

## An Extended Stay

Ross Hilliard, MD, IHI Open School Northeast Regional Chapter Leader

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.

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. The patient did not receive standard treatment to prevent the formation of a DVT. What are some possible reasons why this error occurred? Identify these errors within the context of measuring performance under the quality of care measures.
2. 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 in detail.
3. 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? In this meeting discuss how you would prepare the team to plan for the future implementation of a quality improvement program. Be specific in outlining your mission/purpose statement, your vision, and SMART goals for improvement. Make sure to include the details and steps of the improvement model and what your expected outcomes of the improvement model are.

#### Reference

Hilliard, R. (2013). An extended stay. *IHI Case Study*. Retrieved from <http://www.ihi.org/education/IHIOpenSchool/resources/Pages/Activities/CaseStudyAnExtendedStay.aspx>