

Liberty - Bed Management

Optimizes Patient Bed Turnover
at
Bern Inselspital Hospital
Bern, Switzerland



Historic Bern Inselspital modernizes hospital bed deployment & cleaning using Elpas active RFID/RTLS asset tracking technology from ER Systems and Visonic Technologies.

Overview

Serving more than 220,000 patients annually, Bern Inselspital is one of Europe's largest, tertiary care centers serving the city of Bern, the fourth most populous city in Switzerland (after Zürich, Geneva and Basel). With a tradition of more than 650 years, Inselspital today, is an internationally acclaimed clinical care, teaching and research hospital operated by the University of Bern.

Annually, Bern Inselspital admits more than 50,000 patients and handles over 170,000 outpatient visits. Like many other European medical centers of its type Inselspital over the past few years has been dealing with, a combination of conflicting pressures stemming from increasing admission rates and declining length of stay averages caused by aging population demographics.

Based on its core mission to provide the best treatment to patients, senior management recognized the pressing need to improve inpatient throughput in order to yield increased medial capacity. Completing an internal operations and capacity audit in early 2006, Inselspital's board of directors determined that inpatient capacity could significantly be increased by enhancing hospital bed utilization and yield rates.

Prior to the commencing this patient throughput initiative, Inselspital's bed turnover and cleaning processes relied on a manual methodology comprised mainly of scraps of paper, phone calls, building pages plus



excessive foot searches. Given the effort and time lag involved, hospital staffers had no way of knowing in real-time if beds were vacant, needed to be cleaned, unavailable, committed or just 'hidden' (by staff saving them for future use). Similarly, hospital management had no way of knowing how much time the beds actually spent in the preparation unit until they found their way back to the wards.

In mid 2006, the hospital appointed ER Systems SA to install their Liberty - Bed Management System to automate and accelerate the hospital's bed turnover and cleaning processes. With Liberty fully implemented, Inselspital has been able to dramatically increase bed turnover rates while simultaneously reduce its related direct labor costs plus its cleaning and disinfection expenses without compromising infection control or patient safety. Liberty has also helped Inselspital to facilitate ISO audits plus industry guideline compliance as well as mitigate the risk of legal exposure resulting from malfunctioning beds or environmental negligence.

The Business Challenge

Automate the hospital's manual bed management system in order to streamline and accelerate the hospital's bed turnover processes, reduce cleaning costs, improve service quality and increase employee productivity.

The Solution

A Liberty Bed Management Solution from ER Systems based on Elpas active RFID asset tracking technology from Visonic Technologies.

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ER Systems SA, based in Le Landeron, Switzerland specializes in customized RFID tracking and tracing solutions for Healthcare and Security. ER Systems delivers innovative solutions that empower knowledge-based decision making and optimizes performance.

About Visonic Technologies

Visonic Technologies, a fully owned subsidiary of Visonic, Ltd. (VSC.L) is a global leader in enterprise class, active & passive RFID/ RTLS real-time visibility solution for personnel identification and safety; supply-chain logistics, asset protection & facility supervision. More is available at: www.visonictech.com.

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"The efficiency improvement potential represents around 200,000 Swiss Francs over two years."

**Management Director – Bernhard Leu
Bern Inselspital Hospital**

The Implemented Solution

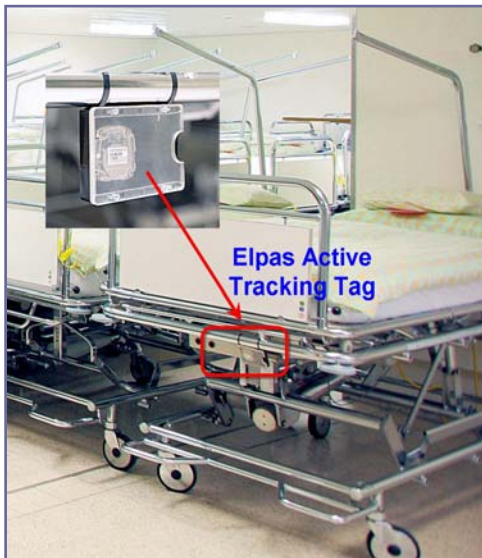
Fully implemented during the first half of 2007, the installed Liberty - Bed Management Solution provides Inselspital Bern with a cost effective workflow automation solution. Liberty enhances the deployment and cleaning of in-patient hospital beds by reducing the length of time dirty beds sit idle and without adding to the workload of hospital staffers.

The Liberty bed system is built upon the Elpas active long-range RFID Asset Tracking tag from Visonic Technologies. Only, 4cm by 3cm (1.5 x 1.18 inches) in size, the tag is designed to facilitate hands-free hospital bed identification and tracking. These



IP64 water rated, medical compliant (EN60601) tags are attached to approximately 1,600 hospital beds. Factory encoded with unique identification numbers the Elpas tracking tags continuously transmits low power, UHF (433.92MHz) beacon type radio frequency (RF) ID and location messages so that the Liberty - Bed Management system can locate any bed down to room level precision.

How Liberty - Bed Management Works



Each hospital bed carries an Elpas Asset Tracking tag inside a protective plastic casing mounted directly above its front wheel assembly. The casing keeps the tag from being damaged should a bed run into a wall or bump an elevator door, while also keeping water and soap away from the transponder during the cleaning process.

Strategically placed wall and ceiling mounted Elpas readers; in the hospital's Bed Centrals and Stocks areas are used to determine the exact room location of the hospital beds in real-time by receiving location messages emanating from the asset tracking tags. Additionally, LF Exciters are mounted adjacent to entry/and exit points outside the medical wards, bed storage areas and cleaning rooms areas so that whenever a hospital bed is rolled near the covered exit/entrance location data is immediately updated by Liberty.

Once a patient has been discharged and no longer needs a bed, authorized transport personnel bring the bed into the hallway, where it is eventually wheeled to an elevator and taken to the basement. Upon arrival at the basement, the beds are taken to a central holding room. From there, workers push the beds past a wall-mounted Elpas reader, which reads the bed tags.

As each bed enters the hospital's preparation unit



its repair data and maintenance history is visually displayed on Liberty's touch-screen interface. Liberty's touch-screen interface is also used to inform environmental staffers how to clean the beds and to also document the subsequent sanitizing actions actually performed. Once cleaned, the bed is prepared for the next patient and put into stock. Again Liberty is updated by the system's touch-screen interface so that hospital administrators can always know the number of available clean beds.

Easy to Use

Liberty's software is easily installed on the appropriate host computers and workstations in a client-server configuration. Medical, transport and environmental personnel see only the menus and commands they need in an easy-to-use, intuitive MS Windows based touch-screen interface. Additionally, deactivating/reactivating tags for medical and or administrative needs involve no more than a password and a click of the mouse. Staff members can perform bed searches or follow the movements of a particular bed in real-time. All system transactions are password protected, time and date stamped and logged into Liberty's database on the server machine enabling historical reports to be generated that identify and log all bed transfers throughout the hospital.

Each Elpas tracking tag also incorporates a magnetic low frequency (LF) Receiver that adds chokepoint area detection so whenever a tagged hospital bed nears an exit/entrance covered by an Elpas LF Exciter a location notification is automatically generated and logged by Liberty.

Rule-based location monitoring, also enables Liberty to clearly identify and log all authorized beds transfers throughout the hospital. Additionally, Liberty also provides hospital administration with real-time data regarding which beds are occupied, currently available or needing to be cleaned. Liberty also keeps track of repair data and maintenance intervals for each bed and displays this information automatically as soon as the bed enters the hospital's preparation unit.

Since the success of its bed management initiative, Inselspital's board of directors has come to realize the full potential of active RFID/RTLS technology. As such, Inselspital currently views Liberty as an enabling technology rather than only a single-purpose platform. This rethinking is shaping the hospital's drive to leverage their Liberty capital investment by transforming platform into a 'Unified Safety and Asset Tracking' solution, fully capable of also handling the hospital's growing Wandering Patient challenges.

"Liberty with ELPAS tracking technology was very well accepted by hospital staff, thanks to its long-range detection capabilities & real-time responsiveness."

**Tobias Britz-CEO
ER Systems SA**