

# HealthBeat

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## Safe Patient Mobilization & Six Sigma

If looking for a solution to the challenges of safe patient handling that will address employee injuries, patient safety and engage patient care staff in an objective blame-free process, the six sigma process may be an answer.

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**S**H&E professionals working in the healthcare field know the challenges of trying to reduce employee injuries from patient mobilization tasks. Many have learned that a one-size-fits-all approach will not produce lasting results and if done in a method that does not include staff input will sooner or later fail. An additional lesson learned is that throwing equipment and training on the problem does not

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address the underlying issues and only adds to nursing staff's perception that safety does not understand the complexities of providing patient care in the age of electronic medical records, shorter stays and a patient population that is physically larger and presents multiple health issues.

Hospitals not only have the challenges of nursing safety, they also have the increasing requirements to address patient safety initiatives,

*continued on page 16*

**PAGE 4**  
**PATIENT SAFETY**  
Crew Resource Management

**PAGE 7**  
**PREVENTION THROUGH DESIGN**  
Healthcare

**PAGE 11**  
**ACTIVE SHOOTER**  
What Staff Need to Know

**PAGE 13**  
**MEDICAL MARIJUANA**  
Members Share Insight

For a complete Table of Contents, see page 3

## Safe Patient Mobilization & Six Sigma

*continued from page 1*

such as reduced patient falls and hospital-acquired pressure ulcers, all while struggling to remain in the black amid ever-changing reimbursement rules and regulations. A successful six sigma project outcome will help improve a hospital's bottom line by decreasing waste and inefficiencies. In addition, proposed solutions from a project are more likely to be implemented by staff as they have been validated by data gathering and analysis.

If looking for a solution to the challenges of safe patient handling that will address employee injuries, patient safety and engage patient care staff in an objective blame-free process, the six sigma process may be an answer.

### SIX SIGMA

Features of six sigma improvement initiatives include:

- a clear focus on achieving measurable and quantifiable financial returns;
- an increased emphasis on strong and passionate management leadership and support;
- a clear commitment to making decisions on the basis of verifiable data, rather than assumptions and guesswork.

Six sigma project methodology has five phases (DMAIC):

- 1) Define the project/problem, the customers, the voice of the customer and the project goals, specifically.
- 2) Measure key aspects of the current process and collect all relevant data.

3) Analyze data to investigate and verify cause-and-effect relationships. Determine what the relationships are and attempt to ensure that all factors have been considered. Seek out root cause of the defect under investigation.

4) Improve or optimize the current process based on data analysis using various techniques, such as setting up pilot runs to establish process capability.

5) Control the future state process to ensure that any deviations from target are corrected before they result in defects. This includes the use of measures and strategies that support holding gains in improved performance

Based on the nursing process outlined in the Lippincott Manual of Nursing Practice, nursing staff follows general six sigma principles when providing patient care (Nettina, 2005). For example, consider the process outlined below for obtaining patient history.

1) "The first step in caring for a patient and in soliciting active cooperation is to gather a careful and complete history.

a) "In all patient concerns and problems, an accurate history is the foundation on which data collection and the process of assessment are based.

b) "The comprehensiveness of the history elicited will depend on the information available in the patient's record and the reliability of the patient.

2) "Time spent early in the nurse-patient relationship gathering detailed information about what the patient knows, thinks and feels about the problems will prevent time-consuming errors and misunderstandings later (Nettina, 2005)."

By comparing the six sigma process with the nursing process example, one could conclude that the basics of nursing practice as outlined for something as simple as obtaining patient history are similar to six sigma processes.

•Define: Develop the patient's history and learn why s/he is in the hospital, thus defining the project of making the patient well.

•Measure: Nursing gathers data, such as input/output, test results, etc., to obtain a baseline of the patient's health status or condition.

•Analyze: Nursing and the physician analyze the patient's data to determine next steps toward making the patient well.

•Improvement: Accomplished by administering medication to the patient to make the patient well.

•Control: Control measures for a successful patient outcome are implemented by nursing staff throughout the patient's stay. These control measures follow standard practices of care recommended by nursing protocols to ensure that the hoped-for standard results in the patient being successfully treated and discharged.

### SIX SIGMA STEP BY STEP

Two hospitals significantly improved their employee injury rates from patient mobilization tasks by using the six sigma process.

#### Define

This first step in the six sigma process assists in laying the foundation for anticipated successful outcomes of the project. Within six sigma, the project charter is developed, the project scope is identified, team members are recruited, high-level work-level processes are mapped, customers are defined and what is critical to satisfying them is outlined. This six sigma process is an early step toward gaining the buy-in of staff toward developing a workable solution they are willing to own and implement.

In one project, team members were identified and asked to join based on their roles within the patient care model and anticipated project goals. Among those identified to be on our team were nurse managers, staff nurses, rehab services, transport, environmental services (laundry), nursing leadership (usually the nursing executive for the hospital), employee safety and nursing employees who reported a work-related injury from performing a patient mobilization task.

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put and customer (SIPOC), which identifies all relevant elements of the process improvement project before work begins. Both projects identified the following in SIPOC:

- Supplier: patient, physician, nursing team, transporter, rehab services, etc.;
- Input: diagnosis, care plan, diagnostic testing, nurse observations, turning/repositioning schedule, rehab plan, surgical procedure, etc.;
- Process: turning the patient, patient ambulation, etc.;
- Output: test completed, skin integrity, pain and comfort of patient addressed, nurse/patient care provider not injured, etc.;
- Customer: patient, patient's family, physicians, patient care team, administration, etc.

This was an exciting start to the process for the team as everyone became involved and could easily see how important their role was to solving the challenge of keeping both employee and patient safe during patient mobilization tasks. Within these various areas, critical to quality items were identified, which flowed into developing a voice of the customer (VOC) questionnaire.

To gather data that are useful, easy to analyze and objective, keep VOC questions short and easy to answer. With a slight change in wording, the same questions were asked of physicians, patient care staff and patients. Similar answers were received, all from a different perspective. Two important questions asked included if the interviewee had noted and could identify challenges in the patient mobilization process and if s/he had suggestions for improving the process.

As a group, current state workflows were mapped out for the various patient mobilization tasks.

### **Measure**

VOC results were reviewed to determine key issues and to identify items critical to a successful outcome of the patient being discharged healthy and the nursing staff not sustaining an injury in caring for the patient. Within the workers' compensation data, injury frequency for day of the week, employee job class, type of patient mobilization task, body part, years, of service, employee age at time of injury, etc. were measured. Additional data points measured included patient falls, hospital-acquired pressure ulcers, transporter logs outlining how many patients were moved throughout the hospital in a day and where they went. The number of times patients are repositioned, transferred, toileted, etc., within a day presents many opportunities for employee injury.

Process variation was throughout the hospital and not concentrated in one area. Key issues for staff safety included resources, communication, training, time and environment. The team completed a Pareto chart or fishbone diagram that identified the challenges within those identified key issues. There was significant variability in how patients were assessed and mobilized from nurse to nurse, within a department, across shifts and across departments.

### **Analyze**

The team analyzed and reviewed safe patient mobilization studies, clinical best practices for reducing patient falls and hospital-acquired pressure ulcers, overhead lift versus floor lift studies and training program studies to determine could be authenticated from external sources. These studies would assist in validating theories/recommendations to reduce employee injuries and to improve patient safety initiatives. They provided the team the opportunity to test various solutions to see if they would address the critical to quality issues previously identified.

For example, could there be one method of assessing a patient to eliminate variability in moving the patient thus reducing employee injuries? Would having patient mobilization equipment that was easy to use and quick to obtain reduce employee injuries and improve patient outcomes?

### **Improve**

In this stage, the team had the opportunity to think out of the box to generate process improvement alternatives to existing processes. Items that both teams identified as improvement to the current processes and critical to the success of injury reduction and patient safety goals included:

- 1) Development of a safe patient mobilization policy to guide implementation and to establish accountability.
- 2) Development of safe patient mobilization algorithms and communication protocols to reduce variability in the mobilization process and to ensure that appropriate processes are consistently followed.
- 3) Providing appropriate equipment to eliminate or reduce physical effort needed to mobilize patients.
- 4) Development of an assessment protocol that ensures patient mobility status is identified so that the appropriate algorithm and equipment is used.
- 5) Mandatory training of all staff involved in the patient mobilization process to ensure effective use of equipment, assessment protocols, communication procedures and algorithms.

Both hospitals have implemented these steps. At one hospital, physical therapy and nursing worked together to develop the safe patient mobilization algorithms using common definitions for the various patient mobility levels based on the reimbursement guidelines. Now documentation is appropriate in the patient plan of care in regards to reimbursement guidelines and patient care staff has one language to describe the patient's mobility level. This in turn led to revising the patient care forms and hand-off documents to encourage staff communication on the mobility levels across all shifts and disciplines.

Each hospital's team recommended the installation of

***Two hospitals significantly improved their employee injury rates from patient mobilization tasks by using the six sigma process.***

**Table 1 Patient Mobilization Rate & Actual Number of Injuries: Facilities A & B**

	<b>YE 2007 Patient Mobilization Rate Actual Number of Injuries</b>	<b>YE 2009 Patient Mobilization Rate Actual Number of Injuries</b>
<b>Facility A</b>	4.2/100 FTEs; 17 injuries	1.1/100 FTEs; 4 injuries*
<b>Facility B</b>	2.2/100 FTEs; 6 injuries	0.7/100 FTEs; 2 injuries

*Note: Year-end 2009 data injury rate includes 3 patient mobilization injuries from transporting patients on gurneys. This loss cause was out of scope of the project. Absent those 3 injuries, the rate would have been 0.3/100 FTEs.*

overhead lifts in all patient care rooms. The teams said the overhead lift would be easy to use, readily available, reduce the amount of staff required to safely mobilize a patient, increase the ability of staff to implement appropriate turning/repositioning schedules for patients identified as at risk of developing pressure ulcers and by using a variety of slings would meet the needs of all patient mobilization tasks, including repositioning, transfers, toileting, skin checks/cleaning and ambulation.

### **Control**

The team developed the control plan for the project based on data that were measured and analyzed and by reviewing successful safe patient program studies completed at other hospitals. Items the team recommended for the control plan included:

- 1) 100% of staff in each unit to be trained at the time of equipment installation and all new hires trained at orientation.
- 2) Unit managers held accountable for staff adherence to policy in their job performance evaluations.
- 3) The nurse executive and/or our staff nurse champion (from the project) to conduct periodic walkthroughs focusing on staff adherence to patient mobilization policy, such as documentation in charts, updating whiteboards and observation of mobilization procedures.
- 4) Chart audits to measure compliance with assessment protocol and whiteboard communication.
- 5) Measure hospital-acquired pressure ulcers and patient falls data for each unit as implemented.
- 6) Measure workers' compensation injuries for each unit as implemented.
  - a) Root-cause analysis for all patient mobilization injuries to focus on identifying root causes and correcting problems.
- 7) Measure patient satisfaction for each unit as implemented.
- 8) Measure employee experience of work satisfaction.

Throughout the project, the also team identified project communication as key to the success of reaching goals. Meeting minutes were published as soon as possible after each meeting and frequent communication to all staff regarding the project, its team members, project

steps and anticipated goals were provided in monthly employee newsletters.

Table 1 shows how the two facilities reduced employee injuries through safe patient mobilization.

Facility A installed a third of their overhead lifts by year-end 2009 with the remainder expected to be installed by year-end 2010. Within the recommended control plan outlined, items 1 through 4 have been implemented. Currently, physical therapy and an RN III who has taken on the safe patient handling project for her certification project are working together with nursing education to develop an ongoing nursing orientation training for all staff performing patient mobilization tasks who want a refresher, are new to the facility, registry or returning from leave. The six sigma task force for this facility now meets on a monthly basis to provide program oversight. A smaller group meets regularly to address all patient mobilization challenges as they arise and revise the training/ orientation program to meet those identified challenges.

Facility B is awaiting funding for overhead lifts but has continued the project in developing the policy, assessment/communication plan and staff training.

Safe patient mobilization and the six sigma process can assist the healthcare organization in achieving a winning solution to reduce staff injuries. ☺

### **REFERENCE**

Nettina, S.M. (2005, Nov.). Lippincott manual of nursing practice handbook (3rd ed.). Hagerstown, MD: Lippincott, Williams & Wilkins.

**Patty Kelly, HEM, CPDM, CEAS**, is an employee health and safety analyst for Sutter Health in Sacramento, CA. She worked as a six sigma team member earning a yellow belt in six sigma on two safe patient mobilization projects. Kelly has partnered with nursing leadership on patient and employee safety initiatives in the area of pressure ulcers and patient falls. She serves as a team member on pressure ulcer prevention program committees, which provides her the opportunity to educate nursing staff on how to partner patient safety initiatives with employee safety initiatives. Kelly has past experience in program development having developed successful ergonomic and return-to-work programs. She has also taught classes in disability management.