



## RFID Technology Integration

100% Accuracy in Patient Identification



Chang-Gung Memorial Hospital (CGMH), part of a seven-facility, 8,800 bed health system in Taiwan, developed and implemented a radio frequency identification (RFID) patient management system working with Precision Dynamics Corporation (PDC) and Hewlett Packard Taiwan (HP) to enhance patient safety and streamline hospital procedures.

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<sup>®</sup> 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.

Photos courtesy of Chang Gung Memorial Hospital

### 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 SOP 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.

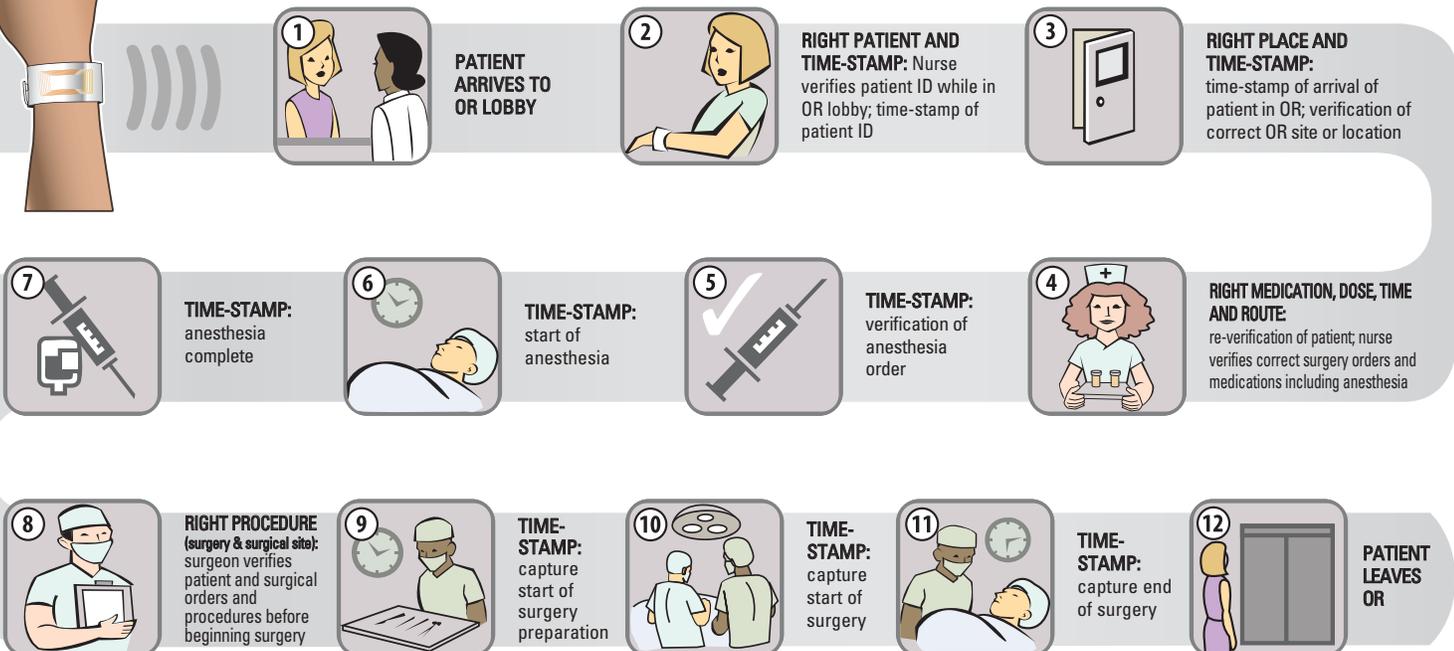
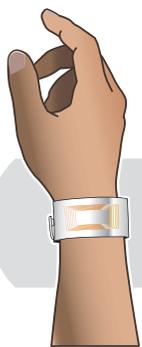
The RFID chip on the wristband contains pertinent patient information including the patient's name, medical record number, sex, age, and doctor's name. The passive 13.56 MHz read/writable RFID chip provides real-time information updates. For increased patient and data security, select doctors and nurses 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 safety are met: Right patient, medication, dose, time, and route, as well as right surgery and surgical site.



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

## PDC Smart Band® RFID System Automates OR Processes



## 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.

"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.

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

PROCESS	RFID FUNCTION	BENEFIT
SOP compliance	Automated vs. manual	100% enforcement of SOP with automated time-stamp and proof-of-action
Operation data-entry	Auto verification vs. manual entry	Automation prevents mistakes and provides real-time alerts
Wristband preparation	RFID wristband printed with human-readable information and stored information vs. human-readable patient name printed on wristband only	Prevents human errors, increases patient privacy, and integrates more information
Integration of information & processes	Automated linking of information from wristband to HIS or medical device	Simplifies and integrates procedures, as well as improves accuracy
Patient status display	Automated, instant status updates vs. manual entry	Real-time updates provide greater accuracy and patient safety

*"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 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.

"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. ■



### About Precision Dynamics Corporation

With 50 years of experience, PDC is a global leader and pacesetter in the development of Auto ID wristband systems for healthcare, patron management, and law enforcement. The company introduced the first patient Bar Code ID Wristband, patented Smart Band® Radio Frequency Identification (RFID) Wristbands, the AgeBand® Electronic Age/ID Verification System, and PDC Smart Kiosk® Cashless RFID System. PDC is committed to 100% quality in service, design, and manufacturing and has ISO-9001: 2000 and ISO-13485: 2003 certification. For more information, visit [www.pdcorp.com](http://www.pdcorp.com).

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