

Implementing the LifeSync® Wireless ECG System with LeadWear® Disposable



Mary Bylone, a nursing leader with over 25 years experience, talks about implementing the LifeSync® Wireless ECG System with LeadWear® Disposable. Mary's clinical background is in critical care nursing, and she is extremely active in the American Association of Critical Care Nurses at the local, regional and national level. She's a frequent lecturer and author on topics on leadership, patient safety, time management, human resource management and the healthy work environment initiative from AACN. Mary completed her Masters in science and management from Thomas Edison State College. She has a

postgraduate certificate in human resource management. Mary started her health care career as a surgical technician and currently is the assistant vice president of patient care services at the William W. Backus Hospital in Newark, Connecticut.

The LifeSync® System is a cable-free ECG system designed specifically to increase hospital productivity and patient safety. How has your facility implemented the LifeSync System®?

Well, when we brought the product on board, we initially thought that we would be using it only in our critical care area, but after we you know got it in use and started seeing how much the staff liked it, the decrease in false alarms, the advantages of the wireless system -- we decided to move hospital-wide. So the LifeSync® System is being used currently on all of our inpatient areas for all patient ECG monitoring. That includes our ICU, step down unit, telemetry unit, and the remote telemetry monitoring that we do in our med-surg area. So we have well over 60 patients on any given day that are hooked up to the LifeSync® System.

Could you describe the LifeSync system?

I'll describe it in two parts. One would be the disposable LeadWear® that attaches to the patient, which is attached to electrode pads. It's a ribbon-like, soft fabric material that replaces the traditional EKG lead wires. The LeadWear® Disposable is connected one of two ways to the patient's ECG monitoring, either through a cabling system or through a transmitter wirelessly. So it's enabled patients that otherwise would be tethered to the monitor at their

bedside, can be free of the wires and be able to have more movement, less restriction, less things to get tangled, pulled out, et cetera.

When you implemented the wireless system, did you have to replace your bedside monitoring?

No, and that was one of the things that was appealing to us. The LifeSync® System is able to just be matched up to the bedside device through Bluetooth® technology for the synching, and it just transmits the ECG signal from the patient to the bedside monitor without the need for any type of physical connection.

Could you tell us about your decision to adopt the LifeSync® system? And what was it that influenced you to adopt the system?

We were reviewing our central line infection rates, and although they weren't terrible, we were wondering why we had had a recent increase in the rates. And when we looked deeper, we saw that they were in our critical care area, which was somewhat alarming. So we brought the rate number to our critical care committee, along with the charts of the patients, and we really took an in-depth look at trying to uncover what had happened.

One of the things that we decided was we needed to really look at central line care, as well as the other

items that come into contact with our patient that might be increasing infection rates. Among the things we looked at were: the dressing, the care, how quickly was a dressing put on a line once it was inserted, where were these lines inserted, did the nurses have the education to understand what the current policy was; was the procedure for actually prepping the area being followed; were people using the full barrier precautions when the line was inserted.

Basically we had some processes in place, but we uncovered that there were things that were not standard. For example, our central lines are placed in multiple locations in our hospital. We put some in our interventional radiology department. Some were inserted in the surgical – you know during the surgical procedure or pre-op. Some were inserted in the unit themselves. Some were inserted in the med-surg area prior to the patient being transferred.

And what we learned, when we actually sat down with a group of staff that care for these patients during that insertion, is that there was not a single standard. Despite the fact that there actually was a policy, it was not implemented in the same way in each one of those areas. So we saw that as an opportunity.

In addition, we used our critical care practice council to go out and look at that policy to challenge it, to say is this is the dressing that we're using, the antiseptic that we're using – are these the current, most up-to-date evidence-based practices that we should be utilizing?

One of the other things that we looked at was: what were appliances that patients had that could be bringing infection or contamination into the area. Then we learned about the risks that were associated with central line and bloodstream infections. We determined what changes needed to be made. We did some education with our staff, looked at the equipment that we had, made some decisions about how we could decrease cross-contamination.

I had been at a recent conference and had been introduced to the LifeSync® product. So we did some research, looked into it, found that there were studies out there that said that the cleaning of the ECG leads had become a concern for people, especially with multi-drug resistant organisms, and decided that it might be time for us to look at an alternative.

We also looked at environmental servicing, how they clean our beds at the end – you know terminal cleaning, in between patients, and then again back to looking at the disposable LeadWear® as an alternative

to the cables with the lead wires, which we had you know basically been using forever. So we had the LifeSync® people come in. We looked at the product in the critical care committee and basically made a decision that– as well as education and dressing standardization and things like that, one of the other things we wanted to consider was switching over to the disposable LeadWear®.

What are the results after making these changes to your bundle and processes?

Well, this is the exciting news. The exciting news is that we went 18 consecutive months in that ICU without a central line infection. We did experience one infection. And then we've been infection-free since then.

So really over the last couple of years, we had one central line infection that we experience in our ICU, and that coincides with the time in which we had switched over to the LeadWear® Disposable as well.

How does that translate into the finances saved by the hospital and, much more importantly, the number of lives saved?

When we went out and looked at some of the research to answer those questions for ourselves, what we found was there are statistics out there that say between one and four people would have died in a 12-month period from a central line infection. So we believe that during those 18 months –extrapolate that out to the 27 months – we've saved between four and eight lives, because we've not had those infections for our patients.

I don't know that there's any amount of money or a dollar figure that a person can put on that, but certainly we know that there are numbers that are associated with and literature out there that speaks to the cost of infections and taking care of patients that have prolonged stays in your ICU.

But that doesn't even talk about the fact that we're no longer cleaning any of this equipment, that had a cost in dollars, in man hours, in delaying the ability to turn over rooms, which are, of course you know in great demand. So that and the replacement costs of that equipment as well, lead wires breaking, disappearing, being missing.

Now we don't have to go looking for that stuff anymore, because we're not dependent on the lead wires. We have a new LeadWear® package we open up, we put on our patient. It's ready to go. And that –

that time, that savings of time to that nurse – that means a lot.

Another point I'd like to make has to do with the fact that at one point I was a patient myself. And it wasn't that long after we had made the decision to switch to the LeadWear® Disposables. I make decisions every day in my job, and I'm often really unaware of how they really impact people in the end. But when I got admitted to that telemetry unit, and they opened the package to put the LeadWear® Disposable on me, I was very comforted to know that that LeadWear® had never been on anybody else. I'm not a frequent consumer of health care, but in that particular instance, I kind of smiled internally to know that I had made a decision that actually was going to impact me in a positive way.

Given the current environment with nursing shortages, increased critical patient population, and the pressure to cut costs, how has your staff productivity been affected? And how does the LifeSync system help you to increase your nursing productivity?

Well, I think that we could talk about this from several different aspects. One of the things that I just want to mention up front is that at one point, when we completed our trial of the LifeSync® System initially, we went back to only using it in the ICU until I could get approval to move it out throughout the rest of the hospital.

I was making rounds in one of the nursing units one day, and a monitor tech on the telemetry unit wanted to know what happened with the LeadWear®. Where did it go? Basically it was here one day and it was gone the next.

So I explained, the trial is over and I need to move it through the purchasing system. And she started complaining, how come they get it and we don't? And I said, "Well what's so spectacular?"

She said, "Well we have fewer false alarms, less times with getting the lead off, having to go into the room to adjust it." And then a nurse piped up about the fact that when they were transferring patients, taking them down – often patients from that unit go down for stress testing, and they travel with a monitor. And they have to get under the gown and take the leads off and hook them up to the other piece of equipment. And with the wireless they didn't have to do any of that, because there was a transmitter that was mounted onto the transport monitor and again through Bluetooth® technology, that patient's rhythm

was being transmitted directly into the portable monitor.

So just from that perspective alone, an unsolicited testimonial, I realized that they really did like the product. But we've experienced a lot of things: the decrease in false alarms certainly is there and we do believe we have better tracings when we had switched the LifeSync® System

Although we don't use the 12-lead capability to the extent that probably some organizations do, we do have that ability with it. We're able to take the x-rays with it on, without having to take it off so the wires are not interfering with the picture that the physician is getting.

And I'm sure housekeeping would like to talk to you about the lack of having to clean the wires. That's certainly been a big deal for us – and not having to search for them, as I mentioned earlier, when you're getting an admission and trying to look for the equipment so you can get this patient up from the ED in a quick manner.

Have your nurses seen or experienced that patient activity is improved so you have earlier activity, earlier ambulation for those critical care patients?

Well, I don't think I have any studies that we've done on that, but I do know that I seem to find more patients up in a chair or walking around a little bit in their rooms. Lots of our patients, of course, aren't fit enough to be able to do that, because they're hospitalized for a critical reason. But we do see that our patients are able to get up and be mobilized

Just the fact that the patient's not tethered to the monitor makes them more mobile – even if they're not a person that can get up out of bed. When you're lying in bed and you've got the wires, and every time you try to turn over it's under your arm, it's between your legs. I mean we know there is a patient satisfaction aspect.

With joint commission's increasing emphasis on patient safety risk, how has the LifeSync system supported your efforts to increase patient safety?

Well, it doesn't take you too long to realize that if there are wires lying all over the place, people are tripping on them. So for those people that were trying to get up and those patients that want to try to go to the bathroom or do as much as they possibly can for themselves without calling the nurse, because they

think that they're bothering somebody, so they try to get out of bed and there are wires connected to the monitor, and they think they can figure out how to get it undone, and the next thing you know it's a trip and a fall, spill onto the floor.

So we are confident that by having a wireless system, we've decreased falls from that type of equipment. And it actually has caused us to take a look at other equipment in the room as well, because we have had some trips that have been due to people tripping over a phone wire or other things, and we've made a concerted effort to limit any wires that are in the room.

So the LifeSync® technology fits well within that plan to try to decrease the wire hazards that patients can trip on – also, the fact that they're able to travel so easily without having find a lead wire to get them hooked up.

We're having patients that are monitored continuously. Our hospital is wired to be able to pick up our telemetry from wherever the patient is in our hospital. So the fact that it's so easy to get them switched over to a portable monitor for them to be able to travel – not only have we maintained monitoring longer, but in many instances we've been able to send the patient without a nurse in accompaniment, because they are still being continuously monitored. And yet their equipment is not getting in the way of whatever procedures they need to have performed, the reason why actually they're going off the unit.

So it sounds like the LifeSync® System has helped with you staffing for your transfers?

Yes, for the transport, yes, absolutely, because sometimes we would have sent a nurse just because they have to deal with switching people over when you know they get to the destination, because the staff in that area might not know how to do that. Now we don't – if the patient's going, and they're wireless, we don't need to do that. They're still being monitored, and they don't need somebody to get down there and hook up the cables or switch them over, because there are no cables.

With the improvement of productivity, your patient safety improvement, and reduction in infection rate, has the LifeSync system paid for itself in your facility?

We believe that the decrease in infections alone has paid for the cost of the system. Now, realistically, we did employ several strategies that we think helped us

achieve our zero infection rate, so to give all the credit of the total cost of eight deaths or however many infections might have occurred in that time to any one single part of the bundle that we used here might be a little bit of a stretch.

But definitely, we all know about the cost of infection, the cost of increased stay, the cost of using antibiotics. So as an organization, we do believe and have approved the continued use, even in this economy, the LifeSync® Wireless ECG System and LeadWear® Disposables.

How did you justify the cost of the LifeSync system to gain approval for the system in your facility?

We brought it in as a trial first. When we did that, we put it into our CCU, critical care unit, and also our telemetry areas. During that period, we used it on 100% of the patients in those areas that were monitored. I want to say that was around 36 patients a day. We did that trial for 3 weeks. What I was looking for in the trial was the ease of use, to make sure we got high volume of patients utilizing it, high volume of staff being exposed to it, to see if there were any initial issues.

Then we did an extended trial for 3 months, where we did track the impact on infection and staff and physician satisfaction with the product. We included physicians. They were part of the critical care committee. We asked them to go in and take a look at the product to talk to their patients about it. So that was all information that was collected during that period of time.

During those 3 months that we used the LifeSync® System, we had no central line infections. And that is the information that I was able to utilize to introduce the LifeSync® System as a standard product for use not only in the CCU, but in the rest of our monitoring situations throughout our inpatient area.

Have you looked at ways to utilize this documentation of improved quality of care for your pay-for-performance initiative?

We have. It is certainly something that when our finance department goes to the table to negotiate reimbursement contracts with our payers, it is discussed. We were the recipients of an award here in Connecticut that was given for an organization's use of data to change a process, the Thompson given by the Connecticut Hospital Association.

And we certainly put that on the table when we're meeting with vendors as well to say, "Look, we have this demonstrated quality." And of course, everyone knows about the changes in reimbursement that exist today. We really can't afford to have preventable things happen to our patients, because not only are they bad for our patients, but we're also not going to get reimbursed for the costs that are associated with those events.

I also would like to mention that although we spent a lot of time talking about the central line infection rates, we've had some really terrific and I think impressive results with our ventilator associated pneumonias as well. In our CCU area we have not had a ventilator-associated pneumonia in well over 2 years.

And we believe that just as well as the central line which is usually up there in your shoulder, the subclavian or jugular area, we also believe that all of our infection rates benefit from the fact that we are using LeadWear® Disposables.

Being able to move that patient earlier, turning them, giving them full range of motion or access around the bed may also assist those ventilator patients?

Certainly, early mobility we learned that a long, long time ago in nursing school. It's one of those things that really hasn't changed over the years, that these basic fundamental benefits of turning and early ambulation impacts so many systems in our – for our patients.

I think we could take that and move back out to other things, like the prevention of deep vein thrombosis or urinary tract infections.

Do you track the LeadWear® Disposable usage on your charge-master?

We utilize an automated supply delivery system here, and the LifeSync® product, the LeadWear®, is kept in there so that when a staff member takes it out, they do charge it to a patient. But as we all know you're not necessarily reimbursed for your charges.

Any last thoughts?

We appreciate the opportunity to share our stories of success with other people and the support that we've received from LifeSync in helping staff to understand you know how to utilize the product in a cost-efficient manner, what the advantages.

We've established a partnership, we believe, with LifeSync® to making sure that staff have what they need to care for their patients and that patients are not exposed to any type of organism that they don't need to be.

In today's world where so many things are resistant to the drugs that we have, increased antibiotic use has more complications than benefits in some instances. We're excited to see a product that exists that can help us to prevent our patients from needless exposure to additional antibiotic usage.

