



Two nursing industry experts, **DEBORAH LEPMAN**, Department Director, Cardiac Critical Care Units, Hoag Memorial Hospital Presbyterian, and **MARY BYLONE**, Assistant Vice President, Patient Care Services, The William W. Backus Hospital, discuss the benefits of using the LifeSync disposable electrocardiogram system

A Virtual Lifeline

Comfortable patients and nurses with lowered stress levels are the foundations of a smoothly run hospital. In intensive care units, the pressure is especially strong, and any product that helps alleviate it can be significantly beneficial to the facility. LifeSync's LeadWear is an electrocardiogram system which greatly increases patient mobility and comfort, decreases the risk of hospital-acquired infections, and cuts down on lost time for nurses, making the whole organization more productive.

Future Healthcare The LifeSync System is a cable-free electrocardiogram (ECG) system designed to increase hospital productivity and patient safety. **How has your facility implemented the LifeSync System?**

Deborah Lepman The LifeSync System eliminates the need to place electrodes on the patient's chest which are then attached to the cardiac monitor with ECG wires. Now, we can simply place the LeadWear itself on the chest. The LeadWear looks like a flat, soft ribbon which is placed across the patient's chest, and this ribbon contains electrodes that attach themselves to the patient. The apparatus speaks to a transceiver, and with the use of a "chip," the transceiver communicates with another transceiver that is attached to the monitor. Therefore, we've eliminated the use of wires that tether the patient to the cardiac monitor itself.

Here at Hoag Hospital, we implemented the LifeSync System after a trial. We tested the product for approximately one month in both our coronary care unit (CCU) and cardiovascular intensive care unit (CVICU), and then also in our surgical intensive care unit (ICU). They were extremely successful trials. We implemented the entire system into a number of departments: our

CCU, CVICU, Sub-ICU, our telemetry unit and our neurosurgical ICU. With our open-heart patients, the LeadWear is actually placed on them in the operating room. These patients come up "LeadWear ready," meaning that we can quickly attach them to LeadWear to monitor post-operation.

One of the major reasons we chose to use LifeSync was that the ease of use was remarkable. There are a number of benefits, one being that it is no longer necessary to press ECG leads on and off of the patient, which significantly adds to patient comfort. One also doesn't have to contend with finding wires and ensuring that they are clean. So, the time savings was also an important incentive for us to transition to the LifeSync System.

Mary Bylone We initially brought LifeSync in for a limited trial in our critical care areas, and then expanded it to our ICU for a three-month extended trial on all of our patients. Now, if you want to know whether nurses approve of a product, take it away from them. We certainly heard from those on the telemetry floor when the product was in the CCU and they were without it. For them, it was a very long three months before we got all the approvals to be able to use it house-wide. For me, that was a significant indicator that the staff was really pleased with the product.

FH Given current nursing shortages, increased critical patient populations and pressure to cut costs, how has your staff productivity been affected, and how does the LifeSync System help to increase nursing productivity?

DL LifeSync has made it much easier to transport patients. There's no longer the worry about taking leads on and off the patient, which anyone who has been a patient in a critical care unit can attest is detrimental to comfort. This means the patient doesn't need to be uncovered, so they're not feeling exposed or cold — two important elements to their experience. LifeSync also improves the general flow through the hospital, as patients are not tethered to a machine for an ECG. My staff has told me it's much easier to do serial ECGs on patients than it used to be.

We also don't have to worry about cleaning the wires, which is a significant savings in time and concern. In the past, I would oftentimes go in and check to make sure the wires were cleaned appropriately. This is no longer an issue. Lastly, it's nice for the patients to know that this product is for them specifically; it stays with them throughout their admission and it's not used for anyone else.

MB At Backus, we've had similar experiences with the LeadWear. In particular, there are two primary ways that it has been beneficial to our organization. In the past, we spent a lot of time looking for our equipment. We'd send the patient to the operating room, and when they came back, their nurses would want to swap out the cables in order to take them back. During a time when we are asking nurses to do so much more, if I at least know that I'm giving them the best equipment I can, I'm giving them more time for what's truly important — caring for their patients.

FH With the Joint Commission's increasing emphasis on patient safety risks, how has the LifeSync System supported your efforts to increase patient safety?

DL We have confidence that when we place the LeadWear on the patient's chest, it's going to stay there. Since we know it's safe and secure, we can go through a smaller list of what could possibly be wrong with the patient, if we think something is wrong. Therefore, we're actually able to pay more attention to the patient's issues. Additionally, the mobility around the bedside for the nurses is improved because they don't have to move things around or get through the wires to get to other pieces of equipment.

FH In Critical Care Nursing, Dr. Korniewicz, Professor at the School of Nursing at the University of Maryland, noted that nuisance alarms have desensitized nursing response. How has the LifeSync System helped to increase patient outcomes in your facility?

DL While we pride ourselves on answering all alarms immediately, regardless of type, we're very happy to answer an alarm that's not a nuisance alarm. Additionally, we have seen a 15 percent decrease in nuisance and false alarms overall. We have less time off the monitor due to the LeadWear, and the chance of it popping off has decreased by about 99 percent, which is huge. It may not sound like it takes a lot of time to replace these, but when you're with another patient who needs your constant attention, not having to leave them is a life saver, especially if you are in isolation.

LeadWear also reduces the amount of time and money you spend replacing cables. Our previous system not only had wires attached to the patient, but cables that connected the whole system together. These cables are expensive, and even if you attach them, they can still be removed. Not having to worry about that particular cable anymore has been a huge advantage.

MB We have experienced similar results. In a conversation I had recently with one of our monitor techs, I asked, "Has the product decreased the alarms?" The monitor tech said, "I used to feel bad having to bother the nurses about putting patients' electrodes back. I don't have to do that anymore." That says a lot. We have to respond to alarms even when we know that they are most likely not important, because you can't let them go unaddressed. Each alarm means time that someone has to walk away from patient care. So, the LeadWear system is working for us.

FH Early ambulation has been critical to lowering risk of complications. How has the LifeSync System aided in your early ambulation efforts with patients?

DL One of the units that is my responsibility is the open heart unit. Our major priorities include extubating patients and getting them out of bed and moving around as soon as possible. Following surgery, patients may be in a fragile state. So, the less often you have to remove or manipulate equipment around them, the better, especially at this sensitive time. After they are extubated, they no longer have anything that we need to remove around their dressing and incision sites, so there are fewer things for us to be concerned with, meaning we can get them up and out of bed. Turning the patient is also much easier, because the LeadWear does not come off the chest.

With LeadWear, when patients want to get out of bed, they can do so. There is a pocket in their gown where they can keep the little transceiver, and they're off — they can walk around the unit freely without worrying about any attachments. So, not only is it easier for the nurses to focus on the patient as opposed to the accompanying equipment, but it's also easier for the patients themselves.

MB When we were doing our trial, one of the nurses in our ICU pointed out that sometimes we have to hire an attendant to sit with the patient because they are constantly picking at the wires and pulling the electrodes off. We had tried other solutions as well, like putting T-shirts on patients to keep their devices out of sight, in hopes that they wouldn't find a wire and trace it back. Since it doesn't have the box and all of the cables, LeadWear helps keep patients from finding it and pulling it off.

FH Reusable ECG lead wires have been the standard in hospital care for over 60 years, though studies have shown that ECG lead wires are a leading vehicle for hospital acquired infections (HAI). How has LifeSync's disposable ECG LeadWear, as part of a comprehensive infection control protocol, contributed to reductions in your HAI rates?

MB There was a study presented at the American Heart Association's forum on quality that took electrode wires, cleaned them, and cultured them to see what would grow. Almost 75 percent of those wires grew out antibiotic-resistant organisms, and remember — that was after the cleaning. So we brought together a group of people to try to determine what we could do to lessen this infection rate, and one of the decisions was that we would switch to the disposable LeadWear.

Since implementing the LeadWear, we have now gone 19 consecutive months with a zero percent central line infection rate in our critical care area. We were recognized by the state of Connecticut as the recipient of the John B. Thompson award for excellence in the delivery of healthcare, which was based on the work that we did to bring about this zero percent infection rate. We truly believe that switching to LifeSync's disposable LeadWear was a

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– Mary Bylone

significant piece of our strategy in accomplishing that goal.

DL Patients today are aware of the dangers of HAI, and they expect us to protect them in any way we can. Knowing that the equipment being used on them has not been used by another patient is a huge aspect of patient comfort. It's our responsibility to make sure patients are confident in the care we provide them, and knowing that we have taken this additional step to keep them safe increases their regard for us as healthcare providers.

FH With the improvement in productivity, patient safety, and reduced infection rates, has the LifeSync System paid for itself in your facility?

MB Let me illustrate by continuing this story about the zero percent infection rate. In applying for the award, we did a lot of research to find out the impact of having an infection. We found that if we took the statistical data and applied it to our patient population, in a 12-month period, we could have expected to have seen two to four patients die from a central line in our very own ICU. Therefore, with a zero percent infection rate, we believe we saved between two and four patient lives. We don't need to spend time trying to figure out the value of that in dollars; it speaks for itself.

DL As a magnet facility here at Hoag Hospital and as the recipient of the Beacon Award for our critical care units, we take our job very seriously. We consider the satisfaction of our patients and our nursing staff a top priority. Our staff is happy when they see that their patients are well taken care of — it's a positive cycle, and this product has more than earned its keep.

FH How can healthcare providers further improve patient safety and healthcare outcomes?

MB As we move forward, we need to continually identify opportunities to increase patient safety. At the same time, however, we are challenged with trying to make that goal less cumbersome for the care deliverer. Every time there's a new regulation, it means there's another form, another task, another place to chart. We're working on translating that into putting pressure on vendors to develop products like LifeSync's. The use of technology and evidence-based practice has to be in the front of all of our minds, and LifeSync has taken a lead with that. We've been using reusable electrode wires the same way for all these years, and it's time to look at technology find a way to improve the patient's safety. With a LifeSync product, it's more than just the disposable LeadWear; it's also this new wireless ability that you get from no longer having patients tethered to a monitor with cables. LifeSync identified this opportunity for improvement and developed a product to fill the need.

DL My staff has told me that this is the best product that we've ever brought to them, and we have introduced many items and devices into critical care over the years. LifeSync is respectful of our staff's time and our patients' privacy, and the people who brought the product to us were nursing experts. Our nurses had complete confidence in them. To see a product so widely accepted and see staff so happy to use it has been wonderful. My only hope is that LifeSync is able to continue advancing technology for patient safety in the coming years. **FH**

DEBORAH LEPMAN is a nursing leader with over 31 years of experience. Her background is in emergency and critical care nursing, including 27 years of progressive management level experience in healthcare institutions. She has served as the department director for the cardiac critical care units at Hoag Memorial Hospital Presbyterian since 2000. Prior to that, she was the department director for the cardiac critical care units and the respiratory department at Mission Hospital Regional Medical Center. She earned her master's degree in Public Health at Columbia University majoring in Health Administration. Ms. Lepman is a member of AACN and frequent poster presenter at AACN's National Teaching Institute (NTI).



MARY BYLONE is a nursing leader with over 25 years experience. Her clinical background is in critical care nursing and she is extremely active in the American Association of Critical Care Nurses (AACN) at the local, regional and national level. She is a frequent lecturer and author on topics in leadership, patient safety, time management, human resource management and the Healthy Work Environment initiative from AACN. She completed her master's of Science in Management from Thomas Edison State College and has a post graduate certificate in Human Resource Management. She started her healthcare career as a surgical technician and currently is the Assistant Vice President, Patient Care Services at The William W. Backus Hospital in Norwich, CT.