Smiths Medical CADD-Prizm PCS II
Ambulatory Infusion Pump

INTERMOUNTAIN HEALTHCARE IS A NOT-FOR-PROFIT health care system with hospitals in Utah and Idaho. The group utilizes the CADD-Prizm PCS II ambulatory infusion pumps from Smiths Medical in all of its hospitals. Three Utah hospitals were under my charge as the manager of acute pain services: LDS Hospital, a 520-bed, level one trauma center in Salt Lake City; Cottonwood Hospital, a community hospital with approximately 200 beds, and Alta View Hospital with almost 100 beds.

System Selection
During the selection process, our clinical technology management department researched the ambulatory pumps on the market, identifying the pros and cons of each device and selecting the best group of devices. An assessment team made up of clinical engineers, pharmacists, nurses, and administrative personnel reviewed each device and quickly narrowed the playing field to three vendors, based on product accuracy, durability, and reliability. After a team of nurses and pharmacists conducted trials with the three front-running manufacturer’s pumps, the choice to go with Smiths’ CADD-Prizm PCS II was nearly unanimous, based on its particular safety and risk-management features. The pump’s verification prompts, customizable biomedical toolbox, and event log were particularly well rated by our nurses, clinical engineers, and risk managers.

With the guidance of Smiths' service team, the implementation process was relatively painless. They assisted us in defining all the steps in the process, from receiving the pumps from the factory to putting them into use at the patient’s bedside. Their clinical educator trained our clinicians and remained on site to assist us with trouble shooting during the implementation. Once the implementation was completed, the sales representatives continued to be responsive to our questions and concerns. Updates on industry trends, patient safety, and changes were all communicated through our representative. Smiths was proactive in connecting me with other users who had expertise that was helpful.

Features and Functions
The pump is more than a delivery device; the built-in safety tools prompt our clinicians to think carefully during the programming process. Specific prompts and alerts allow nurses to correct mistakes before they reach the patient. This provides an additional layer of safety for patient controlled analgesia (PCA). Additionally, we can customize the pump’s alerts, via its Biomed Toolbox, based on our facilities’ standards. The pumps also work in tandem with Smiths’ CADD-DIPLOMAT PC Communications System software, allowing us to download the last 500 events in a pump’s history to a printer or computer for documentation purposes, to review programming errors, and to perform root-cause analysis after adverse drug events.

Pharmacy’s Role in Pain Management
Pharmacists program the pumps for the OR and deliver them to the physicians who are starting regional anesthesia or epidurals. Two pharmacists – one in the central pharmacy and one in the OR satellite pharmacy – work very closely with the acute pain services team. Any time we want to change a standardized drug protocol, the pharmacy is part of the decision-making team. Pharmacists also played an instrumental role as we developed our standardized PCA concentrations. Our OR satellite pharmacist is responsible for using the CADD-DIPLOMAT software to program pumps. The ability to upload drug protocols to multiple pumps via a PC has made this task much more efficient and accurate.

Selection and Implementation Tips
When selecting an ambulatory infusion pump for your facility, think of the pump as a clinical decision support tool, not only as a delivery device. Be sure that the pump displays data in a meaningful way to your clinicians. Obviously, the pumps cannot replace the expertise of your nurses, but they can certainly help improve the quality of care your nurses deliver by helping to identify trends and sudden changes.

The services offered by the pump vendor can be very valuable. Once you implement the pumps, utilize those services to ease your facility’s adoption of the devices. Implementation requires a team approach, but you should appoint one champion to spearhead the project. This person will be responsible for all aspects of the implementation and should have decision-making authority.

Process Improvements and Patient Safety Gains
Post-implementation, I hung poster board in our nurses’ lounges, and asked for comments on the new devices. Once the posters were filled with comments, I mailed them to Smiths. They revised the software to address our nurses’ complaints, making the pumps and software more user-friendly. Initially, a complicated keypad-locking process made it difficult for nurses to change the pumps’ settings. Smiths simplified the process significantly, thereby improving our programming competency.

While helping our clinicians make safer choices in pain management, the CADD-Prizm PCS II and CADD-DIPLOMAT software have also helped reduce our programming errors. Recognizing that DIPLOMAT reduced programming errors and improved efficiency in the OR pharmacy, we implemented the program in all of our hospitals and on all of the units where pumps are used. Since implementing the first CADD pumps 10 years ago, our adverse drug events (ADEs) have dropped off significantly. In the past, the two most serious programming errors we experienced were wrong concentration for the drug delivered and wrong unit of delivery. The pumps’ computer-based programming has nearly eliminated those errors. The only major adverse event we have had since implementing the pumps were the result of nurses trying to circumvent the system and manually program the pump. Smart pumps are only smart when you use them properly. That said, we manage pain more effectively and safely for our patients as a result of using the CADD-Prizm PCS II and the CADD-DIPLOMAT software.

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