

Why Hospitals Cannot Function Properly Without A Synchronized Clock System

A White Paper by The Sapling Company

In the ever growing healthcare industry, “wasting time” is not a phrase heard often. In fact, medical facilities struggle to keep up with the day-to-day operations of patient care and hospital maintenance. Due to this lack of downtime, and the integral function of time in health services, hospitals find themselves entirely reliant on clocks dispersed throughout their facilities. When doctors, nurses and other personnel perform medical practices, they are constantly recording time in order to provide rapid and punctual service. The vital role of time, therefore, requires that health care providers effectively, efficiently and precisely use time in every aspect of service. There are four major reasons medical practices should consider; technological issues, medication dispensation, surgery issues, and daily appointment scheduling.

Technological Issues

Hospitals are facing constant challenges to meet the needs of patients. Outdated technologies within old clock systems are unsafe and unreliable for patient care. Lack of system effectiveness puts the hospital at risk in the event of time error while keeping accurate records not only enhances the care a patient receives, but also protects the hospital against any legal issues that may arise. Staff becomes liable for mistakes and hesitant to perform risky procedures while patients lose confidence in the care they are receiving. Failure to implement a trusted source of time may diminish work ethic and healthcare quality.



Medication Dispensation

When dispensing medication, time is of the utmost importance. Not only must staff determine what medications can be used with others and the proper dosage, they must also consider the intervals of medication dosages. In order to properly track the dispensing of medications to patients, doctors and nurses alike must accurately record the time of each dosage when administered. Mistakes are easily made when employees dispensing medications are forced to rely on their personal watch or cell phone because there is no uniform time displayed on the clocks throughout the hospital. Considering the frequency at which patients rooms are switched (for space or additional care), synchronized clock systems are the only way to guarantee the reliability of patient records. This eliminates timing errors and health hazards that could otherwise occur from administering medication in one room and then administering the next dose in another.

Fact: Approximately one in five medication doses hospitals administer are done so in error. The most common error is dispensing medicine at the wrong time.¹

Surgery Issues

Time is extremely significant for operating rooms. Surgeons and anesthesiologists must spend hours upon hours performing a large variation of surgeries on multiple patients every day of the week. One major concern for anesthesiologists is administering the proper amount of anesthesia at the correct time intervals. Also, because insurance companies generally cover all or part of the cost of surgery, the length of surgery is imperative to reporting and getting proper coverage for patients. Benefits of using a synchronized clock system include the ability to have six (6) digit digital clocks for precise time records, a countdown display on digital clocks to ensure proper administration of anesthesia, and an elapsed timer feature in the event of a Code Blue event. Surgical staff will find the use of digital clocks and timers most beneficial in this field, making the system essential to the time-sensitive aspects of surgeries.



Fact: In 2000-2002 alone, approx. 24% of at risk patients developed complications due to anesthesia in America.²

Daily Appointment Scheduling

Being on time is everything in a medical facility. The scheduling of appointments and surgeries and staff shift changes happen constantly throughout the day. Failure to meet with patients, start a shift or begin surgeries on time have serious implications on hospital functionality. Due to the serious nature of many medical conditions that must be treated, neither the patients nor the staff can afford to waste valuable time. To ensure the continuous flow of various scheduled activities in a hospital, every room, hallway, wing or building must have synchronized clocks based on an accurate time source. Since much of society now runs on the precise time received from technology such as cell phones and computers, the same accuracy is expected within a professional health institution.

Fact: A survey published in 2007 found that longer waiting times are associated with lower patient satisfaction.³

The Sapling Answer

To solve time issues in hospitals such as those mentioned, the use of a synchronized clock system with master clock capabilities significantly eliminates the errors that are made in the rush of medical services. Such a clock system will ensure that every clock in a facility displays the same accurate time and can be controlled from one location. Sapling's Master Clocks are capable of more advanced features, such as automatically updating for Daylight Saving Time, and are connected to highly accurate time, preventing any clocks from drifting from the correct time.

The implementation of Sapling Wireless Clocks, for example, is an easy and affordable solution to the time issues of a hospital. Sapling's Wireless Clock System uses a license-free, patented frequency hopping technology to synchronize every clock within range and requires no wiring expenses. Just insert two D-cell batteries and hang them to the wall. When powered, each clock will both receive a time signal and send it back out, creating a mesh network throughout a facility to ensure signal coverage. The Sapling SMA Series Wireless Master Clock retrieves its time from either an (S)NTP Server or GPS receiver to guarantee accuracy. For retrofitting with older systems, the SMA Series Master Clock is also capable of controlling both newly installed wireless clocks and older wired systems.

Sapling's Wireless system remains ideal for virtually any occasion. In the event of a power outage, all wireless analog clocks will continue to function on their battery power and automatically synchronize when power has been restored to the master clock. The Sapling Web Interface makes it easy to monitor and edit any master clock settings, keeping maintenance proactive and monitoring hassle-free.

What differentiates Sapling's Wireless Clock system from others in the industry? Aside from Sapling's reputation for producing products of the finest quality and durability, there are significant technological differences in its products that set it apart from competitors. For instance, unlike an average clock system, each secondary clock in Sapling's Wireless Clock System comes with a repeater built inside of it. This not only increases the allowable distance between secondary clocks, but also saves a considerable amount of money that would otherwise be spent on purchasing individual repeaters to ensure a facility's clock system has complete signal coverage. Contrary to what may be expected, this will not interfere with the connection of other devices in a building. Sapling's SMA Master Clock, which is also the main transmitter in the wireless clock system, possesses a frequency hopping technology. This patented technology allows for the SMA Master Clock's time signal to be transmitted to the on multiple channels for a very short period of time to eliminate the chance for interference. This ensures optimal time synchronization without sacrificing the quality of any existing wireless connections.

Sapling offers both digital and analog wireless clocks that can be used simultaneously. When looking for a traditional feel, analog clocks, available in both round and square, are ideal in patient rooms, hallways, cafeterias and waiting areas. When brightly lit, easily-read clocks are needed in places like surgical rooms, Sapling Digital Clocks are the perfect choice. Digital clocks come in either four or six digit displays and are available in 2.5" and 4" high digits. Perhaps the best feature the digital clocks have to offer a hospital facility is their elapsed timer capabilities. With the installation of Sapling's Elapsed Timer, users can interface with the digital clock to start both countdowns and countups. This is extremely useful and convenient in operating rooms for Code Blue situations. Because both analog and digital clocks may be used on the same system, there is no limit to the combination of clocks desired.

Medical services provided by hospitals put a heavy burden on time. Assuring that hospitals are efficient and effective with their time management protects both patients and staff. Drawbacks of an ineffective time system in a hospital can include accidental overdose or lack of administering medications, failure to reach a patient in time or even unacceptable surgery durations and use of anesthesia. Such occurrences may cause the medical facility to be liable and vulnerable to malpractice suits. Having synchronized clocks throughout a facility not only allows everything to run smoothly, but also minimizes mistakes and can potentially even help save lives.

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1. "Medication Errors Observed in 36 Healthcare Facilities," Archives of Internal Medicine, 2002;162:1897-1903, http://www.datarayusa.com/index.php?option=com_content&view=article&id=82&Itemid=106
 2. Patient Safety in American Hospitals, Health Grades 2004, http://www.wrongdiagnosis.com/s/surgical_errors_complications/stats.htm
 3. "Willing to wait? The influence of patient wait time on satisfaction with primary care". BMC Health Serv Res. 2007; 7: 31, <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1810532/>