EP32: Describe and demonstrate the nursing structures and processes that support a culture of patient safety.

Patient Safety at Riverside Medical Center is a high priority and involves each and every nurse. Riverside Medical Center has won the Healthgrades Patient Safety Award for the last 5 years, 2006 through 2010; this award exemplifies the structures, processes and outcomes that support a culture of patient safety. Nurses are integral to providing safe care to our patients.

**Structures and Processes**

The nursing structures that support patient safety include nurse leaders who support patient safety on a daily basis - each and every day. This includes our Senior Leadership Team (five of whom are registered nurses), nursing directors, and nursing managers. Our team leaders and/or charge nurses are unit-base supervisors and also provide direct care. They support patient safety by providing resources at the bedside, encouraging feedback from all staff, by listening intently to staff concerns, and making decisions that involve input from the nurse at the bedside. Nurse leaders encourage staff to make decisions in the best interest of patient safety and to report concerns through the incident reporting system, called Peminic. As leaders in the organization, they receive automatic e-mail notifications of occurrences so they are able to investigate the issue or concern. They put actions in place to prevent the issue from happening again, or bring the issue to a patient safety committee meeting to be addressed if input is needed from an interdisciplinary perspective. They report their follow-up back to the nursing staff in a confidential manner so nursing staff are aware the concern was addressed and actions are being taken to provide safer care to our patients.

Our Patient Safety Officer directs our patient safety program. He regularly makes rounds on the nursing units to encourage staff to speak with him about patient safety concerns. He encourages Senior Leaders to round with the Patient Safety Officer and at times the Vice President of Medical Affairs, Dr. John Jurica, accompanies the Patient Safety Officer. The Patient Safety Officer makes formal monthly rounds at which time the Patient Safety Officer speaks with staff regarding patient safety concerns and questions. The information is triaged and, if necessary, acted upon immediately, forwarded to the appropriate committee, or taken to the appropriate Riverside leader(s). For example, during patient safety rounds, nurses were concerned about the increased friction of moving patients on the carpeting in some units’ hallways. He evaluated the potential safety issue and purchased motorized patient transport equipment.

**Quality and Safety Council Structures and Processes**

Another structure is the Quality and Safety (Q&S) Council, one of the sub-councils of the Patient Care Council (PCC). This council consists of seven direct care nurses, an Advanced Practice Nurse, an Information Systems nurse, the Director of Quality Improvement, and the Director of Patient Safety; all are nurses. The council is interdisciplinary and includes a Pharmacist and ad hoc members from Radiology and
Respiratory Therapy. The Q&S Council meets monthly during the Patient Care Council. The agenda is based on patient safety concerns from team members and other patient safety projects, as well as quality activities. The council proactively investigates and brainstorms these safety projects and frequently seeks input for actions from direct care nurses. The Quality and Safety Council’s recommendations and actions are then reported back to the full PCC in our reports at the end of the day. All council members are responsible for taking the information back to their nursing units and disseminate the information to their unit leaders, peers, and other staff. Communication methods include team huddles, communication books, newsletters, posting of signs, or other communication methods that have been chosen to assure all unit staff have the information about the necessary process changes that enhance patient safety.

One project involved the Hospira Smart IV Pumps. This patient safety technology has “smart” technology that provides safety parameters for the nurse at the point of care to safely administer IV medications. The Riverside HealthCare Foundation purchased the Hospira infusion pumps with donations raised specifically for this patient safety feature, which is a clear indicator of how patient safety is enculturated in all areas, both clinical and non-clinical. In order to continuously improve patient safety, Hospira reports are distributed daily to clinical nurse leaders. Hospira Smart IV Pump Asset Tracker is a report that provides data on pump location, when the Smart IV pump was last utilized, and library update completion. During one update, pharmacists noticed many pumps had not been updated with the most recent library and updated safety parameters. The Quality and Safety Council members initiated rounds on PCC day, went to all units, and found the pumps that had not been updated. They then updated the libraries so the pumps would have the most up-to-date information available for our patients’ safety. To accomplish this required council members to go throughout the entire hospital and building to update every pump. In addition, council members utilized these rounds to educate direct care nurses on the importance of updates and demonstrated how this was done. If council members were unable to locate the pumps during rounds, they reported their findings to Pharmacy and Biomed for follow-up. At the next Council day, a status report was given and all pumps have been updated. Ongoing collaboration between Pharmacy and nurses is coordinated through the Medication Safety Committee, which also includes nurses and pharmacists.

**Unit-Based Council Structures and Processes**

Another structure devoted to improving patient safety is our Unit Based Councils (UBCs). UBCs are unit- or service-specific. One example of a UBC-led patient safety project is the implementation of walking rounds on the 2nd Medical/Surgical unit. Walking rounds was defined by the UBC as a walking hand-off process during the change of nursing shifts. There are three main stakeholders of this process: the on-coming nurse, the off-going nurse, and the patient. The nurses conduct a formal introduction of staff to the patient, and patient to staff. There are two main objective of this activity. First is pain level, and the assessment is done mutually among the three people. This ensures patient needs are addressed and individualized. The second is educating the patient on his/her plan of care for the upcoming shift, addressing test and procedures, and
addressing any questions. The 2 Med/Surg UBC project has been very successful for this unit, as evidence by the increase in patient satisfaction scores for quarters two and three of 2009, which reflect the onset of this new process.

Medication Reconciliation Structures and Processes

Another nursing processes that supports patient safety is our medication reconciliation process. This process is also one of the Joint Commission’s National Patient Safety Goals (NPSG). The Quality and Patient Safety Council developed, educated nurses, and implemented this new process. Council members used the NPSG and other resources from their literature review in order to plan the implementation of this process. Our former medication reconciliation process was assessed and gaps were identified. The council then developed policies and procedures, educated the direct care nurses, pharmacy staff, and medical staff on the policy, and implemented the processes. There have been many reiterations of this process. A light-duty nurse with experience in conducting quality improvement audited patient charts. She then followed up with specific nurses on proper documentation of the reconciliation process. This one-on-one teaching method went a long way in helping our staff understand the medication reconciliation process.

When we implemented our new documentation system in June 2007, we integrated the medication reconciliation into our current process and policies. An interdisciplinary team of nurse managers, team leaders, and direct care nurses from all nursing departments and the Information System nurses developed the policies.

The reconciliation process starts in the Emergency Department where the patient is asked for his/her list of medications. That list is reviewed again when the patient is admitted to the nursing unit, at each transfer within the patient’s stay, and again at discharge. The physician has the patient’s list of home medications and the list of current medications printed from our online system and is able to check whether he or she wants the patient to continue or discontinue taking the medication at discharge or change the medication order. A copy of the discharge medications is given to the patient to take home and is also faxed to the physician’s office. This copy can also be faxed to the nursing homes. During our Joint Commission survey in May 2008, the surveyors complimented Riverside on implementation of this exemplary process. Our medication reconciliation performance improvement project has improved patient safety by standardizing the patient handoff process. Following are two examples of home medication reconciliation forms used at Riverside.
<table>
<thead>
<tr>
<th>Drug Name</th>
<th>Dose</th>
<th>Route</th>
<th>Order Adm.</th>
<th>1st Order</th>
<th>Last Order</th>
<th>Expiration Date</th>
<th>Exp Date</th>
<th>To Be Changed</th>
<th>Change Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine</td>
<td>30</td>
<td>IM</td>
<td>1800</td>
<td>30</td>
<td>30</td>
<td>8/23/2020</td>
<td>8/23/20</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Fentanyl</td>
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<td>IV</td>
<td>1800</td>
<td>50</td>
<td>50</td>
<td>8/23/2020</td>
<td>8/23/20</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Trough</td>
<td>0</td>
<td>oral</td>
<td>1800</td>
<td>0</td>
<td>0</td>
<td>8/23/2020</td>
<td>8/23/20</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Midazolam</td>
<td>10</td>
<td>PO</td>
<td>900</td>
<td>10</td>
<td>10</td>
<td>8/23/2020</td>
<td>8/23/20</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Please See Written Physician Orders

Physician Signature: [Signature]

Date/Time: 7/14/04
Bar-Coded Medication Administration Structures and Processes

Riverside has also developed structures and processes for safe medication through adoption of advanced technology. Riverside has implemented a closed-loop medication distribution model. This model requires a process in which nurses scan 1) the patient 2) the medication and 3) the patient again. This structure and process includes the 5 rights: right patient, right drug, right dose, right route, and right time of medication administration.

Barcode/scanning structures and processes have not been mandated but strongly encouraged by multiple agencies including The Joint Commission, Leap Frog, and the Institute for Healthcare Improvement. The leadership team under our former President and CEO, Dennis Millirons, set forth with a plan to implement bedside medication scanning. This involved a plan to redesign our normal medication administration system by deploying hardware equipment and software to the inpatient pharmacy and the inpatient nursing units. Information System (IS), pharmacy, nursing, nursing leaders and educational services departments worked collaboratively to develop and implement these structures. Following are the actual deployment timelines for the implementation of the our safer medication administration structure:

- **February 2007**  Installed automated pharmacy dispensing equipment
- **May 2007** 24 hour pharmacy services
- **June 2007** Pharmacy Medication Order Entry
- **June 2007** Admin-Rx (Point of Care Barcode Scanning and Charting)
- **June 2007** Allergy Information Integration
- **September 2007** Smart IV Pumps
- **February 2009** Acudose Medication Dispensing Machines
- **May 2009** Automated Decision Support (Quality Reporting)

Below is a diagram of the complicated nature of the system and the different departments and hardware/software involved in our structure for bedside scanning.
The structure must be followed to ensure optimal medication safety. In essence, the structure (technology and equipment) was developed in response to increased awareness for need for safer medication administration. The process of bedside scanning helps decrease the chance of human error. The success of the process depends on one key factor: Every time a medication moves from one location to another, it is scanned.

Steps in the process are:

1) Receive from wholesaler in pharmacy.
2) Medications scanned into storage areas.
3) Medication dispensed to patient from pharmacy or medication delivered to automated dispensing machine (ADM).
4) Medication scanned out of storage area in pharmacy.
5) Medication delivered to ADM.
6) Medication scanned into ADM.
7) Nurse retrieves med from ADM or patient specific medication drawer.  
   *Note: 90% of medications are located in the ADM on nursing units.*
8) At the bedside using the computer with tethered scanner or the handheld scanner, the nurse will first scan the patient's identification wrist band.
9) Nurse to scan medication.
10) Nurse to scan patient’s identification wristband again.
Intravenous medications that are mixed by the pharmacy have a barcode on the label and are also scanned similarly.

Based on current medication orders for that patient, the computer system then assesses and verifies the correct medication, dose, will be given to the right patient at the right time by the right route. If one element is incorrect, the computer system will flag a time-out message. This alerts the nurse to take action to correct the situation. The nurse may or may not decide to give the medication based on clarification of the medication order and/or chart review.

One of the largest components to the new structure and process was the dissemination of equipment use via education to end users. Included in the education was the reason for the change. This training was a massive undertaking by our education department.

Because computer system was new, nurses needed to be trained on four different software applications two devices. The application names are Care Organizer, HED, HOM and Admin Rx. Training sessions were 8 hours long and included a written training manual and hands on practice.

After the go-live date, a command center was activated and was staffed by IS, Pharmacy, educators, and vendor experts. The command center was live 24/7 for the first two weeks after go-live. Thereafter, super-users and various experts from McKesson and IS staff rounded on all the floors to provide hands-on support for nurses. The super-users were a group of nurses and educators who went through more intensive training prior to the go-live date.

Three months after implementation, a competency test was given to all nurses. Nurses who did not pass the exam were required to receive additional training. One-on-one coaching and practice time was given to those individuals to ensure they understood the structure and processes.

The journey has not been without bumps in the road. After the new structure and process went live, it was discovered that some work-arounds were happening. Extra ID wrist bands, which contained the scan-able barcodes were being kept in nursing units. The bands were being scanned in the nurses station and not at the bedside, thus skipping a vital step of the process. This practice was halted immediately and nurses who continued this work-around received counseling and/or progressive discipline.

Enculturation of the new bar code scanning structure and process was initially a challenge. People are fundamentally resistant to change and this situation was no different at go-live time. Nurses felt very overwhelmed with all the new systems and processes that they had to learn. Some felt that they now needed to perform extra steps and the perception was that these extra steps would affect their ability to take care of patients. With the support of the nursing leaders and super-users to support staff as well
as support the change, the process became more comfortable. After time, the new process has become a routine part of the nurses’ workflow. It is now evident that nursing has become the advocate for change with this process, bringing suggestions daily to the IS team.

The new structure and process compliance rates were initially discussed and progress reviewed at weekly nurse management meetings and at medication safety meetings. Now, the nurse managers are responsible for monitoring bedside scanning processes.

An outcome of the new structure and process is that Riverside now monitors scan rates through generated reports. These reports have the capability to dial down to specific transactions. A number of reports can be created. For example, reports can be run by:

By role of the medication administrator:

<table>
<thead>
<tr>
<th>Staff Title</th>
<th>Total Administrations</th>
<th>Early Count</th>
<th>Late Count</th>
<th>Qty Override Count</th>
<th>Drug Override Count</th>
<th>Bar Code Count</th>
<th>% Bar Coded</th>
<th>Administrations% Early</th>
<th>% Late Administrations</th>
</tr>
</thead>
<tbody>
<tr>
<td>RN</td>
<td>58260</td>
<td>2550</td>
<td>8450</td>
<td>1766</td>
<td>159</td>
<td>54360</td>
<td>93.31</td>
<td>4.38</td>
<td>14.50</td>
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<tr>
<td>RT</td>
<td>6130</td>
<td>174</td>
<td>1419</td>
<td>27</td>
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<td>97.78</td>
<td>2.84</td>
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<tr>
<td>LPN</td>
<td>1402</td>
<td>16</td>
<td>262</td>
<td>56</td>
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<td>1109</td>
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<td>1.14</td>
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<td>286</td>
<td>61463</td>
<td>93.42</td>
<td>4.16</td>
<td>15.40</td>
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</table>

By Nurse (names have been omitted.)
And by medication:

<table>
<thead>
<tr>
<th>Drug Name</th>
<th>Total Administrations</th>
<th>Early Count</th>
<th>Late Count</th>
<th>Qty Override Count</th>
<th>Drug Override Count</th>
<th>Bar Code Count</th>
<th>% Bar Coded</th>
<th>Administrations% Early</th>
<th>% Late Administrations</th>
</tr>
</thead>
<tbody>
<tr>
<td>LORAZEPAM</td>
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<td>2</td>
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<td>MORPHINE</td>
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<tr>
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<tr>
<td>FUROSEMIDE</td>
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<td>1</td>
<td>25</td>
<td>96.15</td>
<td>0.00</td>
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<tr>
<td>LEVOTHYROXINE</td>
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<td>23</td>
<td>100.00</td>
<td>8.70</td>
<td>0.00</td>
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</table>

Nurse managers review these reports on a regular basis and post the information on a bulletin board in the unit. If a manager notices a downward trend in a nurse’s scan rate, s/he will coach the nurse and find out why the nurse isn’t following the standard process. As a result of the reporting capability, the manager is able to trouble shoot and encourage the development of good habits.
New technology has provided the necessary tools for Riverside nurses to improve patient care by ensuring safe medication administration. As shown below, we have improved medication incidence occurrence events significantly and will continue to in the future.

Summary

The structures and processes that support a culture of patient safety at Center are well disseminated and enculturated throughout all levels of nursing and in all hospital departments. Our partnerships with ancillary support services such as the Pharmacy and the IS department have contributed to the successful implementation of Smart Pump and bar code scanning medication administration technology. Our nursing committees and councils have provided valuable input into all facets of patient safety, including development of structures and processes to ensure patient safety is at the forefront of all nurses’ practice.