

# REDUCING MEDICAL AND MEDICATION ERRORS THROUGH INFORMATION TECHNOLOGY AND PROCESS CHANGE

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# Background

- Acute Care Hospital- 355 beds
  - Trauma center
  - NICU- Level 2
  - Regional Burn Center
- Geriatric Center- 350 beds
- Academic and Community relationships



# Clinical Information System

- Installed July 2003 acute hospital
- Initial installation included
  - Admission, discharge, transfer
  - Provider Order Management
  - Laboratory- ordering and results
- Later installations (driven by patient safety)
  - cPOE (Computerized Provider Order Entry)
  - eMAR (Electronic Medication Administration Record)



# Mission:

- **Improve patient safety and outcomes**
- **Streamline workflow**
- **Reduce Medication Errors**



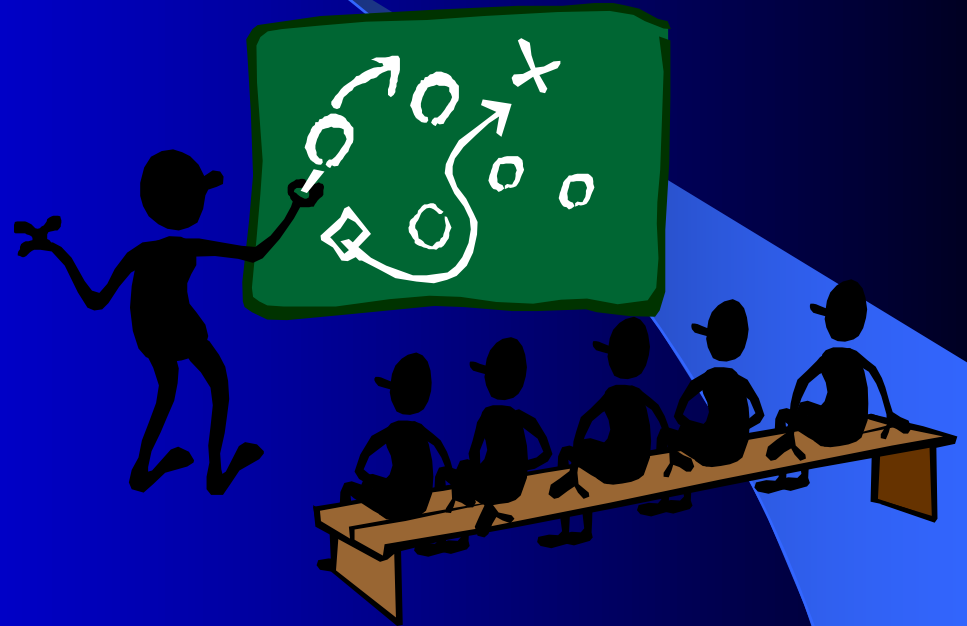
## Initial Opportunities for improvement were:

- Decrease turnaround time from provider order to patient treatment
- Decrease lost requisitions for treatments
- Decrease transcription errors
- Decrease phone calls for clarifying orders
- Decrease interaction, contraindications and dose errors of medications
- Standardize nursing medication administration practice across all nursing units



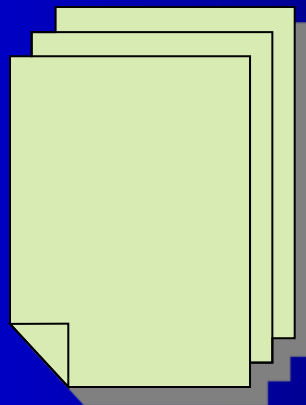
## Implementation Strategy:

- Project Charter
- Project Plans
- Core teams



# Project Charter

- Guide and communicate scope of project
- Prevent “Scope creep”
- Follows formal project plans within organization



# Project Plans

- Milestones
- Deadlines
- Responsibilities
- Holds teams to tasks
- Avoids delays





# Core teams

- Active role in project oversight
- Involved multi-functional teams
- Addressed workflow analysis
- Multidisciplinary communication and decision making
- Champions during planning, implementation
- Addressed process issues for improvement



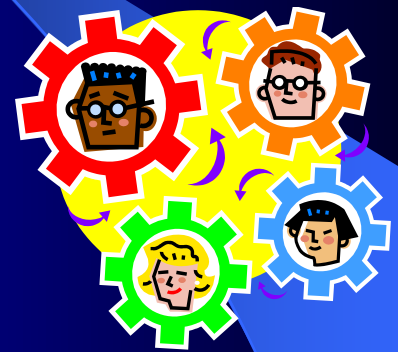
## cPOE Core Team membership:

- Physicians (attending and residents)
- Nurses
  - Clinical analysts
  - IS group
  - Staff nurses
- Pharmacist
- Ad hoc:
  - Respiratory therapy
  - Rehab: PT, OT , Speech
  - Risk management
  - IS technical personnel



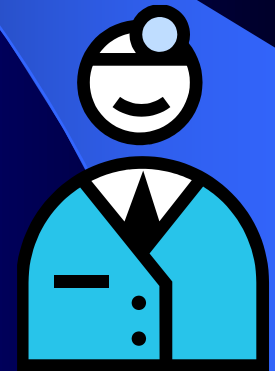
# Review of Workflow

- Needed so could refine dictionaries
- Address goals
  - Smooth ordering process
  - Avoid overburdening providers
  - Maintain safety
- 200 + Order strings for medications to facilitate medication ordering
  - Has doubled since go-live



# Concern about Provider Reaction

- Core team met with leadership on units prior to implementation
  - 6-8 weeks prior to phased in implementation
  - Weekly meetings
  - Planned discussions (see poster)
  - Providers responsible
    - Getting members to training
    - Developing order sets for most frequent patient types



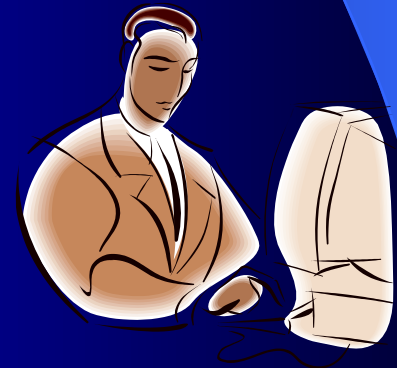
# Order Sets

- “Savior”
- Streamlined ordering process
- Assured consistent approach
- Designed by providers
- Residents would “test” prior to go-live
- Helped develop Champions



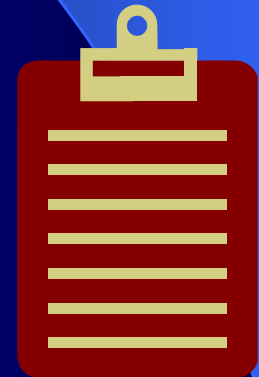
# Availability of Computers

- Hardware an issue at each level of implementation
- Install computers in provider work rooms on unit
- Mobile computers for each team
  - Accompany rounds
  - Results lookup
  - Order entry



# Additional tasks

- Identify areas and opportunity for change
- Policies and procedures which require updating
- Define roll out plan including Pilot units
- Education
  - Education and training needs
  - Plan education prior to implementation
  - Plan ongoing education process- turnover
  - Staffing issues for support
- Support during implementation



# eMAR Core Team

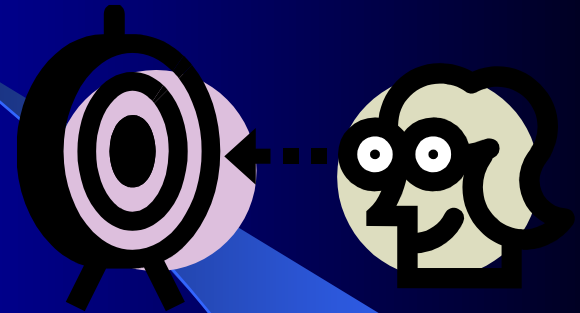
- Nursing director- project lead
- Nursing
  - Analysts
  - Educator
  - Staff
- Pharmacy
  - System analysts
  - Pharmacist
- IS system analyst
- Consultant – experience in nursing and HIS
- IT , respiratory educators
- Staff Physician
- Ad hoc: Risk Management, Medical records, IS hardware and desktop support





# Challenges

- Learn eMAR
  - Functionality
  - Interaction with pharmacy module
  - Interaction with pharmacy processes
    - Includes Pyxis medication delivery system
- Developed scenarios
- Tested using patient data
- Included workflow issues in training

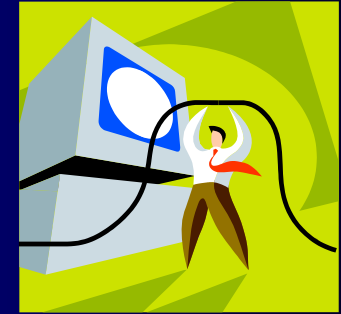


# Concern about Nurse Reaction

- Met with managers, charge nurses, staff nurses (changed weekly)
- Met 6 weeks prior to unit go live
- Refined predetermined plan for meetings with unit priorities



# Hardware issues



- Review Medication Record for withdrawing medication from pyxis
- Where to document administration
- Varied based on unit
  - Each ICU room would have computer with thin client near pyxis
  - Med surg floors- each nurse have lockable medication cart with computer attached
- On go live- major issue “dead zones”- IS responded quickly

# Workflows



- Used nurse responses
- Extended time for medication administration from ½ hour before/after to 1 hour
- Med- Surg nurses adjusted assignments as much as possible so all patients in same pyxis machine

# Questions?



Contact me...

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