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Smart pumps will improve patient safety



Allison Wells, with Logan, still wonders “what if” when she thinks about the near miss she and her son experienced.

Photo credit: Allison Finnie of Purely Fresh photography by Ally

The course of Allison Wells’ life changed the morning of May 29, 2014. That was the day her then three-year-old son, Logan, nearly died. Logan, who has a rare kidney disorder, experienced a string of medical errors but it was one near fatal error that changed everything.

While being prepared for a gastroscopy at Royal University Hospital in Saskatoon, Logan was connected to an intravenous (IV) bag containing more than five times the appropriate concentration of potassium chloride.

“All of a sudden, Logan is screaming, writhing and trying to rip his IV out,” said Wells, who works as a Regina Qu’Appelle Health Region (RQHR) pharmacist. “I looked behind me and

saw the bag of potassium and knew immediately it was too concentrated.”

Failing to capture anyone’s attention, Wells locked her son’s IV, which stopped the toxic dose from flowing into his body.

“In no more than one minute, concentrated potassium would have stopped his heart. The only person who knew a mistake had been made was me.”

This incident was life-altering.

From that day forward, Wells has taken a different approach to her work, and to her life’s mission. Now her professional work and her volunteer work are focused on making our healthcare system safer, and patient- and family-centred.

The implementation of provincial “smart” infusion pump technology and of a standardized parenteral formulary (drug library) is vitally important to her.

If Logan’s IV had been connected to a smart pump the day of his surgery, the near fatal error would not have reached him and he, his family and his health care team would not continue to re-live those events to this day.

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Allison Wells (left), a pharmacist, and Teresa Vall, a clinical nurse educator, are involved in the implementation of a provincial smart pump program.

Photo credit: RQHR Medical Media Services



Smart pumps are electronic devices used to deliver fluids, medications and nutrition to patients. Smart pumps differ from typical infusion pumps in that they are pre-programmed with a drug library

containing drug dosing information. That information includes upper and lower dosing limits, infusion parameters, and provincially standardized drug concentrations.

Should a clinician attempt to program the pump with the wrong dosing information, the smart pump has built-in safety features that significantly reduce the risk of errors reaching the patient. Depending on the inputting error, the alarm will sound and the health care provider will be prompted to reassess what was entered. The goal is that the built in safety checks will minimize the likelihood of medication errors. While smart pump technology can help reduce IV medication administration errors and prevent patient injury, they can't replace the critical judgment and firsthand knowledge of our clinicians.

Wells represents RQHR on the implementation team overseeing this project. Her role is to work with pharmacists, nurses and physicians across the province to standardize the library and help define concentrations and develop safe drug limits. This will provide a level of consistency within the province never before seen. The smart pump program is expected to be rolled out in RQHR in early 2016. The rest of the province will follow, with all health regions adopting the technology and equipment by the end of 2016.

The provincial project team is being led by Susie Hilton, RN, Director of Clinical Services for 3sHealth. Please contact your clinical nurse educator or the provincial team at SmartPumps@3sHealth.ca or call 306.347.1743 to learn more about the SPIV Project.

Courtesy of Regina Qu'Appelle Health Region