

# 6 CONSIDERATIONS WHEN IMPLEMENTING RFID FOR MEDICAL SMART CARTS

Radio-frequency identification (RFID) provides simple, convenient and reliable user identification and access control for medical smart carts and supply cabinets. But not all RFID readers are the same. There are a number of important considerations when selecting an RFID reader for medical applications.

## 1. SECURITY

First and foremost, a medical cart or supply cabinet solution must be secure to protect patient safety and privacy and comply with regulations. The reader should support advanced encryption to reduce the risk of card cloning or data interception. Make sure it provides secure storage for encryption keys so they cannot be compromised. And look for a customizable API to support evolving security requirements.

## 2. CERTIFICATIONS AND COMPLIANCE

Medical carts provide access to regulated drugs, equipment and patient records. An RFID reader used for access control on medical carts or supply cabinets must meet the standards and have the appropriate certifications for the countries in which it is to be sold. Additionally, the reader must not store any data, preventing it from compliance with HIPAA and other privacy standards globally.

## 3. TRANSPONDER TECHNOLOGIES

There are more than 60 RFID transponder technologies in common use around the world, including both low-frequency (125 kHz) and high-frequency (13.56 MHz) technologies. In addition, smartphone- and wristband-based credentialing



systems using BLE or NFC are making inroads into medical environments. Medical smart carts may be sold into many regions globally and used by large hospital networks with multiple locations, each using a distinct RFID card technology. Hospital buyers want to use the same badges they have already issued for building access and other applications (such as single sign-on to networked applications) for access to medical smart carts, supply cabinets

---

and devices. Rather than stocking multiple readers to accommodate all of the transponder technologies in place across a network, it is better to have a universal RFID reader that can read them all.

#### 4. FORM FACTOR

Space may be at a premium in a medical cart, especially if you want to embed the RFID reader for a seamless user experience and streamlined aesthetic. Look for a reader that will fit into the space requirements of the cart with minimal or no design alternations. And should the medical cart design necessitate an embedded system reader module, look for a manufacturer who has a complete portfolio of reader modules and customization capabilities.

#### 5. SOFTWARE CAPABILITIES AND CUSTOMIZATION

Depending on the type of medical cart in use, the RFID reader may need to integrate with hardware systems (such as printers or medical devices) or back-end software. For example, the reader may need to collect and transmit user data over a network to allow centralized tracking of smart cart access and activity, or it may need to be connected to a computer workstation for single sign-on (SSO) to hospital systems. For other applications, it may be desirable to customize reader functionality for a better user experience, such as activating LED lights to provide visual cues for users. The reader software should be robust and flexible enough to customize and support all of the functionality that might be needed, now and in the future.

#### 6. POST-INSTALLATION RECONFIGURATION

Firmware for RFID readers will need to be updated periodically to address emerging security vulnerabilities, introduce new functionality or add

new transponder technologies. A single hospital may have dozens or hundreds of carts deployed at any time—and across a large hospital network, there may be thousands. Rounding up all of these mobile assets to update the firmware on the readers would be a daunting task. A better solution is an RFID reader that supports remote updates through the hospital network. This allows hospital IT to push out updates to all readers at once instead of physically locating each cart to update the readers.

#### Finding the Best RFID Reader for Medical Smart Carts

ELATEC has a full range of [multi-functional RFID readers/writers](#) in various form factors and configurations: with and without a housing, with and without an integrated antenna, and with a variety of hardware communication interfaces for both external and embedded smart cart applications. All of the ELATEC TWN4 MultiTech series readers can read all major transponder technologies used globally, including both LF and HF RFID technologies and BLE and NFC. And ELATEC RFID readers are supported by the most powerful software development kit in the industry for robust customization options.

Interested in learning more about technical considerations for RFID? Download [11 Considerations for Embedded System RFID Readers](#) for additional advice, including operating power and consumption requirements, antenna placement, hardware communication interfaces and more.

Or, **contact us for a customized demonstration** of our user identification and access control solutions for medical carts.