Overview of eMAR
Electronic Medication Administration Record

March 2006
WHAT IS eMAR?

• eMAR – Electronic Medication Administration Record - Replaces the paper MAR

• MAK – Medication Administration Check (Siemens)

• Main Components:
  - Bar-coding of medication;
  - Bar-coding of patient wrist band;
  - Bar-coding of employee;
  - Scanning all of the above into the MAK system to ensure the “6 Rights” of Medication Administration are met.
MEDICATION PROCESS FLOW WITH TECHNOLOGY APPLICATIONS

CPOE
Computerized Educational Tools

Pharmacy Information Systems
Automated Medication Management Systems (PYXIS)

Prescribing

Dispensing

Administration
eMAR
Bar Code Verification
INDUSTRY DRIVERS

- To Err is Human, Institute of Medicine
- The Leapfrog Group
- Crossing the Quality Chasm, Institute of Medicine
- Reducing and Preventing Adverse Drug Events
- Hospital Costs, AHRQ
- Patient Safety Act of 2001
- JCAHO Patient Safety Standards
MANUAL MEDICATION MANAGEMENT PROCESS

Pharmacist enters Med Order into Siemens Pharmacy system

Order Sheet delivered to Unit in a bag with other Pharmacy items and placed in Pharmacy Box

When the RN completes transcription of the order, he/she signs the order sheet & initials the MAR.

Is the ordered medication in PYXIS?

No

Pharmacist fills the Med Order and deliver to Unit

No action required

Yes

Order is now complete and can be administered

This process/procedure is not followed consistently

Pharmacist prints MAR daily early morning hours and delivers to Units

Night RN does 24 hour check - Old MAR against New MAR against Med Orders.

No

Yes

Pharmacist is to stamp orders with his/her name stamp for compliance/legibility

Physician is to place the chart back in the rack

Nurse or Clerk pulls the chart from the rack to review and take off the orders

Physician doesn’t stamp the order and handwriting is illegible

Charts put everywhere except the rack. So orders delayed or lost

Confusion about which fax line to use. When to page the Pharmacist because it is not known if he/she is in the satellite office, etc.

Fax line is busy, then someone will remove the order sheet, in order to fax something else. Therefore the Pharmacy does receive the order.

Many nurses don’t want to stand in line for PYXIS and so have adopted the procedure of pulling all their patient meds. They write room numbers on cups and stack the cups to make med rounds.

Meds are given to the patient but some indicated that the MAR is left at the station. Also it was noted that MAR sign-off for administration occurs are time they pull the med from PYXIS.

RN reviews patient’s MAR and prepares their medication. Med may be in supply room, refrigerator, PYXIS, or med cart.

RN takes med to patient room in the factory package. Conducts 5 right check and administers med.

RN documents Med administered on MAR.

The nurse charts the effect and scale of pain meds.

Unit Clerk R.N Faxes Med Orders to Satellite Pharmacy. Then stamps the order as being faxed.

Unit Clerk R.N Faxes Med Orders to Main Pharmacy. Then stamps the order as being faxed.

Is the satellite Pharmacy open?

No

Yes

Is this the first day of admission?

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HIGH LEVEL MEDICATION ADMINISTRATION PROCESS WITH eMAR

- Process redesign
- Software supports clinical workflow
- Bar-code ID at administration
- Online documentation

Nurse Prepares Meds

Nurse Goes to Bedside

Nurse Scans ID, Patient and Meds (6 Rights Checked)

Medication Administration Automatically Documented
Patient Safety:

- Verifies that the **RIGHT Drug**, is being administered to the **RIGHT Patient**, at the **RIGHT Dose**, by the **RIGHT Route**, at the **RIGHT Time**.

- Medication Administration is automatically documented. **(6th RIGHT)**

- Online MAR is likely to be more accurate than traditional MARs generated manually.

- Real-time orders on eMAR.
• Strong clinical leadership

• Nursing, Pharmacy and IT must work together along with Physicians, Respiratory Therapy and Admissions

• Unit specific work flow analysis with Nursing and Pharmacy

• Reporting to Patient Safety Committee

• Staff must own the process:
  – Nursing: Medication Administration
  – Pharmacy: Bar Coding.
REQUIREMENTS FOR A SUCCESSFUL PROJECT...

- Committed Steering Committee Representation:
  - Administration
  - Nursing
  - Physicians
  - Education, Development and Research
  - Performance Improvement / Patient Safety
  - Pharmacy
  - Respiratory Therapy
  - Health Information Services
  - Information Technology
  - Other Clinicians
MEDICATION ADMINISTRATION PROCESS RE-ENGINEERING TEAM

• **Team includes:**
  
  – Key Nursing Leaders
  
  – Key Pharmacy Leader and IS Pharmacist
  
  – Director of Nursing Informatics

• **Goals:**
  
  – Review and revise medication policies, procedures and processes;
  
  – Impact analysis to Nursing productivity;
  
  – Review of Medication distribution process, i.e. Pyxis.
• Various Bar Code Symbologies Available:
  – Scanners that can read multiple symbologies are key!
  – Patient and staff bar coding solutions can enable safer:
    • Specimen collection
    • Tissue tracking
    • Blood product administration
Final Thoughts from the Institute for Safe Medication Practice (ISMP)

“Technology is just one tool, among many, that needs to be consistently and effectively used by organizations striving for fail-safe medication use”