

The LifeSync Wireless ECG System

a report by

LifeSync Corporation

The LifeSync® Wireless Electrocardiogram (ECG) system is designed to improve patient safety and hospital productivity in order to deliver better patient outcomes and lower costs for hospitals. The system collects the patient's ECG data and transmits these data between the patient and bedside/transport monitor or diagnostic device with a universal, wireless link that is compatible with many ECG devices. As a result, many patient care activities—such as patient transport, ambulation, turning the patient, and serial 12-lead acquisition—can be done more quickly and safely.¹ The wireless patient transceivers are capable of transmitting three-, five- or 12-lead ECG signals up to 30 feet away from the monitoring device, enabling a new degree of patient mobility over a hard-wired system. The base transceivers can connect to most monitoring devices through the existing ECG trunk cable and lead set. In addition, the system uses a LeadWear® Disposable that replaces traditional, reusable ECG lead wires with a single-patient-use ECG sensor array. This can help reduce the risk of hospital-acquired Infections (HAIs) by eliminating the possibility of cross-contamination from reusable ECG leads.² The single-patient-use LeadWear Disposable uses standard, detachable, disposable snap electrodes for attaching to the patient's torso, which enables electrodes to be repositioned and replaced without having to discard the single-patient-use LeadWear. For applications where the wireless transceivers are not indicated, LifeSync offers adaptors that are compatible with most ECG trunk cables. These adaptors connect the LeadWear Disposable directly to the monitor. LifeSync has been delivering its Wireless ECG system to US hospitals since 2004.

Figure 1



Patient Safety Benefits Seen When Using the LifeSync System—Hospitals Report Dramatic Improvement in Reduction in Nuisance ECG Alarms

The LifeSync Wireless ECG System uses a unique, patented LeadWear design, which improves signal quality by eliminating interference and by maintaining excellent electrode contact. This results in potential reductions in nuisance alarms and unscheduled time off monitor. An Advocate Lutheran Hospital study documented a 37% decrease in false alarms and 14% increase in true alarms³. More accurate alarms can improve the quality of care and reduce the risk of adverse events by improving the vigilance of care-givers. A Florida hospital documented reductions in unscheduled time off monitor as high as 90%, and alarm

accuracy improving from 30 to 87%.⁴

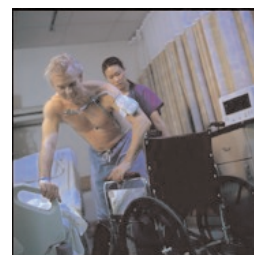
Hospitals Report Dramatic Reductions in Infections

By using the LeadWear Disposables, the LifeSync Wireless ECG System eliminates contact between patients and reusable ECG leads, which have been found to harbor antibiotic-resistant pathogens. Studies have shown that as many as 77% of lead wires continue to harbor pathogens even after reprocessing⁵. Departments that have implemented the LifeSync ECG System as part of their infection bundle have documented a significant reduction—and in some cases elimination—of certain hospital acquired infections.⁶

Improved Hospital Productivity

The LifeSync System can follow a patient throughout the continuum of care, from the emergency department through transport to critical care areas, procedure rooms, and step-down units. The same patient transceiver can communicate ECG data with different monitor transceivers, thus eliminating the need to disconnect and reconnect patients from one monitor to another or removing and replacing ECG wires between departments and devices. For example, a patient being monitored at the bedside can have a 12-lead diagnostic test performed from a cart-based ECG machine while simultaneously being monitored via five-leads at the bedside—without any ECG cables running from the cart or the monitor. When the patient needs to be moved to a different monitoring location, the patient transceiver is simply synchronized with the new monitor via a key-like 'token,' without the need for removing and replacing any leads. LifeSync calls this unique ability Sync'n Go. In settings such as the emergency department, the Sync'n Go feature can potentially reduce door-to-balloon ST-segment elevation myocardial infarction (STEMI) times and save valuable heart muscle by reducing the time required for serial 12-lead acquisition.⁷ Furthermore, since patients are no longer tethered to a monitor, they can be ambulated more easily and safely. Clinicians can also save time by not having to manage a tangle of ECG leads as well as dealing with lead-off alarms when treating the patient. A study by The Lewin Group found that the nurses in their study group saved an average of three hours per patient stay by replacing reusable leads with the LifeSync ECG System.⁸ Time saved managing wires and wire-related alarms can be spent caring for patients instead.

Figure 2



Cost Savings

Public and private payers are now refusing to reimburse hospitals for certain kinds of HAIs, which places an additional burden on hospital balance sheets.⁹ Even a slight reduction in infection rates can help reduce the costs of treating these infections. In fact, some LifeSync users have reported reductions of 30% or more after implementing the LifeSync Wireless ECG System as part of a comprehensive infection bundle, with significant cost savings as a result. A Norwich, Connecticut hospital

reported a 12-month net savings in one ICU of over \$200,000 while also effectively eliminating central line infections in the unit.¹⁰ In addition to helping reduce costs associated with HAI's, the LifeSync ECG System can contribute to cost savings as a result of fewer nuisance alarms, the hard costs associated with those alarms, time saved during patient transport, and other productivity improvements.¹¹ All of these benefits can save valuable time that can be redirected to better patient care. Improving patient safety and quality of care can help hospitals meet their pay-for-performance quality objectives and reduce liability risk and the costs associated with that liability.¹²

Figure 3



Any hospital interested in the LifeSync Wireless ECG System will be given an opportunity to clinically evaluate the system and document for themselves the impact on patient safety, hospital productivity and infection reduction. The company's sales representatives and clinical specialists are available to provide a custom consultation and demonstration of the System. Please call 866-ECG (324)-3888 or visit www.lifesyndcorp.com. ■

1 The Lewin Group; The Potential Benefits of a Wireless Electrocardiogram System for Inpatient Care, October 15, 2002

2 Gandhi, Hetal; Sharma, Sonia; Gilski, Donna; Beveridge, Rebecca & Patel, Parag. Investigating Electrocardiography Lead Wires as a Reservoir for Antibiotic-resistant Pathogens. 9th Scientific Forum on Quality Care and Outcome Research in Cardiovascular Disease Stroke. Advocate Lutheran General Hospital, Park Ridge. January 18, 2008.

3 Gandhi, H, Sharma S, Gilski D, Beveridge R, Kantoria D, Davis N, Patel P. Optimizing Bedside ECG Monitoring with a Disposable Wireless System, AHA Scientific Sessions, Advocate Lutheran General Hospital, Park Ridge IL, November 2008.

4 Brown, Donna Q.; Anderson, M. A. LifeSync Wireless ECG Reduces Time Off Monitor by 90% and Provides 87% Alarm Accuracy. LifeSync Corporation White Paper, 2008, LS-987

5 Jancin, B. (2004, March). Antibiotic-resistant pathogens found on 77% of ECG lead wires. Cardiology News. Vol 2.

6 Furtado, Debra L.; Heard, Robin; Kaye, Pamela & CO-Connor, Sharon A. When Is Accomplishing Zero Outstanding? Poster Presentation: American Association of Critical Care Nurses National Teaching Institute.

7 Signed statement by Deb Usselman, RN, MSN, JD, Director of Acute Inpatient Care Services, St. Anthony's Hospital, St Petersburg, FL; dated 8/13/08. LS-1017

8 Lewin Group, 2002.

9 Foley & Lardner LLP CMS Releases Proposed Changes to the IPPS and Fiscal Year 2009 Rates, Health Care Legal News Alert: Foley & Lardner LLP Attorney Advertisement 05/2008.

10 Furtado, Debra L. RN-BC, BSN, MA; Leaders Making a Change Through the Use of Knowledge and LifeSync Technology. Presented to NTI on 5/7/2008.

11 Lewin Group, 2002.

12 Furtado2, 2008.

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