy and/or Ward

**Medication Reconciliation**
Medications at admission and discharge

**Validation & Dispense** (by Pharmacy/Nurse)
Validation of order and dispensing of Unit Doses (e.g. by ADM) with bar code or complete prescription information

**POC Administration**
Secure identification of nurse, patient and medication at POC by
- bar code scanning or RFID
- POC registration in eMAR
- 4-eye principle (+signature)
Assuring the 5-Rights of Medication Administration

**Documentation**
Update and available in eMAR for review, override management and future CDSS interactions

**ADM**
Optional
THANK YOU!

Jon H. Fridriksson, MD
Chief Executive Women’s and Children’s Services, Landspitali Iceland
jhf@landspitali.is