Healthcare Supplier Awards

## Cadi Scientific Pte Ltd

# TTSH SmartSense MDI

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## Background

TTSH has been using Cadi's SmartSense system since 2006. All inpatients are tagged with a ThermoSensor (2-in-1 RFID tag) that measures their temperatures automatically and tracks their locations in real time. Cadi's SmartSense system includes other functions such as vital signs dashboard, vital signs data entry and vital signs charting as well.

Over the years, the system has helped relieve nurses of the task of manual temperature taking. Additionally, by providing timely patient location information to the hospital's information system, bed management process (from admission to discharge) has also been improved.

However, in order to complete the task of vital signs measurement and data entry at the patient bedside, nurses have to wheel 2 sets of machines (a spot check machine and a computer cart) to the bedside, operate the spot check machine to take the vitals, and finally operate the computer to perform data entry.

In 2011, TTSH decided to engaged Cadi to develop a Medical Device Interface (MDI) system to automate the above process.

Before MDI was implemented, nurses had to wheel a computer cart and a Dinamap to patient bedside

After MDI is implemented, nurses simply wheel a Dinamap with MDI tablet to patient bedside

## Execution Strategy

An iterative development process was adopted. After working with TTSH's nursing team in the first round of requirement gathering, a prototype was developed and piloted. Feedback from users were sought, and the project team made some substantial changes to the system to match users' additional or revised workflow requirements. Eventually, after several such iterations, the development effort incurred exceeded Cadi's development budget by some 30%. Nevertheless it was effort well spent.

In February 2012, the SmartSense MDI module was successfully implemented hospital wide. Notably, more than 300 Dinamap spot check machines were deployed with SmartSense MDI.

## Benefits / Achievements

With a scan of the patient's wrist band barcode and a few taps on the MDI tablet PC (mounted neatly on the Dinamap rolling stand), all readings taken from Dinamap and other nursing remarks are now uploaded automatically to the right patients' record and plotted onto the digital clinical chart in SmartSense system.

**MDI saves nurses' time**

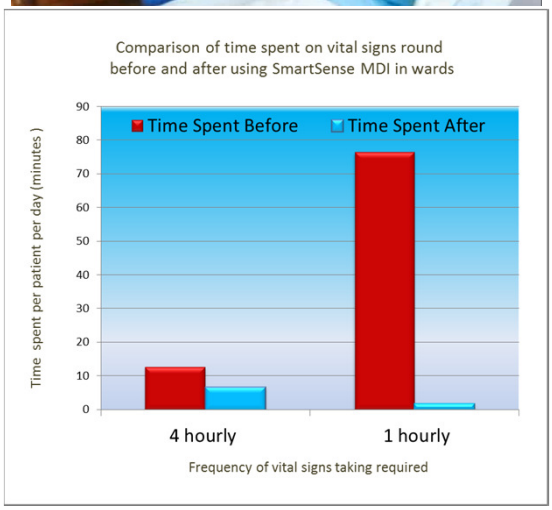
Inpatient nurses have saved 48% of their time spent to record a patient's vital signs readings, from 3min11sec in the past, to 1min40sec. Hence, for 4-hourly vital signs rounds, the system will help reduce nurses' time spent by 6min6sec per patient per day. For hourly vital signs rounds, the MDI system will further help nurses save 98% of the time needed or 74min44sec per patient per day!

**MDI improves patient safety**

As SmartSense MDI module also calculates early warning signs score and alerts the nurse at the point of care, senior nurse clinicians are now informed sooner of patients' deteriorating conditions. This has further helped improve quality of nursing care as well as patients' safety.

**MDI saves trees**

The digital data entry, plotting and archival of clinical charts saves the environment too.




## Conclusion

SmartSense MDI module has helped to streamline nurses' parameter-taking process in all TTSH wards, saving at least 140 hours of nurses' time everyday. As a result, nursing productivity has improved.


STRAITS TIMES

TTSH, Spring tie up to boost innovations

THE STRAITS TIMES

Hospitals' winning ways with IT

By RACHEL TAN



## Publicity

During the TTSH-Spring Clinician-Driven Innovation Partnership MOU signing press conference in June 2012, SmartSense MDI system was highlighted as an example of a successful collaboration between TTSH and Cadi Scientific.

The benefits of the system was presented at the Singapore Health & Biomedical Congress in September 2012.

Lastly, the system also contributed to the inaugural HIMSS-Elsevier Digital Healthcare Award in October 2013.

Watch TTSH SmartSense MDI video presented at SHBC 2012



Watch HIMSS Elsevier Award 2013 video