Improving Safety for Surgical Patients with Medical Implants

The idea of creating the Implantable Device Table came in 2015 after the Surgery APRN and RN Clinical Educator were tasked by the Anesthesia Chair to help mitigate the delays and cancellations that the hospital was seeing at an increasing rate secondary to implanted devices.   Research was completed to identify what information related to this issue was already published, with no result(s) found.

To begin the process, the various device types and manufacturers were identified. Second, the information was obtained from each manufacturer's Instructions for Use (IFU). Third was to highlight precautions related to these devices. These include electrocautery (monopolar/bipolar), diathermy, devices that utilize an on/off remote tool, and situations that require a magnet to be placed on the device day of surgery. Furthermore, an "Additional Information" column was created to include nursing instructions and an area to provide local Manufacturer Representative names and contact information. For ease of use, the document was organized in alphabetical order with 2 headings (Device Type / Manufacturer's name). Creation of this table was paramount to keeping both the patient and their device safe during a surgical procedure. Utilizing the table starting in the Pre-Admission Center, to Pre-Post, then operating room, and finally the PACU, has resulted in eliminating delays / cancellations in a Level One Trauma Center with 40,000 surgical cases per year.

Placement of implantable devices has accelerated in the last few decades and become ubiquitous in surgery. Looking at pacemakers, "Over one million cardiac pacemakers are implanted every year worldwide, of which approximately 200,000 are implanted in the United States alone" per J Geriatr Cardiol. 2018 Apr; 15(4): 249–253.   Currently it is common to see a patient with one device, but not uncommon to see patients with two or more implanted devices.

There are more than 31 active implantable medical device types that require specific instructions when a patient is having an elective or emergent surgery. To name a few, pacemakers to synchronize heart beats; deep brain stimulators to treat Parkinson's, essential tremors, or obsessive-compulsive disorder; or the new Inspire used for obstructive sleep apnea.

At a Level I Trauma Center in Peoria Illinois, the device table started in paper form and was implemented in 2015 migrating to the DeviceWise App in 2019. This has been used successfully with zero cancellations day of procedure due to issues with an active implant. In 2021, a hand count of cases with a device present showed that 2.4% of the 40,000 surgical patients had an implant that needed presurgical coordination of care. An updated count in 2023 showed that 4.5% of the surgery population had a device, which equates to a 37% annual increase in patients who present with a pre-existing implantable medical device. Use of the DeviceWise App has resulted in a $1.9 million saving annually at OSF Saint Francis Medical Center in central Illinois.

 In an article in the Peoria Magazine April 2023 entitled *Setting The Table For Innovation*, Dr. Steven Schrader, an anesthesiologist, said "Device Table eliminates any delays involving devices on the day of surgery and standardizes how we're treating all these devices. It really improves patient safety and that's always our major goal, to make sure that we have the safest possible outcome for surgery."

With an increasingly aging population it is forecasted that the number of patients with active medical implants will continue to rise in the future. It is critical to have information of these devices at the fingertips of frontline medical staff to treat patients appropriately. This in turn will save money in delayed/cancelled surgery cases, increase patient satisfaction and ensure that every patient has a safe seamless surgical experience.