



Patient Adverse Events & Deaths: Opioid-Induced Respiratory Depression



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Brian and Cindy Abbiehl

A Promise to Amanda (www.promisetoamanda.org)

As parents of a teenage daughter, our worst fears were that our daughter would become pregnant, take drugs, or drink and drive. Never did we imagine that our daughter would go into a hospital with an infection, be hooked to a patient-controlled analgesia (PCA) pump to manage her pain, and never come out alive; but this is exactly what happened.

Our 18-year old daughter, Amanda, was admitted to a local hospital on Thursday, July 15, of 2010. She was dehydrated, had lost at least 10 pounds, and had a virus that was causing a great deal of pain in her mouth and throat. Our family physician's plan was to rehydrate her and put her on antibiotics for both viral and bacterial infection. This was to help jump start her system and hopefully she would be back home with us in a couple days.



The rest of Thursday was a rough day for Amanda. The morphine that the hospital staff was giving her was not getting rid of the pain. Moreover, Amanda's tonsils and uvula were extremely swollen. She was still not interested in eating; even drinking hurt. To help manage her pain, Amanda was put on a PCA pump that allowed her to control the pain medication used (hydromorphone).

The next morning Amanda was found unresponsive and died.

Amanda was on a general care floor and was not on any kind of electronic monitoring that might have alerted staff to her deteriorating condition.

Would capnography monitoring have alerted Amanda's nurses that she was experiencing respiratory depression that night?

We have come to understand that continuous monitoring is not standard protocol outside of operating rooms. We encourage all healthcare facilities to monitor with oximetry and capnography to eliminate the possibility of respiratory depression as a cause of death.

Hospitals like St. Francis in Indianapolis, Indiana, have been using continuous monitoring with Capnography and Pulse Oximetry for the last five years. They have not experienced any PCA related events during this time – that's amazing!

My wife and I realize that we cannot get our daughter back, but we can raise awareness regarding respiratory depression. We have started A Promise to Amanda Foundation. With the help of The University of Notre Dame Graphic Arts Design Class, we have launched this website in her honor and to remind patients, their families, and their healthcare providers to always monitor PCA use with oximetry and capnography.

Losing our daughter has been and will always be the worst thing that could happen to us. The sunshine came into the room when Amanda walked in. She was very LOVED by all who knew her. Amanda was a diverse young lady who saw no color in people. She could spend the night at a friend's house who lived in a million dollar home and the next day spend the night with a friend whose parents could barely make ends meet and still have the time of her life. There had never been a more diverse group of people attending Amanda's funeral. The church was full beyond capacity and standing room. Our daughter was not perfect, but she was simply our Amanda, our only daughter!

We hope and pray that no one will ever have to feel the emptiness that we have in our hearts. Our 24-year-old son, Andrew, is now an only child and that breaks our hearts for him. Your sibling relationship is the longest relationship you will ever have and that was taken from him. We as a family have to find a new norm. A new norm? That is a work in progress and probably always will be.

We have started our efforts locally, here in South Bend, Indiana, but intend to contact hospitals nationwide, as well as non-hospital settings that provide anesthesia such as Oral surgeons, Plastic surgeons, Podiatrists, Bariatric Surgery Centers, and Ambulatory Surgery Centers.

We intend on getting this information out to the general public and where the decision makers can use it to make the proper decisions in hopes of saving lives. Everyone needs to know the disastrous consequences of respiratory depression.

It should not be a question if drug induced respiratory depression was the cause of death. It simply should be mandatory to continuously electronically monitor all patients by using both Capnography and Pulse Oximetry, every time a patient is placed on a PCA pump, every time a patient is sedated, every time a patient requires general anesthetic, every time a patient is given a powerful sedative, like morphine or hydromorphone.

In honor of our daughter we intend to make this our life long mission.

Link: www.promisetoamanda.org/amandas-story/

State Trooper's Life Saved by Nurse: Why Hospitals Need a Monitoring Technological Safety Net

Matt Whitman

Retired Michigan State Police Officer, Law Enforcement Teacher, Van Buren Technology Center

Amanda Abbiehl and I share a similar story. Both of us were on patient-controlled analgesia (PCA) pumps to manage our pain.



However, the difference is that, by the grace of God, an observant nurse who just happened to walk by my room when I stopped breathing, called a "Code Blue", and that ultimately saved my life. I would have been just another statistic if it wasn't for that nurse. Unfortunately, Amanda was not so lucky.

What are the odds of a nurse putting her head into a patient's room just as that patient is experiencing respiratory depression? Slim.

What are the odds of that same nurse putting her head into the patient's room after she had just checked on him 15 minutes before? Almost none. Yet, that is what happened to me and I ask why.

My story begins in 1990, when I was a state trooper. My squad car was struck by a car driven by a drunk driver. Although the accident left me close to being a quadriplegic, I went through 6 months of physical rehabilitation and returned to work.

Although my doctors told me that I would always have trouble with my neck, I was able to function at my job despite the pain. I was even named a district Trooper of the Year in 2001 and prior to that in 1994 received a statewide traffic safety award for arresting the most drunken drivers per capita.

But, despite being recognized again in 2003, as Trooper of the Year for in Bridgman, MI, my neck injury increasingly gave me problems.

In December 2002, the neurologist who read my MRI told me that I shouldn't be a trooper anymore. He said, if I get hit again, I'd be a quadriplegic.

In January of 2003, I met with Indianapolis neurosurgeon Dr. Henry Feuer, who was (and I believe still is) a consultant for the Indianapolis 500 and the National Football League.

Dr. Feuer told me that my condition had worsened and that my neck looked like that of a retired football player with arthritis, bone spurs and spinal fluid unable to circulate effectively. Dr. Feuer gave me two pieces of bad news. The first was that I needed surgery. The second confirmed that I couldn't be a state trooper any more.

So, I underwent neck surgery that year at Methodist Hospital in Indianapolis. Because of the pain that I was in, I was on a morphine pump after my surgery.

The night after my surgery, a nurse had just checked on me and then continued to check on other patients on the very large hospital floor.

Another patient she was caring for needed something. Although it was on her cart, she decided to go to the supply room and restock her cart. Fortunately for me, her path to the supply room led her passed my room.

So, even though she had just checked on me 15 minutes earlier, she just so happened to be passing my room when she noticed I was not breathing and called a "Code Blue". She would tell me later while she was crying that she did not know what made her walk past my room. While she continued to sob she told me that she had never seen anyone live after they had coded.

I remember feeling warm, calm and in a better place. There was a point where I had to decide if I wanted to fight back and live or stay dead and remain in that warm pleasant place. I chose to fight and recall being jolted back, I remember doctors over me, bright lights, and someone holding my hand. Miraculously, I survived. The doctors told me that 96% of Code Blue patients die; only 4% live. I remember later on that morning that I was somewhat of a spectacle for the student nurses. They would come into my room and stare at me to see the patient who had cheated death.

I had been without oxygen for 6 minutes. At seven minutes, I was told, I would have been brain dead, if not dead permanently. I died at 4:11am, and for many years after I would wake at 4:11 in the morning remembering what happened to me.

I was never electronically monitored. There was nothing that would have indicated to a nurse that I was about to experience respiratory depression and almost die. I was 39 years old and in terrific health. I was not a high risk patient.

Why?

Had my PCA pump been integrated with a capnography like the one just recently discussed at the Notre Dame class, the pump would have shut off and alerted my nurse that I was not breathing.

Instead, I am alive today because my nurse, who had just checked on me 15 minutes earlier, just happened to be passing by my room when she didn't have to.

I say to Brian and Cindy Abbiehl – My deepest condolences. Know that your daughter died peacefully. Know that that she was not in any pain or under any stress.

I say to all hospitals that care about their patients' safety and welfare — Electronically monitor ALL your patients, not just the ones at high risk. A human life is too valuable for you not to. All hospitals need a technological safety net for their patients. All nurses and caregivers need that safety net too.

Link: ppahs.org/2012/03/14/state-troopers-life-saved-by-nurse-why-hospitals-need-a-monitoring-technological-safety-net/

Yes, Real-Time Monitoring Would Have Saved Leah

Lenore Alexander

Leah's Legacy (leahslegacy.org)

"Would real-time monitoring have saved Leah?"

That is one of the many questions that I have asked myself every day since I found my daughter, Leah, dead in her hospital bed.

The answer is yes, it would have.

When I brought Leah to Cedars-Sinai hospital in Los Angeles that Friday morning, she was a healthy 11-year-old girl. She was scheduled to have elective surgery to repair a condition called pectus carinatum, which required the opening of her chest.

Because the hospital was very busy that morning, the operation was repeatedly postponed, being moved from its original early morning time to late afternoon, when it was finally performed.

Leah's doctors told me that the surgery had gone well and that the epidural anesthesia used during the operation had been left in place to manage her postoperative pain.

Despite the epidural anesthesia, on Saturday Leah complained of being in considerable pain, and the fentanyl she was receiving was repeatedly increased.

Still in pain, she was becoming less alert. I wanted to know whether there could be some other problem.

Each time I voiced my concerns, asking that the anesthesiologist responsible for her pain management be contacted, I was given the same response: She will be up and walking tomorrow.

When I refused to allow them to increase the dosage anymore, the resident gave her 2mg of Ativan for "anxiety," even though Leah could barely stay awake.

The medical staff seemed unconcerned. Late Saturday afternoon when her surgeon dropped by — dressed in a tuxedo and on his way to a dinner — he told Leah and me that Leah had to spend more time out of bed. He removed her urinary catheter so that, he said, she would have to get up and walk. When I protested that Leah was not capable of walking in her condition, he said cheerfully, "I'm going to have to trump you on this one." Had he felt her pulse, examined her in any minor way, would he have realized that she was not getting better, and possibly detected the respiratory depression that would very soon take her life? Quite likely.

When Leah had to use the bathroom, it took three adults to hold her up. She couldn't even keep her head up.

Sometime after midnight Saturday, exhausted, I allowed myself to take a nap. Had I been awake, would I have been able to do anything? If hospital staffers had checked on her during that time, would they have found something wrong?

The real question is, why wasn't Leah on any monitors?

When I woke up just two hours later, I found that Leah was dead. "Dead in Bed," I have learned, is the term for how I found my beautiful child.



Nobody from the hospital had entered her room from the shift change around 8 p.m. until my screams summoned them at 3 a.m.

What happened? Why did it happen? Why had no one from the hospital checked on her?

Since that day, I have continued to ask many questions and learn why this happened to my daughter.

At the autopsy, it was discovered that her epidural had been inserted in the wrong place. Instead of delivering the pain medication to the epidural space in Leah's spine, it had been administered into the intrapleural space of her left lung.

This explained why she was feeling so much pain. The narcotics were not going where they should have been going. Yet, despite all of my and her father's questions, nobody at the hospital had checked the epidural site. Physically checking the site may not have been enough to show it was not placed properly. However, I know that when properly given an epidural, you don't feel your lower extremities, and Leah's legs hurt so much she wouldn't allow us to reposition her in the bed. That, in retrospect, was a big realization for me, but why not for her caregivers? The hospital staffers were inattentive and disinterested. The resident who gave Leah 2 mg of Ativan did not examine my child, not even to listen to her heart. Had she done a more thorough inspection, would she have found something wrong? And none of Leah's nurses knew how to use the new computer system, and almost totally ignored her computerized chart. They did not know how to pull it up on the computer, and almost all the nursing notes were handwritten after each shift change.

Lastly, and very important, Leah was not monitored, either by a pulse oximeter or capnograph. Had she been monitored, perhaps she would still be alive today. This monitoring would have alerted hospital staff that my daughter's health was deteriorating.

Almost 10 years have passed since Leah died. I have never received an apology or any admission of wrongdoing from anybody involved. I realize a number of people were responsible for my child's death. I am the only one of this group who accepts any responsibility. And now to understand that she could have been saved by something so simple is inconceivable.

I know we can prevent another outcome like Leah's death.

I urge you to make this a priority.

When we enter the hospital, we believe that basic safety precautions are "standard of care."

Ten years after my daughter's death, nothing has changed in the codes of monitoring post-op patients continuously, until they leave the hospital. Alive.

This is the only thing I am able to do for Leah now: Make sure no other mother has to live with the pain I endure, when the solution is within reach and so easy to implement.

Link: <http://ppahs.org/2012/02/01/guest-post-yes-real-time-monitoring-would-have-saved-leah-2/>

Nursing Spot Checks for Patient Safety: A Nurse's Perspective

Malinda Loflin, RN, BSN

Malinda is a certified case manager at a hospital in Oklahoma City. During her 22 years as a registered nurse, her clinical experience has been in many specialty areas including the operating room, post-anesthesia care unit, and the emergency department. In 2006, her father tragically died of opioid-induced respiratory depression after a routine surgery. She shared her experience and the impact that it has had on her and her family at the 2011 Anesthesia Patient Safety Conference.

Nursing spot checks on postoperative patients receiving opioids are not enough to ensure the safety of patients. I say this as both a registered nurse who works at a large medical center and as a daughter who has had the misfortune of seeing her own father die between nurses' spot checks.

Robert Goode was a devoted son, a loving and faithful husband, a nurturing father to me and my brother, and a wonderful grandpa to two boys who thought the world of him. He enjoyed fishing, traveling, and spending time with his family. At 63, he was 9 months away from retiring from Tinker AFB where he had worked as a civilian for over 40 years.

My dad had a hiatal hernia, a condition where part of the stomach sticks upward into the chest, through an opening in the diaphragm. Because he was having difficulty eating, he decided to have surgery to fix it. Although my dad had a history of heart problems, for which he had a pacemaker, he sought and received clearance to have the surgery from his cardiologist.



So on April 5, 2006, my dad underwent surgery through a standard procedure called laparoscopic Nissen fundoplication. Surgery was successful and after surgery the surgeon reported that everything went well and there had been no complications.

After recovery, he was transferred to a general med-surg unit. Within a day after surgery, April 6, he was up walking the halls and feeling great. He was looking forward to going home the next day.

Postoperative orders included a morphine PCA pump and supplemental oxygen. Although, my dad had a history of sleep apnea and used a CPAP at home, he was not electronically monitored. In other words, my dad's health and life rested on a nurse coming around to his room every 2-4 hours. No matter how dedicated the nursing staff, what would the odds be of one of them checking on him if his condition deteriorated? I am not a statistician, but the odds cannot be very good.

Moreover, my dad's room was at the end of hall and furthest away from the nurses' station. So, in between these 2-4 hour checks, he was relying on a nurse at the other end of the hall to notice that he needed attention. The odds, I believe, have surely gone down further.

Yet, this is often the standard of care that patients receive. The Lippincott Manual of Nursing Practice recommends that respiratory rate, sedation score and oxygenation be checked periodically on an hourly, two-hourly, or four-hourly basis. The chart below, developed by the San Diego Patient Safety Council, provides more frequent assessment of the patient, together with a respiratory assessment that also includes end tidal CO2:

Table 6: Nursing Assessment Event & Frequency Guidelines for PCA Monitoring

Cognitive Opioid Tolerance	Respiratory					
	Pain	Sedation	Rate	Quality	SPO2	ETCO2
Baseline	X	X	X	X	X	X
Initiation OR Change in Drug*	X	X	X	X	X	X
Q15 min x 1 hr						
Q1 hr x 4 hrs						
Then Q2hrs						
Dose Change OR Bolus	X	X	X	X	X	X
Q1 hr x 4 hrs						
Then Q2hrs						
Event OR Deterioration	X	X	X	X	X	X
Q15 min x 1 hr						
Q1 hr x 4 hrs						
Then Q2hrs						
Hand-offs/shift change*	X	X	X	X	X	X

* Independent check

In my father's case, this periodic assessment (although important for patient care) failed to detect his deterioration. As Dr. Robert Stoelting (president, Anesthesia Patient Safety Foundation) has stated:

"the conclusions and recommendations of the APSF are that 'intermittent' spot checks of oxygenation (pulse oximetry) are not adequate for reliably recognizing clinically significant evolving drug-induced respiratory depression in the post-operative period."

Moreover, as Matthew Grissinger (director, error reporting programs, ISMP) explains:

"One reason why it (periodic spot checks by caregivers and pulse oximetry) is not effective is that a 'periodic check' and pulse oximetry would only catch an error, not prevent the error."

For all patients, we want to prevent the error.

On April 7, at approximately 5:30 in the morning, we received the dreaded early morning phone call that he had taken a turn for the worst and that the doctor was with him. When I got to the hospital, I found my mother sitting outside his room crying. I could hear the sounds of a code being performed coming from inside his room.

We waited outside the room for almost 2 hours before his doctor came out to tell us they were able to get his heart beating again but he was in critical condition. He was then emergently transferred to another hospital that could accommodate his critical level of care.

After what seemed like hours, we were allowed to see him. He was on a ventilator and on multiple IV medications to sustain his cardiac function and blood pressure. He was unresponsive, cold, and bleeding from his mouth and nose.

Unfortunately, his body had begun to shut down. Not only did he have respiratory failure, he had developed renal and liver failures that lead to DIC. An EEG was performed that showed minimal brain stem activity; but, my family and I were still hoping and praying for a miracle.

All through the day the doctors and nurses in the ICU worked diligently to save his life. As the day progressed, his heart became more and more irritable and the medications were unable to keep his cardiac rhythm and blood pressure viable. At 5:00 that evening, as they were preparing to code him again, we made the heartbreaking decision to stop all resuscitative measures. He was pronounced dead at 5:15. Cause of death was an anoxic brain injury.

In the weeks and months to follow our lives were in turmoil. My mother was stricken with grief and could no longer work and had to retire early. I had to leave my co-workers and friends that I had worked with for over 10 years. His mother became ill and no longer had the will to keep living, for she had lost her only child. He didn't get to see his oldest grandson graduate from high school. Even now after 5 years, there is a huge void in our lives.

In reviewing my dad's medical records, I learned the nurse who had been taking care of him on the night of the 5th had not checked on him since 11 pm. There were also pertinent morphine administration records "missing" from his chart. Her documentation showed that she precharted on him; in fact you can tell clearly where she changed her time; she wrote "0500 resting quietly, NAD [no acute distress], respiration even; 600 resting quietly, NAD". Then, "report given to the next shift"; but, in reality at that time, they were transferring him to another facility because he had coded.

Although I could criticize that nurse and all of the attending nurses for not being attentive enough, patients deserve better. It is not as though we don't have the technology to monitor for blood oxygenation, because we do with a pulse oximeter. Moreover, we do indeed have the ability to monitor for the adequacy of ventilation with capnography.

Now, I understand that technology will advance -- monitoring devices will improve, as they should. However, let's use what we have. Let's create an electronic safety net around our patients. Let's give those nurses down at the end of the hall a fighting chance to know when the patient furthest away from them is going into opioid-induced respiratory depression. Let's give nurses the comfort of knowing their patients are being continuously electronically monitored, so they can attend to other patients also needing their help. As a nurse, I have witnessed how continuous electronic monitoring can save patients' lives.

As Juliana Morath, RN, MS (chief quality and safety officer, Vanderbilt University Medical Center) says:

"Human vigilance is required but insufficient, continuous electronic monitoring needs to be there to support and back up nurses, and allow them to visit a patient while monitors are continuously assessing other patients for various physiological parameters (such as, oxygenation with pulse oximeter and adequacy of ventilation with capnography)."

My family lives each day with the horrors of the exclusion of electronic monitoring in postoperative patients receiving opiates. I truly believe that if my dad had been continuously electronically monitored he would still be here today. I am proud to say that I now work at a hospital that continuously electronically monitors our postoperative patients.

Links:

<http://community.advanceweb.com/blogs/nurses3/archive/2013/07/03/nursing-spot-checks-for-patient-safety-a-nurse-s-perspective.aspx>
<http://ppahs.org/2013/07/17/nursing-spot-checks-for-patient-safety-a-nurses-perspective/>

Sleep Apnea + Opioids = Post-Surgical Preventable Death

Patricia LaChance

After undergoing what most people would consider a routine surgery, my husband John, died. Just as heartbreaking as John's passing was to me is the fact that his death was entirely preventable.

John died because his medical history was ignored and because he was not properly monitored after he was placed on a strong narcotic to ease the pain from his surgery to repair a torn rotator cuff in his shoulder.

That is the simple version of John's story, but of course, there's much more to it than that. Since he left us in March of 2007, I have come to learn a lot about what caused his death, and I want to share my experience so that other families, nurses, doctors and hospitals can prevent what happened to him.

John suffered from sleep apnea, which John and I thought at the time was merely a sleep issue. We had no idea it could also be a fatal issue.

John underwent two surgeries. His first was a same day surgery. After this first procedure, he experienced a great deal of trouble recovering from the anesthesia. He struggled for hours to wake up enough to be able to leave the hospital. He was very groggy, nauseated and dizzy.

During the months that followed, he struggled with similar side effects from several narcotics that were prescribed for his pain management. He had two severe episodes at work – one he was able to sleep off at home; the other required an ambulance ride to the emergency room.

Six months later, John's shoulder injury required a second repair. Immediately following this second surgery, John — like millions of Americans who undergo surgery — was placed on patient-controlled analgesia (PCA), commonly known as a "pain pump" that intravenously delivered opioid medication to help him manage his pain. We were familiar with PCA, but unaware of the dangers associated with it.

Prior to and following John's second shoulder surgery, I discussed his opioid-intolerance and sleep apnea with all of his caregivers, but he was nevertheless placed on PCA. Once again, his body rejected the medication and became extremely ill.



Observing John's discomfort, a nurse disconnected him from the PCA pump and directly administered Dylaudid, a stronger opioid. With the removal of the PCA pump, the Pulse Oximetry and supplemental oxygen were also removed. Within minutes, he seemed to be comfortable – comfortable to the point that he did not move or speak to me again – he just stared at the ceiling. I was concerned about his condition, but the nurse was not.

Thinking John was finally going to get some much needed rest at the end of a trying day, I kissed him on the forehead, told him that I loved him, and promised to return first thing in the morning to take him home. But that isn't what happened. In the early hours of the morning, John passed away.

With all my heart, I wish I had known that night what I have come to understand today: Patients receiving opioids after surgery – especially those with sleep apnea – are at very real risk of fatal respiratory depression.

That's exactly what happened with John. He fell into a deep sleep, and was not able to awake. Because he was not monitored, his caregivers had no idea that he was in trouble.

This did not need to happen. If the hospital had used technology such as capnography and pulse oximetry to continually monitor John's respiratory status, he would still be with me today.

John meant the world to me, our children and his family, and many friends. Together, we sincerely hope that other families never have to go through what we did. For that to happen, I strongly believe that there are two critical patient safety issues that our nation's hospitals must immediately address:

1. In far too many instances, post-surgical patients are placed on opioid therapy with little or no consideration given to their medical histories, especially as they relate to medication tolerance. When I recently spoke to the Maryland Association of Nurse Anesthetists, one of the points I made was that each individual patient needs to be assessed for medication intolerance. Not all patients can tolerate the same medications. Yet, my observation is that far too often, opioids are automatically the medication of choice, and the patient's medical history is not taken into consideration. My husband is a prime example.
2. Continuous monitoring of all post-surgical patients receiving opioids should be a national standard of care. Recently, the Centers for Medicaid Centers for Medicare & Medicaid Services (CMS) issued guidance recommending that patients receiving opioids after surgery should be continuously monitored for signs of respiratory depression.

The CMS guidance perhaps summarizes this best when it states:

Each year, serious adverse events, including fatalities, associated with the use of IV opioid medications occur in hospitals. Opioid-induced respiratory depression has resulted in patient deaths that might have been prevented with appropriate risk assessment for adverse events as well as frequent monitoring of the patient's respiration rate, oxygen and sedation levels. Hospital patients on IV opioids may be placed in units where vital signs and other monitoring typically is not performed as frequently as in post-anesthesia recovery or intensive care units, increasing the risk that patients may develop respiratory compromise that is not immediately recognized and treated.

Links:

<http://www.thedoctorweighsin.com/sleep-apnea-opioids-preventable-death/>

<http://ppahs.org/2014/10/21/post-surgical-preventable-death/>