MEDICATION ERRORS IN HEALTH CARE FACILITIES

TWO BABIES SURVIVE OVERDOSE IN EDMONTON

On February 24, 2004 and then again on February 25, 2004, two different babies received an antibiotics overdose at an Edmonton hospital - 10 times the amount of drugs they should have been given. An investigation found that an antibiotic was improperly mixed by a pharmaceutical technician. Both babies had been discharged from hospital when the error was found and their parents received a phone call telling them to rush their babies back to hospital. For three days, their babies were hooked up to oxygen and heart monitors and pinned down so IVs could be inserted. The parents are still wondering whether their children will suffer long term effects.

DIALYSIS MIX-UP LEADS TO DEATH OF TWO IN CALGARY

On March 18, 2004, two critically ill patients died after being given the wrong drug during dialysis. The two critically ill patients of a Calgary Intensive Care Unit were mistakenly given potassium chloride solution (KCL) while being treated for dialysis. The two patients, an elderly woman and a middle-aged man, both died after being the victims of what is thought to be a mix-up in the preparation of the solution.

KCL MIX-UP LEADS TO DEATH IN ONTARIO

A similar incident occurred in Ontario in 2002, where an 83 year old woman was admitted to a hospital with a broken hip and was receiving parenteral nutrition via a PICC line. The incident occurred when a nurse with an extra vial of KCL in her pocket mistakenly used the vial to flush the patient's PICC line. The nurse mistakenly thought the vial was saline solution. The patient died instantly. It was noted that packaging for saline and KCL were identical save for the writing on the bottles and the fact that saline had a yellow strip whereas KCL had a purple strip across the bottle.

That incident was the subject of a coroner's inquest. On February 12, 2004, the Ontario Coroner's Jury released their recommendations relative to the coroner's inquest held to inquire into the circumstances of the death of the patient who inadvertently received potassium chloride (KCL) by a nurse while at the hospital.

ONTARIO JURY'S FINDINGS

The jury determined that the patient in the Ontario case described above died of cardiac arrest caused by the intravenous injection of concentrated KCL.

The jury was satisfied that the patient's death was accidental.
ONTARIO JURY’S RECOMMENDATIONS

The recommendations made by the Ontario jury are listed below. The events in Alberta strongly resemble the events in Ontario. Accordingly, we would suggest that Alberta hospitals and health care facilities might wish to review the Ontario recommendations to assess whether they should amend their policies and practices to incorporate the Ontario coroner’s jury recommendations where feasible.

It is our opinion that the Ontario's jury's recommendations might eventually form the basis of Ontario provincial or even national standards. As such we recommend that they be circulated, studied and, where feasible, implemented.

1. All hospitals should implement protocols for initial response to incidents concerning unexpected deaths or near deaths. The protocol should include, but not be limited to, the following:
   (a) immediate notification of the coroner be made after the most pressing needs of the patient have been met in the event of death;
   (b) appropriate hospital personnel shall be immediately notified of the incident and the scene be preserved and not disturbed; and
   (c) designated individuals shall be assigned and trained to secure, preserve and record details of an incident scene until the arrival of internal investigative personnel, the coroner, and other external investigative authorities, such as the police.

2. All hospitals should adopt a standardized medication safety report program for the centralized collection, analysis and distribution of data. All data should then be disseminated to all hospitals and health care facilities.

3. All hospitals should review their training policies to increase the requirement for mandatory training in view of self-help programs in the areas of administration of medication and best practices.

4. All similarly situated medication carts shall be organized and equipped with the same stock medications and supplies in a uniform and consistent manner.

5. All hospitals and health care facilities should review their current protocol regarding do not resuscitate (DNR) codes or notations and determine if there should be discussion regarding resuscitating a person with a DNR order in place in the event of human error or unnatural causes.

6. All hospitals should take steps to ensure that other concentrated electrolytes including potassium acetate, potassium phosphate and sodium chloride greater than 0.9% are not available in patient care areas.

7. All concentrated KCL should be removed from patient care areas in hospitals and health care facilities, outside of the pharmacy.

KCL SPECIFIC RECOMMENDATIONS

1. All hospitals should purchase commercially available KCL pre-mixed dilute solutions and make them available on all nursing floors, as required.

2. The hospital pharmacy and therapeutics committee and the medical advisor committee should develop and approve a policy to standardize KCL solutions to be ordered by physicians.
3. All hospitals should evaluate the need for an automatic substitution for KCL based on the standard solutions approved for use.

4. The hospital pharmacy should prepare all other "non-standard" concentration KCL solutions that are not commercially available. These solutions may be required for the neonatal intensive unit and/or paediatric unit.

5. The pharmacist should be on call to provide guidance and advice on issues involving KCL after normal hours of pharmacy operation.

6. All hospitals should consider stocking the concentrated KCL 40 mmol/20 ml size ampoule/vial ONLY In The Night Cupboard For Emergency Use. A fluorescent warning label "fatal if injected undiluted" shall be visibly affixed to each and every ampoule/vial. In addition, the ampoule/vial should be packed in a zip lock bag that later serves to indicate to pharmacy that an ampoule/vial has been used during the night.

7. For special units and other unique situations (such as the use of dialysate for peritoneal dialysis) where a small quantity of KCL solution is needed, hospitals should consider the use of the partially diluted KCL pre-mixed minibags for drawing up the required amount for infusion.

8. The Hospital Pharmacy And Therapeutics Committee should develop and approve a policy on maximum concentration of KCL allowable in an IV solution, as well as maximum infusion rate of KCL.

9. All physician orders on KCL infusion must indicate instruction for dilution and the infusion rate.

10. Physician orders such as "give KCL 20 mEq bolus" is not acceptable. The word "bolus" is misleading as it is often interpreted to mean "give by direct injection".

11. All hospitals should consider the use of pre-filled saline (sodium chloride) flush syringes that are commercially available.

ABOUT THE AUTHORS:

This article was originally prepared in Ontario by Rebecca Durcan and was revised to include information about the Alberta incidents by Brian Curial and Vicki Giannacopoulos.

*Rebecca Durcan is a member of the Health Industry Practice Group. Rebecca provides advice to clients on matters such as mental health, coroners’ inquests, physicians’ privileges, and other administrative and advocacy issues.*

*Brian Curial and Vicki Giannacopoulos are both members of Alberta’s Health Industry Practice Group.*
Our National Health Industry Practice Group is dedicated to providing comprehensive and integrated legal services to health industry clients. For more information about our group, visit our website at www.millerthomson.com or contact one of our regional contacts listed below.

**REGIONAL CONTACTS**

**Toronto/Markham**  
Joshua Liswood  
jliswood@millerthomson.ca  
Kathryn Frelick  
kfrelick@millerthomson.ca

**Calgary**  
Bryan R. Ede  
bede@millerthomson.ca

**Edmonton**  
Brian Curial  
bcurial@millerthomson.ca

**Vancouver**  
David Martin  
dmartin@millerthomson.ca

**Waterloo-Wellington**  
Gregory P. Hanmer  
ghanmer@millerthomson.ca

**Miltom Consulting Inc.**  
Dr. Isser Dubinsky  
idubinsky@miltomconsulting.com

On January 1, 2004 privacy legislation came into force across Canada governing the collection, use and disclosure of personal information by organizations. Miller Thomson respects the privacy of persons who receive our newsletters and other information that we provide as a service to them. We wish to take this opportunity to confirm that we hold personal information about you in the form of the contact information we possess. We wish to confirm that you consent to our maintaining this information and continuing to use it for the purposes of providing our newsletters and similar mailings to you. All recipients of our newsletters also receive notices of firm seminars and other events that may be of interest to you or your organization as well as information respecting marketing of our firm and relevant legal developments from time to time. In addition, we may send you holiday cards and other greetings on occasion. We only use your information for these purposes and do not disclose it to any third parties outside of our firm’s employees and independent contractors.

If you consent to our possessing and using your personal information for the above purposes, you need not take any further steps. If, on the other hand, you do not wish us to have your personal information for these purposes, please notify us by return email and we will remove your personal information from our newsletter database and cease forwarding the above-noted communications to you.

Your comments and suggestions are most welcome. Please direct them to: MTHCmLaw_AB@millerthomson.ca