Open School

Case Study: An Extended Stay

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Facilitator Instructions

- Distribute the Participant Version of this activity to your Chapter or group members.
- Ask participants to read the Case Study until they reach a set of questions (or read it aloud).
- Before moving forward, take time to reflect individually, and discuss each question as a group.
- Use the “facilitator” responses in this version to help facilitate your group's discussion.

Learning Objectives

At the end of this activity, you will be able to:

- Explain how system failures can lead to patient harm.
- Describe how lack of communication between providers and hospital departments can lead to patient harm.
- Discuss how to debrief with colleagues after an adverse event.

Description

A 64-year-old man with a number of health issues comes to the hospital because he is having trouble breathing. The care team helps resolve the issue, but forgets a standard treatment that causes unnecessary harm to the patient. A subsequent medication error makes the situation worse, leading a stay that is much longer than anticipated.

Related IHI Open School Online Courses

- PS 101: Fundamentals of Patient Safety
- PS 102: Human Factors and Safety
- PS 105: Communicating with Patients after Adverse Events
Key Topics

Care coordination and transitions, engage patients and families in care, handoffs, leadership, reliable processes, communication, teamwork, adverse event, medication safety.

Mr. Stanley Londborg is a 64-year-old man with a long-standing history of a seizure disorder. He also has hypertension (high blood pressure) and chronic obstructive pulmonary disease (COPD). He is no stranger to the hospital because of his health issues. At home, he takes a number of medications, including three for his COPD and three — levetiracetam, lamotrigine, and valproate sodium — to help control his seizures.

Mr. Londborg came to the emergency department (ED) last week because he was wheezing and having trouble breathing. The physician in the ED conducted a physical examination that yielded signs of an acute worsening of his COPD, which is known as COPD exacerbation. (In many cases, COPD exacerbation is the result of a relatively mild respiratory tract infection, but could be due to something more serious, such as pneumonia.)

The physician in the ED ordered a chest x-ray, which did not show any signs of pneumonia. He admitted Mr. Londborg to the hospital for treatment of acute COPD exacerbation, resulting from a relatively mild respiratory tract infection. Before leaving the ED, Mr. Londborg also underwent routine blood work, which showed an elevation in his creatinine, a sign that his kidneys were being forced to work harder due to his infection.

On the medical floor, the care team treated Mr. Londborg with oral steroids and inhaled bronchodilators (standard medical therapy for his condition), which resulted in a gradual improvement in his respiratory symptoms. Nurses also gave him IV fluids for the issue with his kidneys, which slowly resolved.

Mr. Londborg was steadily improving, so it seemed this visit to the hospital would be one of his shorter ones.

But on his third morning in the hospital, Mr. Londborg complained to the intern (a first-year resident) on the care team about acute pain in his left leg. This symptom, potentially indicating deep venous thrombosis (a blood clot in his leg commonly known as DVT), prompted the team to order an ultrasound of Mr. Londborg’s lower extremities. (A primary concern with DVT is that blood clots in the legs may dislodge and travel to the lungs, causing a pulmonary embolism, which could be deadly.)

The resident on the care team (who oversees the intern) then checked Mr. Londborg’s medication orders and was surprised to see that the admitting doctor had not ordered prophylaxis for DVT (i.e., blood thinners, such as heparin or enoxaparin). The resident was surprised because patients admitted to the hospital typically receive this treatment to prevent blood clots from forming while they lie in
their hospital beds. Further, nothing about Mr. Londborg’s medical record suggested he shouldn’t have received this treatment as an important precautionary measure.

Let’s pause to consider and discuss a couple questions about the case before we continue...

1. **The patient did not receive standard treatment to prevent the formation of a DVT. What are some possible reasons why this error occurred?**

   **Facilitator:** The physician may simply have forgotten to do it. Or, perhaps it is a very cumbersome process to enter this order. The main cause, most likely, is that the system relies on the admitting physician to remember this step in addition to other decisions regarding acute medical management. In this case, the physician was already distracted by thinking about what could be causing his patient’s COPD exacerbation and busy ordering an x-ray, medications, and blood work.

2. **Can you suggest system process improvements that might reduce the likelihood of similar errors in the future?**

   **Facilitator:** One potential solution would be to include options for standard medications and other therapies as part of the admission order set (a group of common orders that are grouped together, often in electronic order systems, to streamline admissions and prevent errors of unintentional omission). By including the option to easily order a common therapy for patients admitted to the hospital in the physician’s “workflow,” the extra responsibility of remembering this relatively simple element of care is alleviated. Although not all patients should be on blood thinners, if the physician in this case had been automatically prompted to consider them, he would have been more likely to make a conscious decision regarding whether to use them.

Now let’s continue with the story ...

The ultrasound, unfortunately, confirmed the presence of a blood clot in Mr. Londborg’s left calf. Due to his impaired kidney function, treatment for the blood clot required him to remain in the hospital on IV medication.

Mr. Londborg’s stay was going to be longer than expected.

At 10 PM on his eighth day in the hospital, a member of the environmental services (also known as housekeeping) staff found Mr. Londborg on the floor of his room. She immediately alerted the nurses on the ward. The nurses noted seizure activity and called the overnight medical team to Mr. Londborg’s bedside. The team responded quickly and gave him intravenous medication that stopped his seizure.

Because no one witnessed his fall and seizure, Mr. Londborg underwent an emergent CT scan of his head to check for any sign of bleeding. After his mental status improved (it is common for patients to be confused for a time after a seizure), he complained of pain in his left shoulder and elbow, but x-rays of these joints showed no evidence of a traumatic fracture from his fall.

After ensuring that Mr. Londborg was stable, the overnight care team reviewed the chart and the medication history to try to determine the cause
of Mr. Londborg’s sudden seizure. They found that one of his seizure medications, levetiracetam, had not been given earlier in the day when it should have been. There was a notation in the medication administration record from the daytime nurse indicating that the ordered dose was not available in the automatic medication dispensing system on the floor earlier in the day.

Further discussions the following day with the daily care team of doctors and nurses revealed that the nurses didn’t notify the physicians or the pharmacy that the essential medication was not administered. The medication system didn’t include an automatic alert, either.

Fortunately, the overnight physicians restarted Mr. Londborg on his medication, and he suffered no apparent permanent harm. Mr. Londborg was discharged after 10 days in the hospital. Most hospitalizations for COPD are far shorter. In fact, many last only a couple days.

Discussion Questions

1. **Unfortunately, Mr. Londborg suffered a seizure, a complication that could likely have been avoided if he had received all of the ordered anti-seizure medications. Identify at least two specific errors that contributed to this mistake.**

   **Facilitator**

   1. His medication wasn’t available.
   2. The physicians weren’t notified that the medication wasn’t available.
   3. The pharmacy department wasn’t notified that the medication wasn’t available.
   4. The overnight care team wasn’t as familiar with the patient and thus it took some time to realize a medication error was responsible for Mr. Londborg’s seizure. (This likely delayed other therapy to prevent additional seizures and could have led to unnecessary testing.)

   This is a classic case of James Reason’s “Swiss Cheese Model,” which you can learn more about in PS 101: Fundamentals of Patient Safety.

2. **Based on the types of errors you just identified, can you identify systems issues/failures that affected Mr. Londborg’s hospitalization?**

   **Facilitator**

   Communication failures:

   - Though unclear why, the message that a medication wasn’t available didn’t reach either the physician on the daily care team or the pharmacy.
   - In this case, a limitation in transferring care to physicians on the overnight care team became evident in the delay that occurred before recognition of the error. There are handovers in hospitals among all professions — physicians, nurses, pharmacists, and other team members — to provide 24-hour care to patients. This means that teams caring for patients overnight often are not as familiar with individual patients and rely heavily on “signout,” a practice
where physicians relay information about their patients, including current and anticipated problems, to other physicians providing care overnight or on weekends and holidays. It also means that after a critical event, it may take the team longer to identify the potential causes for a particular complication.

Technology failure:

- The advent of electronic ordering and dispensing has reduced the chances of medication errors reaching the patient, but as with many improvements, it has not been perfect. (Sometimes improvements lead to other potential sources of error.) The pharmacy wasn’t automatically alerted that Mr. Londborg’s anti-seizure medication wasn’t available, and the physicians weren’t alerted that an alternative medication might have been needed. In an era where most hospitals face the challenge of significant medication shortages of all types, preventing these sorts of errors becomes even more critical.

3. Identify at least one thing that went well during Mr. Londborg’s visit to the hospital.

**Facilitator**

1. The fact that a member of housekeeping was appropriately trained to alert nursing staff to Mr. Londborg’s condition is a great example of how everyone in a hospital plays a role in providing care. This staff person responded quickly and got the patient the attention he needed.

2. The nursing and medical staff responded quickly and treated Mr. Londborg’s seizure rapidly, providing medical stabilization. They also evaluated him for potential trauma and other complications of his seizure and fall.

4. Pretend you are the nurse manager on the ward where this adverse event occurred. (In most hospitals, the nurse manager is responsible for daily operations on a given floor or “unit,” including the nurses and others who work there.) How would you run a meeting to debrief team members in the days after Mr. Londborg’s seizure?

**Facilitator**

Most importantly, you wouldn’t want to assign blame to the individuals who were directly involved. This error stemmed from problems with systems of care. You should emphasize the critical role communication plays in providing care and avoiding the type of complications that affected Mr. Londborg. (This might involve working with a team of nurses and doctors to improve communication, possibly to include times each day where nurses and doctors talk directly about their mutual patients.)

You might build a team of people from the professions involved (pharmacy, nursing, physicians, hospital administration, and quality improvement departments) to review the specifics of the case, and work to identify and implement changes to prevent similar errors in the future.
Recognition of staff for responding to a critical situation well is always warranted, including the housekeeping staff member.

Lastly, it’s important to discuss that the error was never disclosed to the patient. By acknowledging the error and offering a plan to prevent such errors in the future, hospital staff could have helped Mr. Londborg feel more confident in the hospital and his care teams. In addition, it may have been appropriate to offer to let Mr. Londborg participate in the evaluation of the error that affected him and plans to prevent future errors. Learn more about responding to patients after adverse events in PS 105: Communicating with Patients after Adverse Events.