

Sonitor and Cetrea: tracking clinicians to improve the work flow in the emergency ward

Highlights:

- Precise real time location of every clinician in the ward
- Integration with Cetrea Emergency provide the staff with the complete overview
- Provides a tool for better overview, communication and coordination
- Decreases the amount of time wasted locating other staff members

At a hospital it is critical for the staff that they are able to locate each other precisely. - it's paramount in order to ensure the best, most effective and timely treatment of the patients. Using the ultrasound-technology developed by Sonitor, Cetrea has developed a system that provides the staff with a real time overview of the staff and other resources.

Harry Potter's map in the emergency ward

In the Harry Potter movies Harry is often seen using his "Marauders Map" that shows a real time overview of everybody's location at Hogwarts. At the Regional Hospital of Horsens, Denmark, the emergency ward is part of a project that provides the staff with almost the same kind of "magic" map. Combining advanced ultrasound-tracking and the ward's clinical logistics solution from Cetrea, the staff can now locate each other with a quick look at the large touch screen displays. Instead of trying to locate each other by phoning around and disturbing others in their search, the staff can now see the exact location of every clinician in the ward.

Case Study by



"The tracking works really well. We experience a lot less interruptions and less confusion in our daily work, since the implementation of the system."

- Chief Physician, Regional Hospital of Horsens, Denmark.

The treatment of each patient involves a number of different doctors, nurses and other staff and the process of coordinating and trying to keep everybody up to date through the course of the treatment required a lot of work. A lot of time has been spent fruitless and with disturbing phone calls between the staff. Time that could have been used treating the patients. The purpose of the tracking system is to reduce this kind of wasted time to a minimum.

We are saving a lot of steps and time, because it's much easier locating the people you need and avoid unintentional disturbances.

- Nurse, Regional Hospital of Horsens, Denmark.

The pilot project in Horsens

In 2003 the Regional Hospital of Horsens began developing a new system that was to improve the overview for each clinician together with the coordination and communication in the departments together with ph.D. students from Aarhus University. The goal was to create a tool that would optimize both the patient flow and the work environment.

The results are visible all over the hospital today; large interactive touch screens have replaced whiteboards and notes, keeping everybody updated on everything related to the treatment of each patient and the situation in the departments. The solution has been marketed by Cetrea since 2006 and is now in use in more than 80% of the Danish hospitals.

In 2011 the Regional Hospital of Horsens was ready to take the next step in the effort to develop new tools to improve the work flow. In cooperation with Cetrea, a pilot project was introduced in the emergency ward that combined the ultrasound

tracking technology from Sonitor with the Cetrea system. Now every clinician is equipped with a tracking chip that transmits their position whenever they enter the emergency ward.

The location of each clinician is displayed underneath a portrait of the clinician along with their contact information on the large screens situated around the department. The system is also accessible on smart phones and notebooks in offices etc.

The goal is to drastically reduce the time spent by staff trying to locate other staff members or phoning and disturbing others in their work.

Behind the technology used

The technology behind the ultrasound tracking used in Horsens has been developed by Sonitor Technologies. Sonitor was founded by Dr. Ole B. Hovind in 1997 and since then the company has specialized in developing real time location tracking technology for use in health care environments.

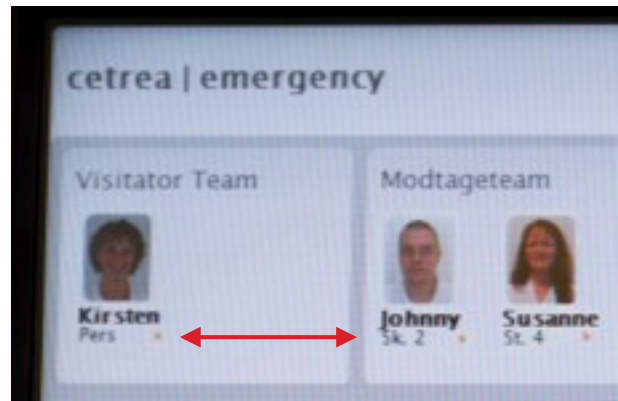
The ultrasound chips provided by Sonitor makes it possible to locate staff with sub-room accuracy without risk of interference with other medical equipment.

It was decided to install ultrasound receivers in all work related rooms in the emergency ward. Toilets and other private function rooms are not covered by the tracking system. 24 receivers were installed (see illustration on next page) in the department in total. The ultrasound chips - or *tags* - are personal and the clinicians place them in their pocket in the beginning of their work day. Whenever they enter a location with an ultrasound receiver, their position is immediately displayed in the Cetrea system.

The Cetrea system - *Cetrea Emergency* - already has the information hub in the emergency ward that the clinicians turn to to orientate themselves about the work flow and their patients and colleagues.

Now they can also easily locate their colleagues and choose the appropriate action in every situation.

The next step in Horsens is give tags to each patient upon arrival at the emergency ward. This way it will no longer be necessary to make a manual update whenever a patient is moved between rooms in the hospital. Important equipment can also be equipped with a tag and be tracked, so that the staff always can find a defibrillator and such with one look at the Cetrea screens.



being used in Horsens, it was important to clearly define the areas in which tracking was used. Rooms that are not relevant, such as toilets are not included in the tracking system. Furthermore, none of the tracking is stored and cannot be used to monitor the members of the staff by the management for example.

It is clear to the staff that tracking is a practical tool that replaces time wasted in search of others with time available for more patient care.

“It’s difficult for me to see this tool as some negative in any way. It has so many advantages and it can’t really be used as a surveillance mechanism at all.”

- Nurse, Regional Hospital of Horsens, Denmark.

Whenever new employees hear about the tracking they initially think that they are being monitored, but they quickly realize that is not case. They quickly become really fond of the possibility it provides.

- Chief Physician, Regional Hospital of Horsens.

Surveillance or a practical tool?

Tracking can easily be associated with privacy issues and fear of surveillance. To avoid any misunderstandings of how the system works and is



Blue print showing the emergency ward at the Regional Hospital of Horsens.

The blue circles represent ultrasound receivers.

The red crosses are tags - staff wearing ultrasound chips walking around in the ward.

The ultrasound receiver transmits the location data in real time to the Cetrea Emergency system.

Technologies that melt together is the future

Technology is our “magic” today. Fantastic ideas like the Marauders map from Harry Potter can inspire us to make new innovative tools using modern day technology. Tools that can save time and resources in environments where such things are limited.

To handle the ongoing demographic changes in the western world, hospitals needs to do more with less. Technology, however, can be used to ensure that this process does not affect the quality of care. What is needed is technology that takes care of work processes not directly related to the treatment of the patients. Work processes that used to be handled manually by humans, thereby wasting time and energy on non-treatment actions.

This pilot project is an example of how available technology can be combined to create tools that improve work flows and empower the clinicians to concentrate on what is important, the patients care.

The perspectives are interesting. I think it could be really beneficial to track our key equipment and the patients, because they are often transferred all around the hospital.

- Chief Physician, Regional Hospital of Horsens.



About Cetrea

Cetrea is the leading provider of clinical logistic solutions for health care. Cetrea's solutions are based on the latest research and technological advances. The solutions are easy to use and designed to be used by clinicians in stressful situations. The solutions are all found to improve the productivity, efficiency and patient safety through an improved work flow. Cetrea works extensively with working clinicians to develop products that can improve the overview, communication and coordination around the hospital.

As a Danish company Cetrea has a market share of more than 80% of the hospitals in Denmark and are expanding to the rest of Europe.

For more information about Cetrea please visit www.cetrea.com

About Sonitor

Sonitor Technologies is the innovator and world leader in ultrasound-based Real Time Locating Systems (RTLS) for healthcare. The company develops and manufactures an RTLS platform that provides proven room and sub-room accuracy in complex healthcare environments such as hospitals and long-term care facilities. Sonitor's system integrates seamlessly with application software from leading hospital information technology providers.

For more information about Sonitor and ultrasound-based Real Time Locating System (RTLS) technology, please visit www.sonitor.com