Reducing Healthcare Costs While Improving Patient Health Outcomes and Safety: Checklist and Case Studies in Making Patient-Controlled Analgesia (PCA) Safer

Faces of Tragedy: PCA-Related Patient Deaths

Amanda Abbiehl

18 year old underwent surgery for a sports injury.

Doctors were not aware of her history of opioid use.

Amanda returned home that same day. Within minutes, she complained of chest pain.

Her mom and dad rushed Amanda back to the hospital, where she underwent surgery.

The surgery was successful, but she was not responsive.

Amanda died the next day.

What could have been done to save her?

1. Conducting a thorough medication history
2. Monitoring vital signs continuously
3. Ensuring naloxone was available

It is estimated that over 50% of opioid-related deaths could be prevented if naloxone, a reversing agent, was available.

Leah Katherine Coufal

Leah was 3 years old when the event occurred.

Leah died of a cardiac arrest.

She was admitted to the hospital for endocarditis.

What could have been done to save her?

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2. Monitoring vital signs continuously
3. Ensuring naloxone was available

It is estimated that over 50% of opioid-related deaths could be prevented if naloxone, a reversing agent, was available.

Safety Checklist

Targeting PCA Use

PCA Pump Initiation, Refilling, or Programming Change

Risk factors that increase risk of respiratory depression

Has been considered:

• Shorty
• Low blood sugar
• Concurrent medications (anxiolytics and opoids) that potentiate sedative effect of opioids
• Existing conditions such as asthma, COPD, and sleep apnea
• Advanced age

Pre-procedural cognitive assessment tool determines if patient is capable of performing patient assistance

New patient setup via patient-controlled analgesia (PCA) pump may not be suitable for PCA

Safety Checklist

Targeting PCA Use

PCA Pump Use

Patient satisfaction measured:

• Level of pain
• Adequacy of ventilation

PCA pump settings verified:

Electronic monitoring verified:

Patient assessment/conclusion has been added to chart sheet document PCA is functioning and monitoring

Cases Studies:

Hospitals That Have Reduced PCA Adverse Events

St. Joseph's/Candler (SJ/C) in Savannah, Georgia calculated that their initiative to reduce PCA adverse events resulted in a 12.5% reduction in adverse events associated with PCA.

CMS data showed that over a six-year period from June 2004 to May 2010, the number of PCA pump reports was approximately 4,500.

These events were three times as likely to occur with PCA pumps.

Reducing PCA Pump Reports

• 82% of PCA pump reports were associated with pain management

Improving Health and Safety

Innovative technology to provide for necessary monitoring of patient vital signs. For example, as the Wall Street Journal recently reported, some hospitals in the US are now using Capnography monitoring to ensure that patients are receiving adequate ventilation.

A capnograph measures in real-time the adequacy of ventilation. Using this technology could prevent more than 60% of adverse events.

Q: From your experience, what would you recommend to other healthcare providers to reduce their PCA-related errors?

A: Use of PCA pumps is a process, and improving that process is an area that involves many stakeholders. In looking at fixes, they can be categorized as strong, intermediate or weak fixes. The strongest fix is an integrated end tidal CO2 monitor that will pause the PCA pump if the patient is not breathing.

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5 Tips on How to Improve Patient Safety

With the Help of Technology

1. Focus on what is right for the patient.
2. Don't be mired in the way things "have always been done."
3. Realize that any new technology or technique may have unintended consequences to daily routine, but remember that this is better than having an adverse event.
4. Ensure changes help caregivers better manage their own daily work.
5. Get closer to the patient.