



## **Five Keys to Successful Monitoring of Patients Receiving Opioids**

### **An Interview with Harold Oglesby RRT, Manager, The Center for Pulmonary Health, Candler Hospital, St. Joseph's/Candler Health System (SJ/C)**

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#### **Pat**

Hi. This is a podcast from the Physician-Patient Alliance for Health and Safety. The podcast that we're presenting today is called "Five Keys to Successful Monitoring of Patients Receiving Opioids."

Welcome to our podcast.

My name is Pat Iyer and I am a nurse.

I have with me today Harold Oglesby, who is a respiratory care practitioner. He's a manager for the Center for Pulmonary Health at St. Joseph's Hospital/Candler Health System [SJC].

Since June 2004, SJC has had more than ten years of patient safety. Harold could you tell our listeners what event free means?

#### **Harold**

Sure. For us, event free means that we have been free of adverse events that have resulted in patient harm.

#### **Pat**

Could you give our listeners a little bit of background about St Joseph's/Candler Health System - where it is, how large it is?

**Harold**

Sure.

St Joseph's/Candler Health System consists of two of the oldest continuously operating hospitals in the United States. St Joseph's/Candler combined has 675 beds.

We are located in southeast coastal Georgia, in a beautiful town of Savannah, Georgia. We have about 25,000 annual discharges from our facilities, and we are a tertiary referral center for our area.

**Pat**

Tell us about why your facility decided to focus on reducing events and what they decided to focus on.

**Harold**

Well, the reason we decided to focus on it was because we were having too many negative adverse outcomes. One is too many but we were having more than we were comfortable with, and we did it out of an effort to ensure patient safety.

**Pat**

And, specifically what did you decide to focus on, which group of patients?

**Harold**

Initially, our decision was to look at patients receiving opioid therapy via PCA, because that was the area that we have had several incidences with patients that were having outcomes that we thought we could've done better. So, we looked at that area to see what we can do to make our patients have a better outcome.

**Pat**

Did you focus on purchasing any particular type of equipment to deal with this issue?

**Harold**

So, what we did was we had a team that got together to figure out the best way that we could address this. At that time, we had the Alaris™ system and there was an opportunity to look at PCA and capnography using that platform and have everything on one platform, so that is the equipment that we decided to use.

**Pat**

For the people who are listening to this podcast who are not familiar with the Alaris™. Could you explain what that is?

**Harold**

Sure. The Alaris™ pump is an infusion pump, and their platform offers infusion PCA, end tidal CO<sub>2</sub>, SpO<sub>2</sub> on one platform, which is all integrated, so there was no hunting for parts and pieces we had everything in one place.

**Pat**

OK. In terms of implementing this, did you start in one specific area or did you purchase the equipment and use it throughout the facility?

**Harold**

We did some beta testing to see if what we believed to be the case was going to be the case. We actually started off initially in a large way with it being throughout the facility. There wasn't small steps, it was one big step.

**Pat**

And, did you find any lessons learned as a result of doing it large scale?

**Harold**

Sure, we did find some lessons learned. One of the lessons learned was about educating and making sure everybody knew what they were looking at and making sure that the team was aware and well educated on capnography, as well as the patients.

**Pat**

Where is that equipment being used now?

**Harold**

Currently, it is used throughout the facility. So, almost any area that you find a patient, you may find that equipment in it now. The main areas it is issued is for our pain patients that are receiving PCA therapy. So, you often find it in our PACU, in our post-op patients that are on our floors. But, you wouldn't be surprised to find it in almost any area of our facility.

**Pat**

Could you give our listeners a tip related to this specific point that you would like to share?

**Harold**

So, the first tip that I would give them is don't wait for a patient death or an adverse event to occur to be proactive, and implement some type of continuous monitoring for your patients before you get behind the eight ball and you have a bad outcome. That would be my first tip.

**Pat**

Terrific.

I know that you choose capnography over pulse oximetry in terms of your monitoring technology. What was the rationale behind that?

**Harold**

So, when we did our beta test, there were a couple of questions that were raised. And, one of the first questions that was asked of the respiratory team was which monitor would provide the earliest indicator of a patient's decline in ventilation. And, we felt as though if we had a reliable piece of equipment - a capnography device - that it would give you the earliest indication of changes in ventilation versus SpO2. One of the issues with SpO2 is sometimes hypoventilation could be masked. By the time the patient starts to desaturate you're probably a little bit further down the road than you need to be. But, one of the things that often happens when a patient desats is the first response is to put them on additional supplemental oxygen which further masks the patient's true issue which would likely be ventilation problem.

When we did our beta testing, we saw that happening in real life. There was a couple of "aha" moments when we saw that capnography giving us sometimes an hour earlier indicator of a patient that was getting into distress. So, that was one of the first "aha" moments.

**Pat**

Did you have to go through some changes to make sure that this new system would work?

**Harold**

Sure, we went through a lot of changes initially. Remember, this was about 10 years ago, so we were the first folks to actually put this out on the floors in the general care area for all of our PCA patients. And, the devices - the capnography - works really, really well in the ICU and intubated patients, works really well in the OR, and OR intubated patients that were hopefully stable, but now we are talking about putting it out on the floor on patients who were having a variety of ventilatory statuses.

They would come back from the OR usually pretty well sedated and then they would wake up and want to walk - do we want to talk, do we want to eat? So we saw that the algorithms had

to be adjusted to deal with the situation that we were dealing with because we were having alarms and readings that weren't accurate.

So, we worked with the manufacturer and we revised the algorithms so that the algorithms made sense and that when the machine was counting breaths, it was counting actual breaths.

And, the other issue was our patients who initially came back from the OR, and even our patients at night, a lot of them would breathe through their mouths and not enough CO<sub>2</sub> would be collected at the nasal cannula, and that's when we aided the team and developed the cannula that has the aperture that goes over the patient's mouth so they can collect additional CO<sub>2</sub>.

Once we had those shortcomings fixed, we had a device that worked well.

**Pat**

I know that in order for these initiatives to work you have to have a clinical team that works together and communicates and plans. How did the clinical staff function together to tackle those changes that needed to be made?

**Harold**

I think that was the big plus for us is that we started off with the appropriate people making some decisions from the get go. So, when our initial team - nursing, respiratory, pharmacy, some physician leadership - were all on the same team looking at the process of implementing, looking at what drugs were going to be monitored, what patients were going to be monitored, trying to come up with algorithms for patients to monitor, so and how we're going to educate everybody.

And, that aspect of it, of having everybody initially together, not only aided in having the right people at the table, but it also gave everybody on the team some ownership of the process. So, nobody felt like they were being imposed on or anything was pushed on them and everybody had some stake in the transition. And, everybody knew that the reason we were doing it was for patient safety.

**Pat**

Yeah, that's an excellent point. How would you categorize your second tip related to this topic.

**Harold**

My second tip would be to make sure that you have respiratory therapy as an integral part of the process, and I say that because one of the challenges - if you decide to use this type of technology - is going to be the implementation process. And, respiratory therapists tend to have the expertise in dealing with capnography outside of the OR. They understand it, they

can relate that understanding not only to the patients, but also to the staff on the floors that may not be used to monitoring the patient with capnography.

One of the things that we found with our respiratory therapist is that we looked to and leaned on them for their expertise. We made them an integral part by having them monitor the patients. And, what they actually do is go on the floor and see these patients at least once during the shift. Or, if a nurse has an issue with the capnography device, or if she has questions about a patient, she can call a respiratory therapist, they will come up there and monitor the patient.

Part of their assessment when making their rounds on this patient includes an assessment of the respiratory rate and respiratory effort, what their SpO2 is, what their end tidal CO2 is.

The other key thing that they look at is that they look at the patient's end tidal CO2 trend. We know that the numbers on certain patients are not going to be matching blood gas numbers, but the trend that we observe on those patients tells us a lot. If we see a patient that is trending in the wrong direction, then we take some interventions before the patient has significant changes.

The other thing they look at is they look at the amount of medication that the patient has received. So, they look at that on a monitor - those two items, they look at the trend of medication delivered, they look at the trend of end tidal CO2 and they can put two and two together and assess the patient.

The last few things that they at are they look at the patient's sedation scale, they look at the patient's level of consciousness, the level of activity, and their pain score.

## **Pat**

We often hear from clinical staff that too many alarms are sounding which is what prevents them from using patient monitoring more extensively. In a national survey we conducted across forty states in the United States, 90 percent of the hospitals believed that reducing false alarms would increase the use of patient monitoring devices like pulse oximeters and capnography. And this survey was conducted before The Joint Commission made better alarm management a patient safety goal. What has your facility done to avoid those nuisance alarms?

## **Harold**

That's another key to having respiratory therapy actively involved. So, if you were to go to one of our machines, our default settings are very, very wide. Our high end tidal CO2, it defaults at 60. Our low end tidal CO2 defaults at 6, no breaths detected is 30 seconds. Our high respiratory rate is set at 35, and our low respiratory rate is set at 6.

So, some of those numbers scare some people when they hear them. The key is that we have a respiratory therapist that will go and monitor the patient, look at their trends, and set their alarms based on what's happened with the patient at the bedside.

So, if we have a COPD patient on the floors and, say, his CO<sub>2</sub> on a normal day is 55, we know that we can increase his high end tidal CO<sub>2</sub> alarms. Conversely, if we have a patient that's "walky, talky" and running lower end tail CO<sub>2</sub>'s, then we can manipulate the settings to meet the patient's needs. So, we have a lot less nuisance alarms than we would have if we had closer defaults and the fact that we can tailor the alarms to the patient is a big plus. And then the other the other part of that is the fact that the respiratory therapist not only see them on a day shift, but they also see them on a night shift. So, some patients change from day to night. So, when you're asleep, you may have an increase in your CO<sub>2</sub>, you may breathe a little bit slower, but we again adjust those alarms to meet the patient's need at that time, so that the nursing staff isn't constantly called into the room for alarms that they likely shouldn't be.

It takes a little work but for the patient and for the safety side, it's a positive for everybody involved. Know you cut down on the number of nuisance alarms and you're still protecting the patient.

**Pat**

So, what you're describing is really individualizing this according to the patient's condition and needs?

**Harold**

That's correct.

**Pat**

How would you encapsulate that third tip?

**Harold**

You know, the third tip is when the alarm sounds, find out what needs to be adjusted. Treat the patient, not the monitor is a key.

A lot of times, particularly initially when we went through the implementation process, staff - particularly, the nursing staff and some physicians who were unfamiliar with capnography - were calling the respiratory therapist to the bedside and saying that this alarm is going off, there is no reason for it to be going off, and we instructed the respiratory therapist to go into the room with the nursing staff or with the physician and look at the patient, look at the monitor, see what's going on. So, the first thing they always look at is the patient and sometimes you solve the problem just by looking at the patient. It could be as simple as the cannula's not on

the patient's nose, it's over by the ear. Putting the cannula where it needs to be sometimes will solve the problem.

Other times, you look at the patient and the patient looks fine, so you know that you're going to be OK and you know you have time and assess everything else that you're looking for - go over to the monitor, pull up the trends screens, look at the screens, look at patient's end tidal CO2, look at patient's SpO2, and look at the total picture.

There are times that you will find the patient, particularly at night, would actually be having apnea. And sometimes when you walk in a room, you will wake the patient up, so when a nurse will come in and assess a patient, the patient will talk to them and tell them that the machine kept going off, when in actuality the machine was going off because the patient had an apnea. And the percentage of patients that we thought were demonstrating undiagnosed sleep apnea was significant and some of those patients were referred to our sleep lab post hospital visit just to assess whether it was actually sleep apnea or whether it was medication induced.

So, looking at the patient and figuring out why the alarms are going off is always another key. It cuts down on your nuisance alarms.

### **Pat**

We've heard from patients that wearing the nasal cannula for capnography can be uncomfortable. Is there something that you have found that's successful in encouraging patients to wear the cannula?

### **Harold**

So, one of the patient populations that I was really concerned about was our non-compliant patients who have sickle cell anemia, who require significant amounts of pain management and pain medications to overcome their pain. And, with those folks wearing the end tidal CO2, initially it was an issue. It was an issue not only with those patients but with our general patients out on the floors.

Again we were introducing a new device onto the floors - the nursing staff, some of them were not as familiar with the device and what was happening was that the patient education at the bedside was poor.

The patient would have come from surgery, has end tidal CO2 cannula placed on them and they would get a response something like "OK you got to wear this because they tell us we have to wear these devices now. I'm not sure why you're wearing it but you can't have your pain medication unless you wear the cannula." So, the patients weren't getting a full disclosure of why they were wearing the nasal cannulas. So, we developed some patient handouts that

were customized through our organization, and we pulled back the nursing staff and reeducated the nursing staff on how to educate the patients.

So, then the education went more like “You know, Mr Davis, we're putting this cannula on you for your safety. It's here to protect you. We've talked about some of the poor outcomes.”

We had some of the families visit the [www.PromiseToAmanda.org](http://www.PromiseToAmanda.org) site to look at some of the poor outcomes that have happened to patients that weren't monitored.

We told them “This is for your benefit. This is for your safety. If you hear it go off, first thing I want you to do is take a deep breath. If nobody responds in a time which you feel is a timely fashion, call us and we will come down immediately.”

Once the families got that education, and the patient got that education, our compliance shot out of the roof. Our sickle cell patients were still a bit of a challenge but one of the benefits for them was a lot of the nursing staff, particularly the newer nurses, were reluctant sometimes to give those patients the amount of medication they needed to overcome their pain. They start seeing these high dosages come across the screens, they were again reluctant because they didn't know where they were going to cross over that threshold and over sedate their patients. Having them on the PCA pump with the end tidal CO2 gave them a back up, so they knew that if the patient get a little bit too much medication that they would see some changes in their monitoring. So those patients actually ended up getting better pain control and they're pretty smart people and they learned that by wearing the cannula and being monitored that they could receive better pain management.

So, a couple of things happen from that it helps your HCAHPS scores because now the patients feel as though their pain is being better managed. There's an additional person asking them about pain, so when the pain question comes up - “anybody addressed your pain?” - you might see your pain scores look a little bit better.

But, compliance was improved just because we did a better job of educating the patients of why they were wearing the cannulas.

**Pat**

And you mentioned a few minutes ago a website called Promise to Amanda. Did I get that right?

**Harold**

Yes, ma'am.

**Pat**

Could you tell us a little bit about that website for the listeners who are not familiar with that?

## Harold

So, I can tell you that one of the things that came up - when we were initially looking at the PCA and the end tidal CO2 devices and pulse oximetry - was placing capnography on every PCA pump - it's expensive.

And, that's what our organization did. Our organization - I think we had a total of 68 PCAs - and we put an end tidal CO2 on every one of those PCAs, which is expensive.

But initially one of the questions was - if we don't buy end tidal CO2 for everybody, how we differentiate which patients we were going to put on capnography versus which patients we don't?

And, if you go to the [www.PromiseToAmanda.org](http://www.PromiseToAmanda.org) website, you'll see that a lot of the patients that had bad, bad outcomes - that didn't walk out of the hospital - aren't those patients that would fit into any algorithm that says you need to monitor this patient.

Those types of patients you notice. The 21 year-old guy that comes in for a knee surgery, has PCA by proxy or whatever, those patients we couldn't differentiate which patients to monitor versus which patients you couldn't, because you never know which patients is going to have a bad outcome.

And, when we show our patients and we show our staff, some of the stories on there, it kind of hits home for them that "oh my God, maybe it's not the little frail COPD patient that I really need to be worried about, maybe I need to be worried about every patient that's getting opioid therapy within the facility."

And that was part of the reason we decided that if we were going to do it, we just had a go full house and do the whole thing.

And, when we did our return on investment, without any negative outcomes, the devices paid for themselves a couple times over at least.

## Pat

Well, you brought up an important point that some of the people who develop respiratory compromise are not the obvious people that would trigger alarms. At the Physician-Patient Alliance for Health & Safety, we have done some features and have done at least one podcast related to patients who died as a result of overdoses or respiratory compromise associated with opioids. And, these were people who had no obvious medical issues before being sent home. Some of them were about ready to be discharged, or had been discharged and then developed problems.

What guidance can you offer clinicians about this type of patient?

**Harold**

My guidance would be to never assume who is going to be a “good” patient versus who's going to be a “troublesome” patient; that you monitor all the patients the same way; that you are vigilant with all your patients; and that you denote the changes when you see them happening. And, if you hear an alarm on any patient, particularly when you know that you have those parameters set appropriately, that you pay attention to them and address them in a timely fashion. You do those sorts of things, you'll save patients.

There'll be times when you might go in and the cannula might be on the ear or the patient may have taken it off. But, it is that time that you go in and that patient's laying in bed in breathing four times a minutes with the end tidal CO2 at 60 and the saturation of 80 and you catch that patient and instead of going to the ICU, you save them on the floor and they get to go home instead of going to a funeral home. That will make a big difference, not only to you, but of course to the family and to the patient.

So, never assuming and always being vigilant about monitoring your patients would be my strongest suggestion.

**Pat**

Yeah, complacency can get us every time.

**Harold**

That's correct.

**Pat**

How would you summarize that last tip on this topic?

**Harold**

So, I would say that you know the eyeball test is not always a good predictor of who's going to need more attention and who may not. So, continuous monitoring has been a huge plus for us, but it will never replace the human factor.

You have to put your eyeballs on the patients, observe the patients, know what's going on with your patients, know their histories, know where they are, know what what they look like the day before, know what they looked at it like at the beginning of the shift, denote any changes, monitoring closely, and then pray to have good outcomes.

**Pat**

And, then the last point that I thought we would cover is that we started talking about the fact that your facility has had 10 years free of events. And, I know from what you've talked about that you have saved lives.

Has anyone at the hospital ever calculated how many dollars you have saved as a result of having that event free record?

**Harold**

Yes, it's been calculated and it's been published. If you were to do a Google search for a Dr. Ray Maddox, end tidal CO2, PCA, you will find a study that he and our CNO did on the return of investment for the devices that we purchased and it's a significant number. And I believe it's over a million dollars and it's a very significant cost savings for our organization.

And, the return on investment figure that they have in that article doesn't include the avoidance of litigation for many bad outcomes, so it's going to be a significant number. But, if you were to attempt to calculate litigation associated with poor outcomes, it would be even higher.

**Pat**

Yeah, that's absolutely true. Well thank you. We've been talking with Harold Oglesby, who is a respiratory care practitioner, who is the manager of the Center for Pulmonary Health at Candler Hospital and St Joseph's Healthcare System. Harold, thank you for sharing that wonderful insight with us. And I hope that it will inspire our listeners to take a good look at the key concepts in the tips that you have shared with us in this program.

**Harold**

Well, thank you for having me.