

**Hardin County Jail has upgraded its RFID system with high-frequency 13.56 MHz RFID wristbands, to track every officer-inmate transaction in real time.**

By Claire Swedberg

Mar. 4, 2010—Lawsuits are one of most county jails' greatest concerns when it comes to record tracking. When inmates are injured, fall ill or commit suicide, a jail needs to be able to prove it provided all of the services it could offer prior to that incident, and that it was not in any way negligent. In addition, jails must meet guidelines set forth by government-run departments of correction to prove that services are being provided, and that detainees are being properly monitored. Thanks to RFID-tagged wristbands worn by its prisoners, [Hardin County Jail](#), in Eldora, Iowa, now has a precise electronic record of what services each inmate receive, as well as their physical condition, throughout the day.

Initially, the jail's officers manually tracked each inmate using paper and pen, and input various details—such as that individual's recreation time, head counts and the specifics of any interactions—into the PC, to be stored in the facility's jail-management system. The problem was that the data was often passed through several officers, a great deal of time could elapse before it was entered, and there was no way to prove any stated interactions actually occurred.



*Correction officers use a handheld computer with a CompactFlash RFID reader card to scan the passive RFID tag installed at each cell's doorway.*

"I've walked into a room full of lawyers trying to sort out what's happened [after an incident such as a suicide]," says Nick Whitmore, Hardin County Jail's administrator, "and for a jail that tries to address that without good documentation... they've got a problem."

Hardin County Jail, which can accommodate 107 inmates, had gone through several technologies, beginning with a simple push button in each cell to indicate an officer has entered that cell. The push-button system was then replaced by a bar-coded label above a cell door, which officers read with a bar-code scanner each time they entered. The problem with such solutions, according to Whitmore, was they do not provide any more detail than the fact that the officer was at the cell.

In 2005, Whitmore began working with technology startup company [Codex Corp.](#), which sells a product known as Guardian RFID. He liked the idea of RFID technology, and agreed to try the new system at his jail. At the doorway of each cell, as well as in other key locations throughout the facility, Codex installed an RFID tag built into a tamper-proof metal plate, and provided the jail with [Trimble](#) Nomad handheld computers with [Socket Mobile](#) CompactFlash RFID reader cards to scan those tags. Each tag, manufactured by Codex, with an [Texas Instruments](#) high-frequency (HF) 13.56 MHz RFID inlay compliant with the ISO 15693 standard, is encoded with a unique ID number associated with a cell number in Hardin County's jail-management system. The system also contains a list of all inmates assigned to each cell, along with details regarding every detainee's health, behavior and medication needs.

Before an officer entered a cell, he would first read the tag at the doorway. The screen on the handheld device would then display a list of the inmates assigned to that location, and if he so chose, the officer could select a particular name and follow prompts to indicate that person's condition, as well as what services the officer was providing to that inmate, including dropping off mail, taking him to the recreation area or providing medication. According to Ken Dalley Jr., Codex's president, that information was sent via a Wi-Fi connection to Codex's Web-based server, which received that data and interfaced with Hardin County's jail-management system, thereby first linking that inmate's ID number and his data, and then making it available on the jail-management system, on the county's server, in real time. The software also provided an alert system to warn officers of events that needed to be addressed—if, for example, an inmate was given a shaving razor that needed to be retrieved after a specified amount of time had elapsed.

This was an improvement over the manual or bar-code system, but typically, officers merely read a cell's tag for a service provided to all the inmates inside, and did not record the individual interactions between each inmate and the officer.

With the Clincher RFID wristband, manufactured by [Precision Dynamics Corp.](#) (PDC), the jail can now store more details about each individual detainee's care, Whitmore says. When an officer enters a cell, he first reads the plate tag at the doorway, to indicate he has arrived at that location. He then reads an individual inmate's wristband tag. The ID number on that prisoner's tag is sent via the Wi-Fi connection, along with the date and time, to the Guardian RFID software, which uploads the inmate's name, history and mug shot to the officer's handheld device, using the Guardian Mobile software. The officer then presses prompts or uses the alphanumeric keypad to input specific data about that particular transaction, such as delivering mail, or taking a head-count. The officer can also input details regarding the prisoner, such as whether he is sleeping, whether he was compliant, and whether there was a favorable interaction.

When the inmates are taken out of the cell for their daily recreation time, the officer scans each cell number, escorts the group to the recreation area doorway, and then scans each wristband as the detainees pass through on their way to recreation. In this way, the system knows exactly when each

inmate goes to recreation, and then—as the practice is repeated when each prisoner returns to his cell—when the recreation period ended. If an inmate declines to go out for recreation, that request is also input by the officer at the time he reads the wristband, and he then escorts that individual back to his cell. The jail-management system then has a record that the prisoner was taken to the recreation area on a specific day, but declined to enter.

In addition, the wristband can be used for unusual circumstances, such as if a prisoner is on a suicide watch. In this case, by scanning that person's wristband tag each time the officer goes to his cell, and inputting the detainee's condition and details of the conversation, if applicable, the jail can maintain a permanent record of all efforts related to that inmate.

The wristband does not save officers much time, Whitmore says, but it does provide the jail with a greater amount of detail regarding each inmate. Since its installation in December 2009, he says, "The quality of documentation is vastly improved." Prisoners have gotten used to presenting their wristbands to be read during each transaction with officers, he adds, noting that to date, 99 percent of the detainees have been compliant with the system. Moreover, the plate RFID tag at each cell door offers redundancy. Namely, if an inmate refuses to present his wristband, the officer can still select his name from the screen on the handheld device after reading the cell ID tag, and input details of that transaction.

The Guardian RFID system can also be used to track medication administration, Dalley says, thereby allowing employees to scan wristbands to confirm which medicines should be provided, and then input data as to whether a particular inmate took his medication or declined it. This information is received by the Guardian RFID software, and is then transmitted to the jail-management system. The Clincher wristband, which has a read range of 3 to 4 inches, is a variation on the technology PDC provides for applications such as recreation or leisure. In the Clincher's case, says Jim Kopitzke, PDC's manager of technology deployment, the wristband is designed to be rugged, so that it cannot be easily removed. What's more, the device is waterproof so it can withstand showers, dish-washing and other activities that might expose the tag to potentially corrosive water.

The next phase for Hardin County Jail is the installation of fixed [FEIG](#) readers at key portals, such as at the recreation area entrance, the front door and the visitation area. Once the portals are in place this year, Whitmore says, the inmates will simply walk through the portals, and the system will automatically be updated to indicate where each prisoner has gone, thereby providing a record of when he has his recreation period, meets with visitors or is taken out of the jail for court appearances.