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CGMH, located in Keelung, is one of three facilities that implemented the RFID system in its operating room (OR); the other two facilities are located in the cities of Kaohsiung and Chiayi.

The integration of RFID using PDC Smart Band® RFID Wristbands and Hewlett-Packard RFID PDA readers, handheld readers, and printers make up the system’s hardware framework, complemented by HP’s technology consulting, process design, system development and deployment.

Since the system implementation, CGMH has achieved 100% accuracy in patient identification in the OR—a major achievement in the advancement of patient safety.

New Technology, Optimized Processes

CGMH implemented the RFID patient management system to improve patient safety by verifying and positively identifying patients, gathering real-time data, reducing risk of wrong-site and/or wrong-patient surgery, and ensuring compliance with hospital patient safety procedures or Standard Operating Procedures (SOP).

According to Joseph Ho, CIO at CGMH, the reduction of errors related to oral confirmation and manual entries of patient, medication and specimen ID data, as well as SDP compliance and real-time exception alerts, are major advantages of the system implementation.
RFID System Process

Smart Band is an integral part of the RFID process. The RFID wristbands act as a catalyst enabling patient information to be stored and transferred to and from RFID readers, information systems, and medical devices.

The RFID chip on the wristband contains pertinent patient information including the patient’s name, medical record number, sex, age, and doctor’s name. The passive 13.56 MHz read/write RFID chip provides real-time information updates. For increased patient and data security, select doctors and nurses have access to the password-protected patient information stored on the wristband.

The new RFID system automates many manual functions of the previous OR processes. The diagram shown below illustrates the new OR patient ID process and highlights the areas in which RFID is used to verify data and procedures and to record time-stamps. The system helps verify that the five rights of medication data and procedures and to record time-stamps. The passive 13.56 MHz read/write RFID chip provides real-time information updates. For increased patient and data security, select doctors and nurses have access to the password-protected patient information stored on the wristband.

The system helps verify that the five rights of medication safety are met: Right patient, medication, dose, time, and route, as well as right surgery and surgical site.

RFID System Benefits: 100% patient ID accuracy

CGMH exceeded its objectives and realized numerous benefits from the new system, all of which contribute to the improvement of patient safety. “We have not had any patient identification errors since implementing the new RFID system—a significant accomplishment,” says Ho.

Automating patient data verification processes has saved CGMH medical staff an average of 4.3 minutes per patient. Also, automated data collection has helped prevent common manual data entry errors, which if gone undetected could lead to medical errors.

Storing personal patient information on the RFID chip inside the wristband, as opposed to printing it on the band, maximizes patient privacy, helping to meet both HIPAA (Healthcare Insurance Portability and Accountability Act) and AHA (American Hospital Association) requirements. The system’s real-time reporting instantly alerts medical staff of the patient’s status. What’s more, sequential procedures, including time-stamps, help guarantee SOP compliance.

“The with the new RFID system, the hospital has detailed, accurate information to analyze which processes encounter the most problems so they can develop solutions to manage hospital operations more efficiently,” says Mingpey Chou, HP Taiwan RFID Lead.

“The success of the new system was possible due to the integration of state-of-the-art technology and optimized hospital processes,” comments Chou.

“The most important thing for a hospital to determine when adopting RFID technology is what breakthroughs the technology can leverage in business processes. Working together with PDC, we were able to accomplish this at CGMH.”

The success of the RFID implementation in CGMH’s OR has initiated discussions to expand the technology into neonatal care and management, Emergency Room, and inpatient management services.

In the OR, information stored on the PDC Smart Band RFID Wristband is captured by a hand-held reader for positive identification of patient and medical process data.

This chart lists additional benefits from the RFID system in comparison to the previous, mostly manual, processes used in the OR.

<table>
<thead>
<tr>
<th>PROCESS</th>
<th>RFID FUNCTION</th>
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<td>Wristband preparation</td>
<td>RFID wristband printed with human-readable information and stored information vs. human-readable patient name printed on wristband only</td>
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The seamless process of capturing data from information printed on, and stored, to the Smart Band Wristband has helped CGMH to achieve 100% patient ID accuracy, patient privacy, while saving staff an average of 4.3 minutes per patient.

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Photos courtesy of Chang Gung Memorial Hospital