HCA
Central Atlantic Supply Chain

BPOC/eMAR Spotlight on Performance Improvement

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Capital & Richmond Divisions

Hospital Corporation of America

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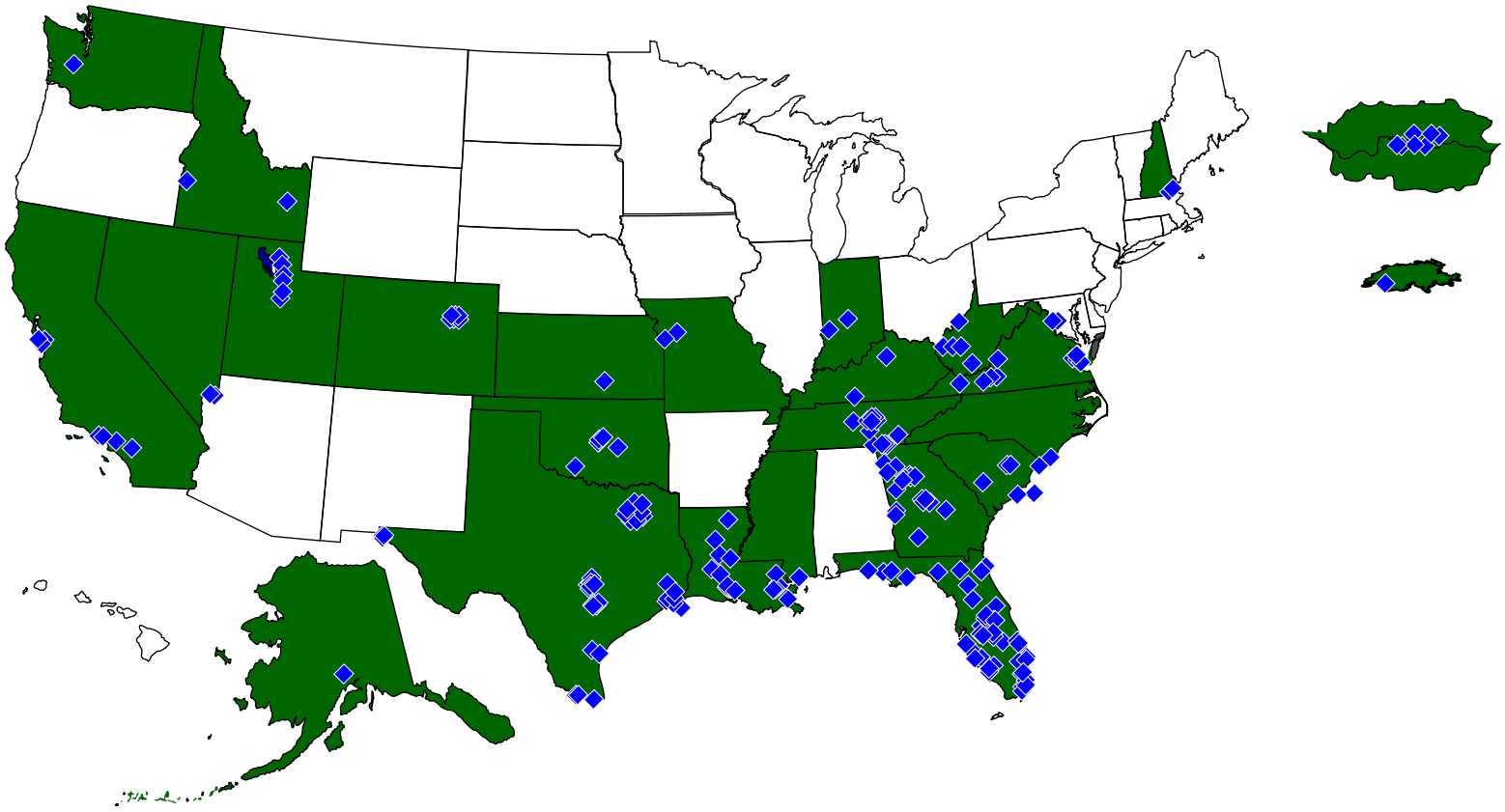
HCA operates in 23 states and two foreign countries; 166 Acute Care Hospitals in USA, 7 in UK



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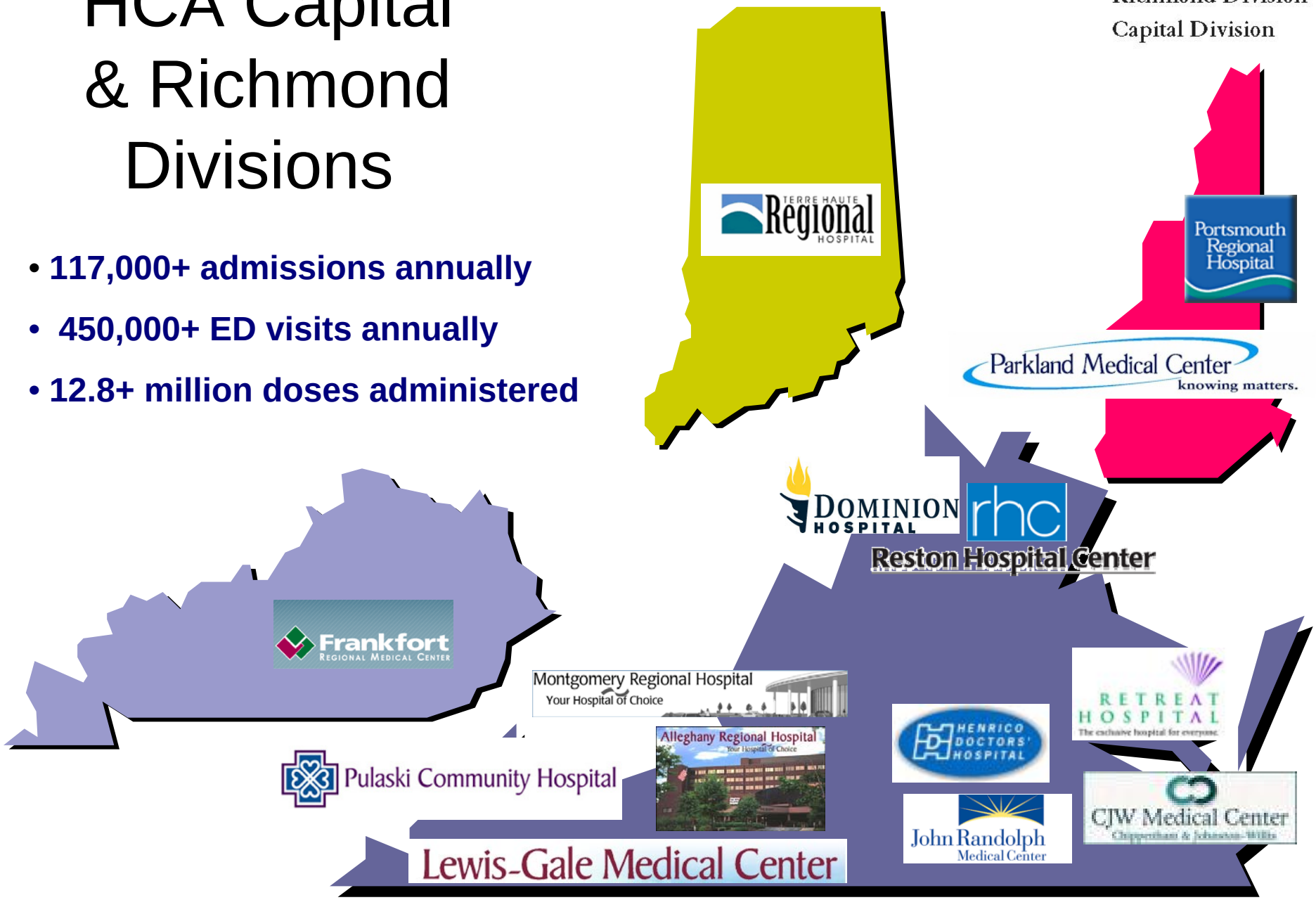
- **117,000+ admissions annually**
- **450,000+ ED visits annually**
- **12.8+ million doses administered**



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Objectives

- Share performance improvement journey through BPOC patient safety project:
  - History and results
  - Bar-coding medications
  - eMAR workarounds
  - Performance Improvements and integrity of electronic record
  - Important Strategies – Lessons Learned

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Patient Safety Goal

- Ensure the Electronic Medication Administration Record (eMAR) is being used to display the patient's current active medication list; and a bar-coded, unit-of-use medication is scanned prior to administration to the patient (BPOC).

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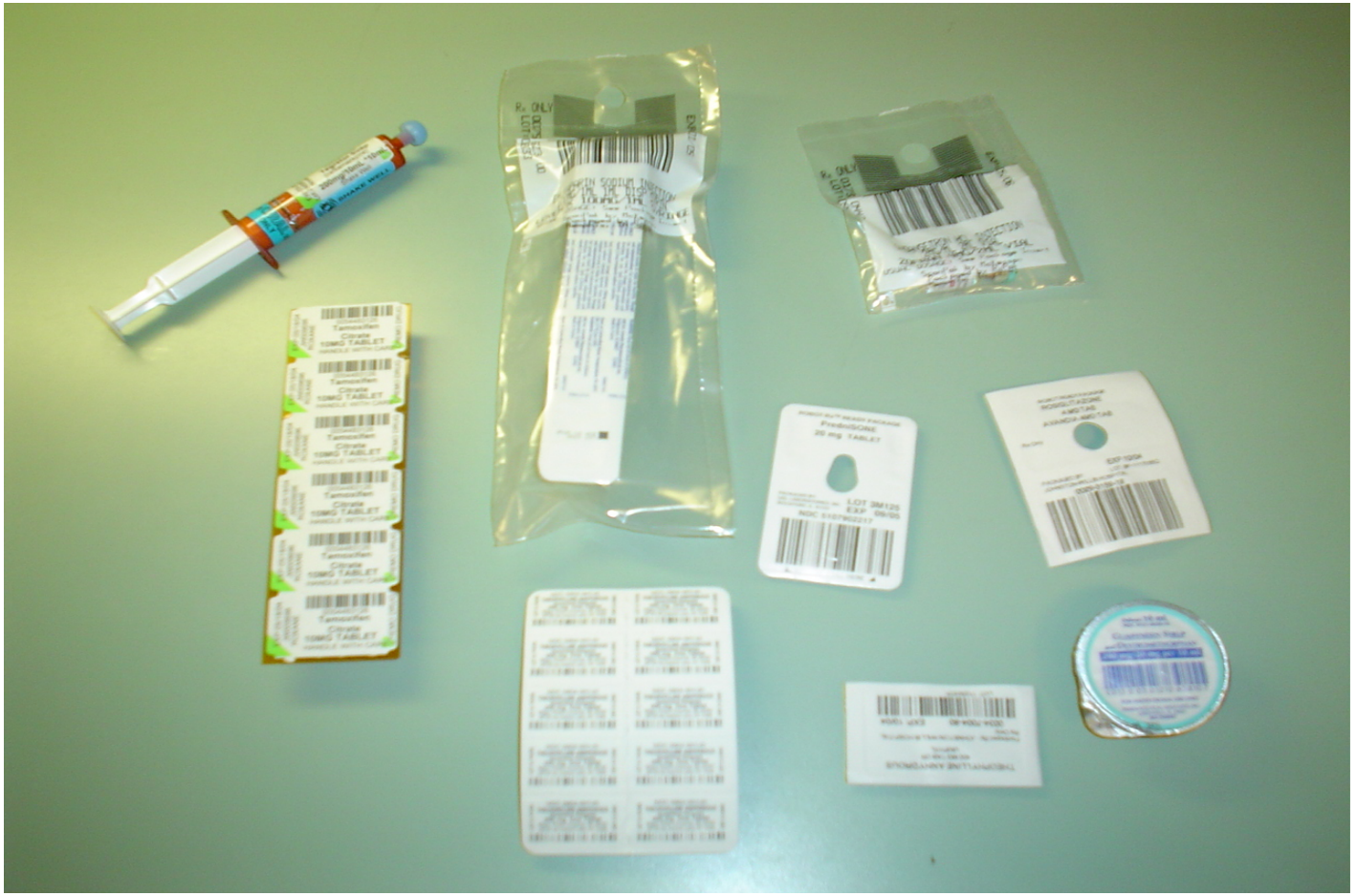
Bar-Code Packaging



Industry Response: Unit-of-use Medications

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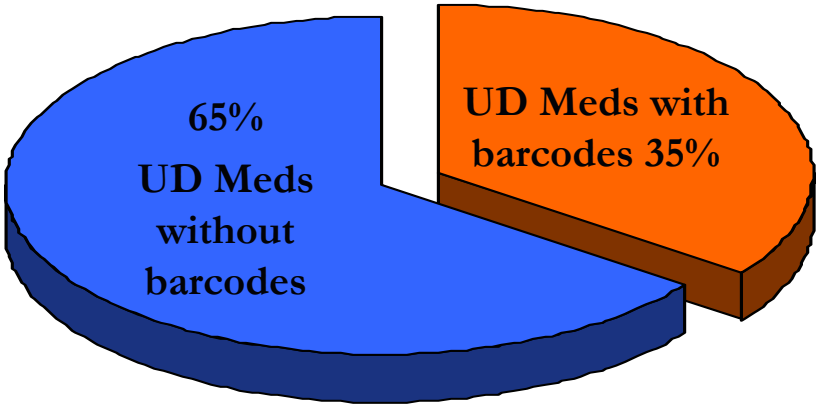
In 2002, **only 1.5% of hospitals used bar code** technology in med administration, an increase from 1.1% measured in 1999 (AJHP 2002 Survey)

SOURCE: Healthcare Executive, Sept/Oct 2003, pg 9



"The greatest challenge to BPOC implementation is the need to bar-code unit-dose medications. FDA reports only 35% of medications are bar-coded by manufacturers."

Johnson VR, Hummel J, Kinninger T, Lewis RF. "Immediate steps toward patient safety." Healthcare Financial Management. Feb 2004;58,2

"Only about 30 to 40% of medications in unit-of-use packaging were available with barcodes when the FDA regulation was introduced."

Quinn FJ. "Medication barcoding lags at hospitals." http://www.pharmaceuticalcommerce.com/frontEnd/main.php?idSeccion=381. Nov 12, 2006.

HCA UD Bar Code Meds Availability Gap 2004

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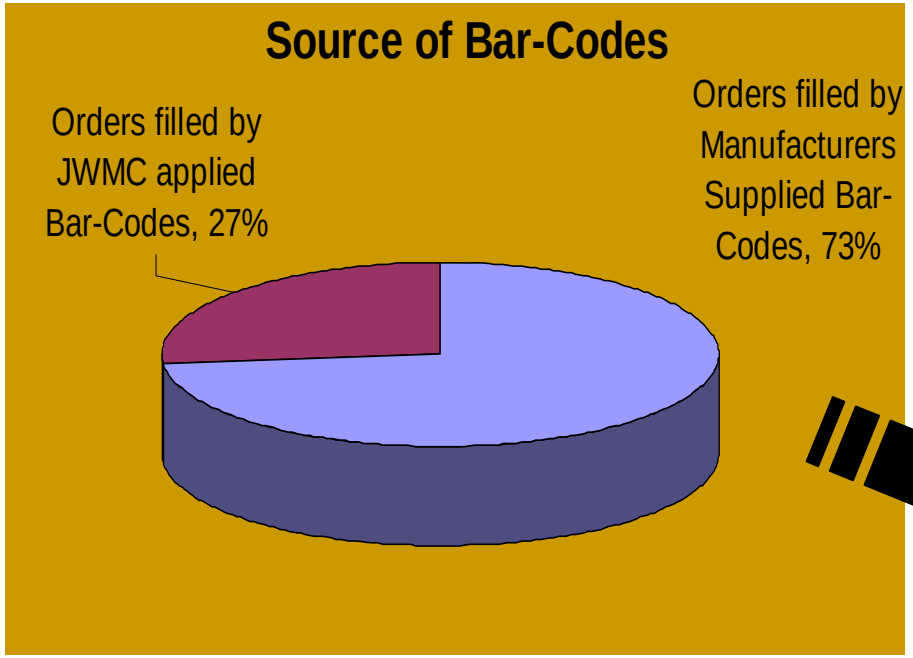

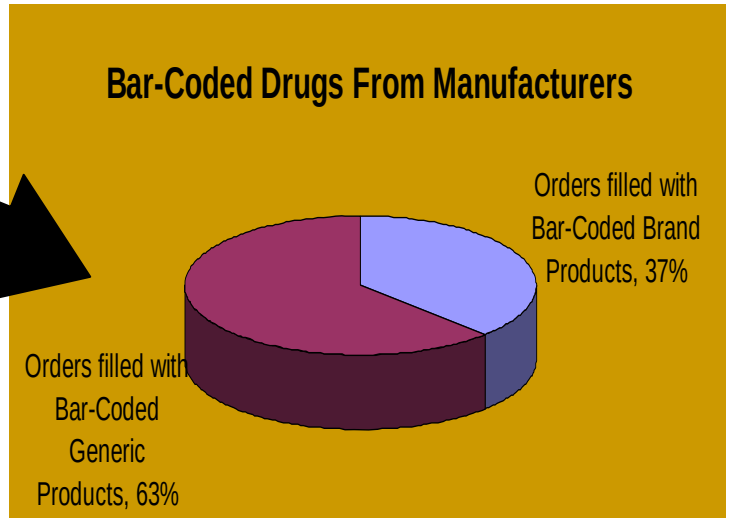

HCA UD Bar Code Meds Availability Gap 2007

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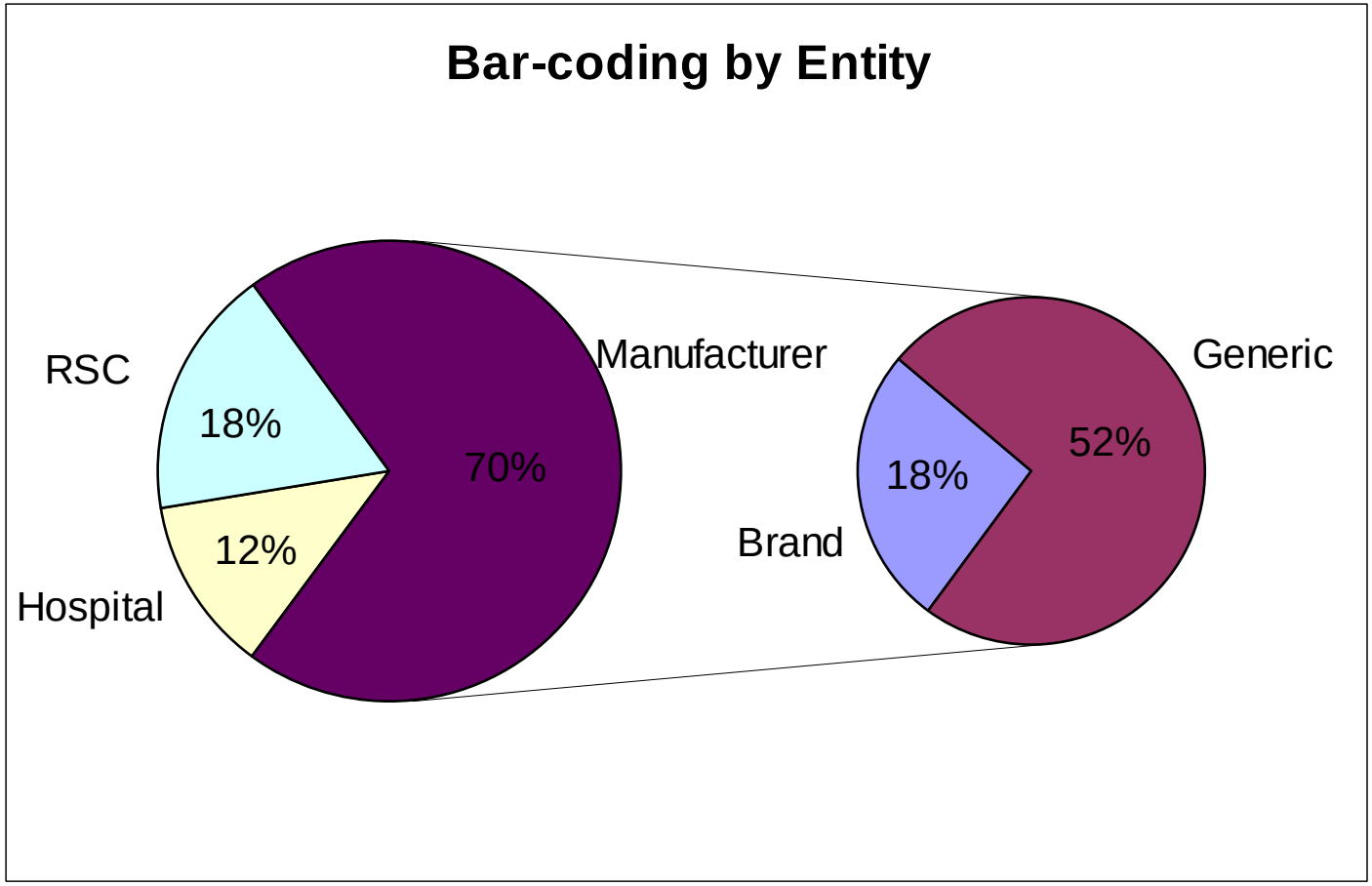

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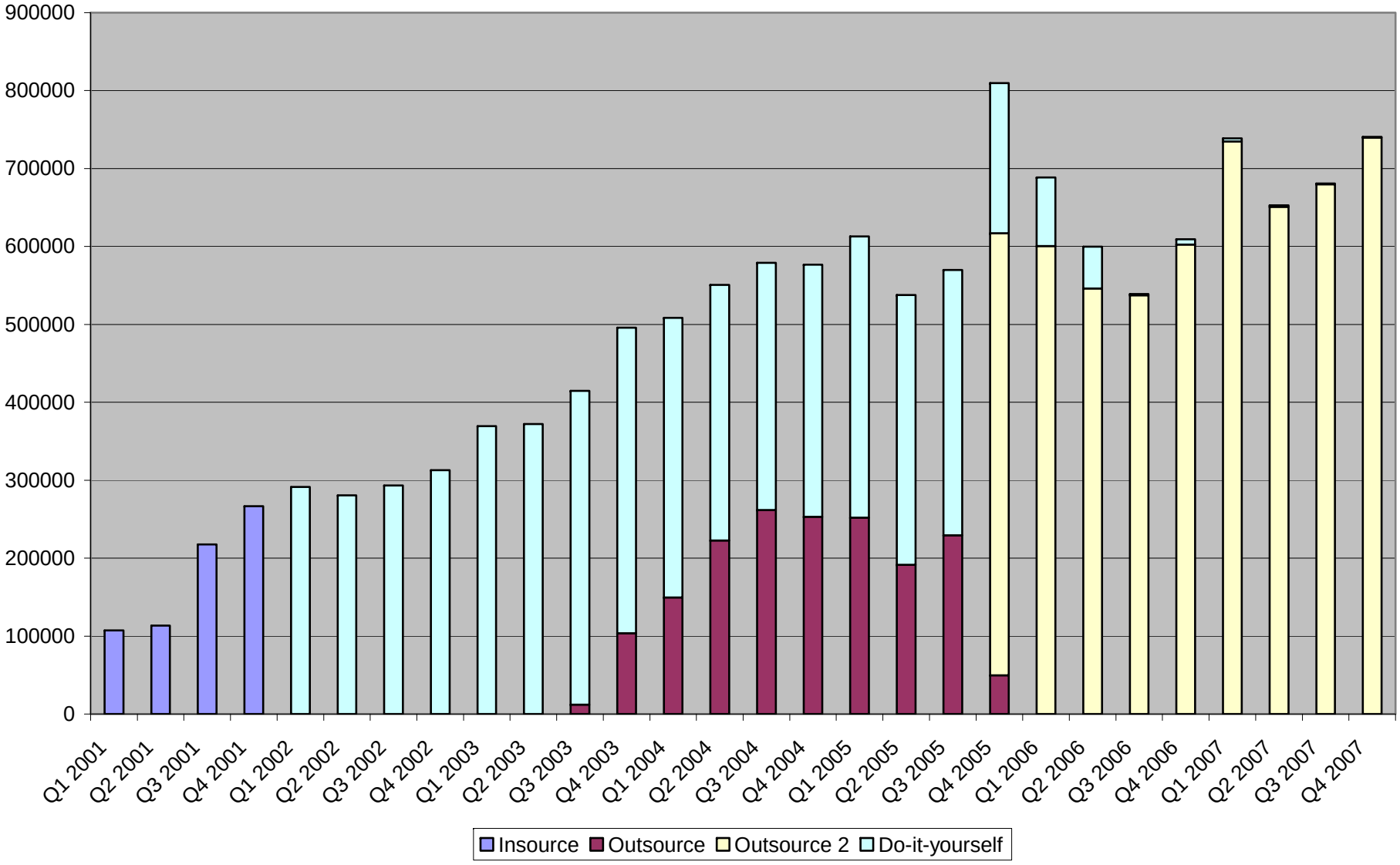
DOSES BARCODED PER QUARTER



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The Cost of Bar-Coding Medications @ CJW Medical Center

- January through March 2007
  - 720,197 doses administered
  - 91% doses scanned
  - 123,813 warnings
    - 1.9% not on patient's MAR
    - 1.4% doses exceeds ordered amount
    - 108 allergy warnings
    - 33 expired medication warnings

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BPOC ROI @ CJW Medical Center

Cost of barcode packaging	$0.10	315,594 Doses Barcoded	$31,559
Cost of an ADE*	$8,750	1062 Wrong Patient attempts	$9,282,500

$35,000 in cost avoidance

*IOM: *Preventing Medication Errors*, Report Brief, July 2006

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Performance Improvements: early focus

- Scanning percentages
  - **TOTAL DOSES ADMINISTERED**
  - **TOTAL DOSES SCANNED**
  - **TIMES PATIENTS VERIFIED**
- We asked for Compliance, we Got IT
- Over 90% hospitals were reporting over 95% of patient scanning and medication scanning

eMAR Performance Improvement

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Desired Performance	Actual Performance	Performance Gaps	Intervention(s)
Only medications with viable barcodes reach the patient	Pharmacy not verifying all products into the MEDITECH system upon receipt before putting on the shelf	Medications reaching the floor would not scan	Corporate wide quality control guidance document published. Presentations by pharmacists practicing per policy shared.

eMAR Performance Improvement

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Desired Performance	Actual Performance	Performance Gaps	Intervention(s)
Visually examine both the eMAR and the written MD order simultaneously before Acknowledging orders	Medications acknowledged on the eMAR without having the actual physician's orders at hand	Acknowledging medication orders is the only way one can be certain that pharmacy has entered on the eMAR exactly what the MD ordered, not reconciling	■Unit Directors, eMAR coordinators and super users conduct observational rounds. ■Create an environment for nurses to feel comfortable to reporting at-risk behavior

eMAR Performance Improvement

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Desired Performance	Actual Performance	Performance Gaps	Intervention(s)
All medications should be prepared at the patients' bedside. Treat medication passes as sacred	Medications scanned and prepared outside a patient's room or in the med room while multitasking	Distractions or interruptions when trying to work in the hallway or in the med room	Direct observation Encourage reporting when error or improper practice observed Establish P&P to address high risk behavior

eMAR Performance Improvement

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Desired Performance	Actual Performance	Performance Gaps	Intervention(s)
Scanning all medications before administration	Scanning the medication package after administration	Lack of understanding the benefits of the system and embedding it into the workflow	Direct observation Reinforce the purpose of bedside verification, not the action of scanning

eMAR Performance Improvement

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Desired Performance	Actual Performance	Performance Gaps	Intervention(s)
Scanning the armband on the patient's wrist	Scanning alternative forms of patient barcodes instead of the armbands	Choosing convenience over safety By not using the system as intended, harm may result	Direct observation Reinforce the purpose of bedside verification, not the action of scanning

eMAR Performance Improvement

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Desired Performance	Actual Performance	Performance Gaps	Intervention(s)
All medications should be administered using eMAR and Bar-coding at the time of medication administration	Full documenting for a coworker who often leaves without documenting in eMAR	No way of knowing if the med was administered or not, in the correct dose, at the right time. Lack of adherence to hospital policy	Staff asked to return to work and complete documentation If absolutely pertinent, all such entries should be documented on by a charge nurse, nursing supervisor or Director/Manager

eMAR Performance Improvement

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Desired Performance	Actual Performance	Performance Gaps	Intervention(s)
All medications are scanned into eMAR prior to administration even in a stat situation (only exception-codes)	Medication administered before the pharmacist profiles it and them full documented against the profiled order or scanning an empty package	By scanning medications after administration, all safety checks are violated creating incorrect administration times and bypassing the interaction/allergy check	Software upgrade implemented which allows staff to scan urgent/emergent medications and flags pharmacy for review

eMAR Performance Improvement

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Desired Performance	Actual Performance	Performance Gaps	Intervention(s)
Scanning all pills required to make a complete dose	Scanning only part of the dose to be administered	When only part of the dose is scanned, all patient safety checks are bypassed Choosing convenience over safety	Reinforcement of the safety in validating all doses to be administered By not using the system as intended, harm may result

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Performance Improvements: today's focus

- Evaluate administration of late medications
  - Assess reasons for late meds
  - Report any before or after 60 minute variances
- Administration time vs. file (scan) time
  - Electronic audit trail
- Review medications involved in errors
  - Wrong patient / wrong medication

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Paper - MAR

Diagnosis: **TESTING**
Allergies: **PHA ALLERGIES NOT ENTERED**
HEIGHT: **5** ft **5** in **165.1** cm WEIGHT: **150** lb **0** oz **68.039** kg BSA: **1.77** **Last Updated: 03/13/08**

Administration Period: 0000 03/13/08 to 2359 03/13/08	START/STOP	0000 - 0759	0800 - 1559	1600 - 2359
DIGITEK 0.125MG TABLET **DIGOXIN** **0.125 MG** ORAL EVERY DAY AT 10 IN THE MORNING COMMENTS: Administer if OK with Cardiology. – Dr. Jones paged 10:15 OK ē Dr. Jones 11:15 DOSE INS: HOLD IF HR < 60 RX #: D00002010	03/13/08		1000 11:15 lft HR = 72	
NITRO-BID 2% OINTMENT **NITROGLYCERIN** **1 GM** TOPICAL Q6H COMMENTS: Remove at HS RX #: D00002011	03/13/08		1045	1645 2245
FUROSEMIDE 20 MG TABLET **FUROSEMIDE** **20 MG** ORAL DAILY RX #: D00002012	03/13/08		0900 lft	

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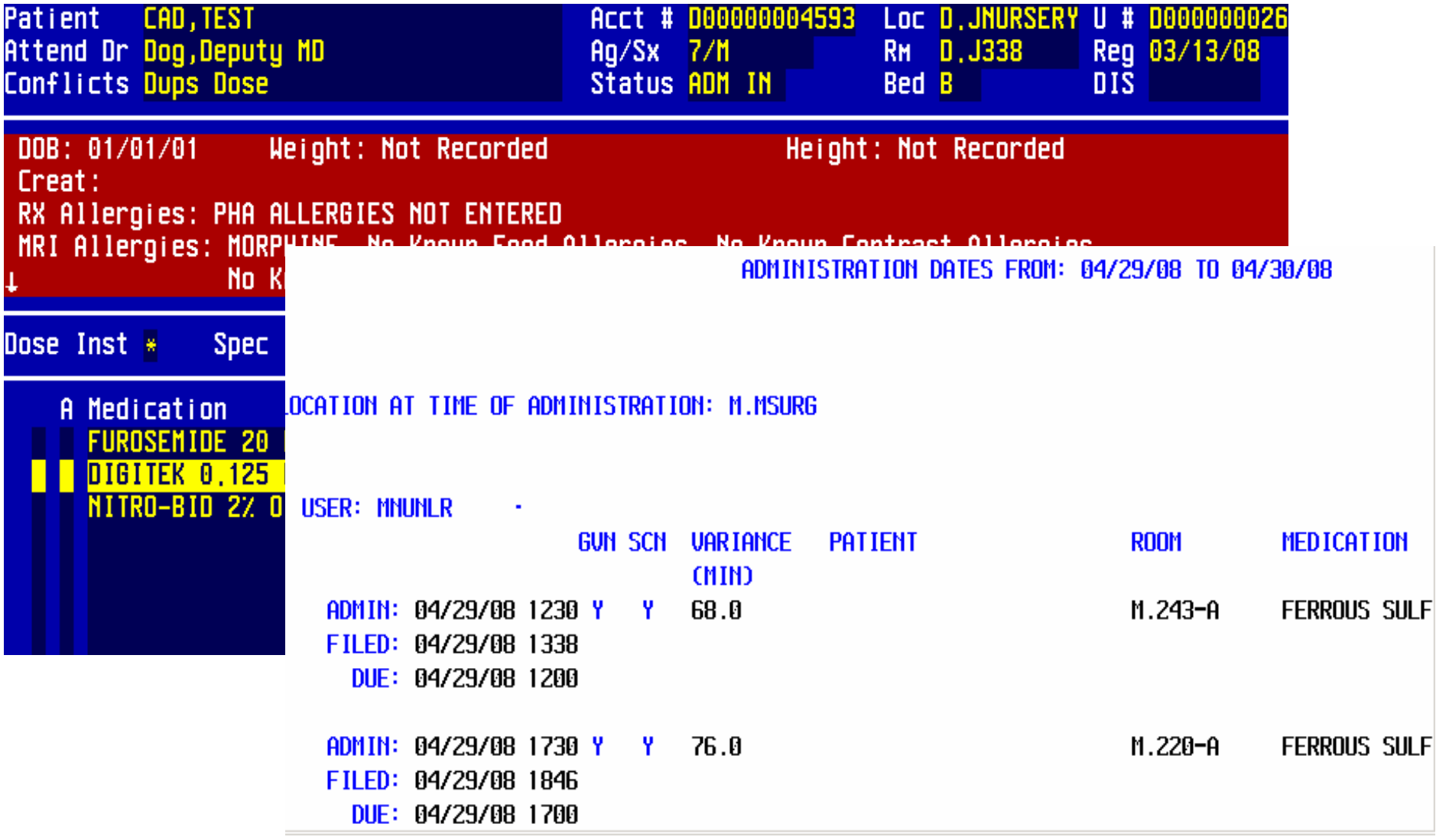
Electronic MAR…



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Medication Errors: A comparison

MEDMARX (National Data)*	Richmond-Capital Division (HCA)**	Ambulatory Surgery Department (HCA)***
Insulin	Insulin	Ancef
Albuterol	Heparin Sodium	Toradol
Morphine Sulfate	Cefazolin Sodium	Morphine
Potassium Chloride	Morphine Sulfate	Diamox
Heparin	Warfarin Sodium	Fentanyl
Cefazolin	Pneumococcal Vaccine	Albuterol
Warfarin	Vancomycin HCL	Percocet
Furosemide	Potassium Chloride IV	Versed
Levofloxacin	Enoxaparin	Phenol
Vancomycin	Levofloxacin IV	Lidocaine Gel

Source: *United State pharmacopeia, ** Meditech Risk Module,*** SQI database

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CREATE A CULTURE WHERE PATIENT SAFETY IS NEVER ENDING!!!

- Take ownership to lead your facility to success
- BE INVOLVED NOT JUST INFORMED
- Commitment must be ongoing
- Any measures to reduce harm to patients must be supported
- Remember, Staff do not come to work to intentionally make medication errors
- Assess causes of errors
- Support a no-blame culture, look at processes

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What's next…

- Emergency Departments
- Cardiac Cath Labs
- Perioperative Areas
- Surgery

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Strategies – Lessons Learned

- Avoid the easy solution
- Minimize end-user steps
- Anticipate the impact on the Physician, Nurse & Pharmacist
- Communicate in one voice, send one message
- Identify the core team and create a multidisciplinary process
- Identify what supports the at-risk behavior
- Reduce staff tolerance of at-risk behavior
- Increase their compliance with specific safety rules
- Increase awareness / set staff performance expectations / monitor
- Motivate – staff will respond if the focus is on achievement rather than failure

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Questions…