Advancing Medication Safety in Paediatrics
A National Collaborative

Introduction
Paediatric healthcare facilities face unique challenges in the medication delivery systems. It is well known that various patient and system factors place paediatric patients at greater risk of experiencing harm from medication errors, and that certain medications have a higher potential to cause harm when used in error.

The Institute for Safe Medication Practices Canada (ISMP Canada) and the Canadian Association of Paediatric Health Centres (CAPHC), with support from The Canadian Patient Safety Institute, Medbuy Inc., and Baxter Corporation have established a partnership intended to advance medication system safety in the delivery of high alert medications in Canadian paediatric facilities and community facilities that deliver paediatric care.

Phase 1 - Identify Top 5 Drugs Causing Harm

- Identify the top medications reported to ISMP Canada as causing harm through medication error in Canadian paediatric healthcare settings;
- Identify existing leading practices; and
- Analyze the information obtained to develop solutions which form the basis of a medication safety intervention.

Results
(Based on 294 reports from 11 CAPHC Member Organizations)

Phase 2 - Transforming Opioid Delivery in Paediatrics

Develop a comprehensive set of recommendations and tools to ensure safe opioid medication practice including, but not limited to, methods of standardization of prescribing and administration, calculation tools, purchasing and storage.

Opioid Safety Tactics
A multi-disciplinary team developed standardized approaches to opioid safety tactics. The 11 tactics encompass three groups of activities providing an optimal ladder of safety:
1. Fundamental System Safety Elements
2. Prescribing Standardization Elements
3. Dose Administration Standardization Elements

Opinion safety recommendations support standardization that is customized for community and tertiary hospitals.

Community Hospital
Recommends

Tertiary Hospital
Recommends

Utilize an innovative approach by applying human factors expertise, and psychological theory and practice to design strategies for developing support for professionals in safe medication delivery practice.

Human Factors Analysis
Human factors analysis evaluated the effectiveness of moving from non-standard concentrations to standard concentrations and focused on the preparation of morphine solutions for IV infusions.

The study was conducted at CAPHC’s Annual Conference in October 2009.

Human Factors results support the transition to standard concentrations to reduce errors.

- The task analysis showed that introduction of standard concentrations simplifies the calculations required.
- Calculation test participants made more errors when using the rule of six method than they did using the standard concentrations method.
- 67% of participants indicated that they found standardized calculation easier than rule of six.

Psychological Insights: The Ozone
The O Zone concept is based on psychological interview findings and follow-up discussions with other healthcare professionals. It identifies a state described by many as a particular kind of space they know they’re in when they are working most attentively and effectively. The O Zone is a name for that space.

Findings indicate an optimal psycho-physiological state to deliver opioids.

Phase 2 - Employed a New Equation for Change

Opioid Safety Tactics + Human Factors Analysis + Psychological Insights = Safer Opioid Delivery

For the Phase II report and further information visit www.caphc.org or www.ismp-canada.org

Conclusions and Next Steps

- Moving to standardized concentrations to reduce calculation and other errors.
- Customization of recommendations for community and tertiary hospitals.
- The benefits of an optimal psycho-physiological state adds a new dimension to engage and support practitioners involved in the delivery of paediatric opioids.

Future work will involve testing, validating and building support for these recommendations in the paediatric community across Canada.