A Disposable Wireless Electrocardiogram Monitoring System Designed to Reduce Healthcare-associated Infections

a report by
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Today, healthcare-associated infections (HAIs) continue to have an impact on both reimbursement for healthcare providers (HCPs) and the way in which HCPs are held accountable for patient care. In spite of efforts to decrease the number of HAIs in acute care settings, an estimated 4.5 million patients are exposed to HAIs and 2.5 million patients develop HAIs in the US each year.1 Annually, this results in 90,000 deaths and over $5.7 billion dollars of additional healthcare costs.2 HAIs are a major concern to infection control practitioners in acute care and outpatient settings. Adequate nurse staffing, compliance with proper hand hygiene, environmental factors associated with medical equipment, and improved surveillance of HAIs are strategies being used to improve patient care outcomes and reduce the incidence of HAIs. The purpose of this paper is to discuss infection control practices for the environment, provide evidence about electrocardiogram (ECG) lead wires and monitoring device systems (wireless versus non-wireless), and discuss innovative technologies that may reduce cross-contamination between monitored patients.

Prevention of HAIs in acute care facilities has been complex. Several studies3,4 have been conducted to demonstrate that the surfaces of medical equipment, and improved surveillance of HAIs are strategies being used to improve patient care outcomes and reduce the incidence of HAIs. The purpose of this paper is to discuss infection control practices for the environment, provide evidence about electrocardiogram (ECG) lead wires and monitoring device systems (wireless versus non-wireless), and discuss innovative technologies that may reduce cross-contamination between monitored patients.

Infection Control and Electrocardiogram Monitoring

An early study conducted by Soklaski8 demonstrated that cross-contamination occurred from patient to patient via a 12-lead ECG lead wire feature also allows for decreased hand-to-skin contact by HCPs by eliminating the need to re-adjust monitoring leads during transport, diagnostic testing, or a 12-lead ECG.

LifeSync Technology

One way to combat cross-contamination of ECG lead wires and enhance infection control practices is to develop innovative technologies that provide ‘single use’ and ‘remote monitoring.’ Both of these principles have been developed by LifeSync Corporation, which uses Bluetooth® technology to monitor patients without the need for ‘tethered’ lead wires. The Bluetooth wireless technology provides two-way communication between the patient and a monitor station and allows mobility of the patient both within and outside the immediate hospital unit. Other advantages include the radioluency of the ECG electrodes, which allows patients to continue to be monitored while undergoing diagnostic procedures such as X-ray or fluoroscopy. Additionally, a 12-lead ECG can be completed while continuously monitoring the patient without attaching additional ECG wire leads. Using the LifeSync monitoring system has a direct impact on HAIs since the disposable system is used once only. HCPs do not need to attach or re-attach lead wires during the patient’s hospital stay, nor do they need to clean or decontaminate re-usable lead wires. The disposable single-use lead wire feature also allows for decreased hand-to-skin contact by HCPs by eliminating the need to re-adjust monitoring leads during transport, diagnostic testing, or a 12-lead ECG.

Use of Wireless versus Non-wireless Monitoring for Infection Control

Currently, the new wireless (LifeSync Corporation, Fort Lauderdale, Florida) ECG lead wire monitoring system has demonstrated positive...


