



Manitoba Health, Seniors and Active Living (MHSAL) supports reporting and learning from patient safety events. The focus of a patient safety review is to closely look at the health care system that surrounds and interacts with those giving and receiving care. The goal is to identify risks to patient safety and recommend the most effective ways to minimize risk and improve the delivery of healthcare.

Patient Safety Learning Advisory

Compartment Syndrome

Summary:

A 6-year-old child fell off a trampoline and was brought to the emergency department (E.D.) with a fractured arm. He/she was transferred to Children's Hospital Emergency Department (CHER) the following day for surgical repair of the fracture. Over the next few days the child developed pain and swelling to the affected arm, and returned to the E.D. on two separate occasions for re-assessment and treatment. He/she subsequently developed compartment syndrome, and required numerous surgeries and a lengthy hospitalization.

Keywords: compartment syndrome

This review is based on a single event.

Findings of the Review:

There were multiple communication break-downs at different points in times during patient E.D. visits. which could have contributed to a delay of diagnosis and treatment of compartment syndrome. E.g. No consultation to CHER on initial return to E.D., no local specialty resources accessed (orthopedic surgeon/pediatrician), a 3-hour delay noted from the time of consult to the time of response back from the specialist on last E.D. re-visit.

When the cast was initially split, the soft roll was not cut therefore the pressure was not fully relieved to the arm.

Intra-Compartmental Pressure Monitor (Gold standard for diagnosing compartment syndrome) is located in the operating room at this site. Orthopedic surgeons are the only staff currently trained on this medical device. Knowledge of having this device as a resource in the region is minimal.

System Learning:

Recommend a consultation with the Provincial Pediatric Clinical Team to confirm that a reassessment of a pediatric revisit within 24h at an emergency department is best practice.

If outcome above confirms that reassessments are best practice, then proceed with recommending patients 0-17 years of age returning to an emergency department within 24h should be flagged in the electronic system (EDIS).

If outcome above confirms that reassessments are best practice, inform clinical providers that investigative diagnostic testing/advice should occur in collaboration with the Pediatric Transport Resource.

Promote and utilize local expertise (orthopedic surgeon) for consultations.

Purchase Striker intra-compartmental monitor for each of the regional centers E.D.

Dependent on approval of recommendation above, Leads for each E.D. site to have Striker Intra-Compartmental Pressure Monitor System representative demonstrate proper use. Each site is then responsible for disseminating to medical staff on proper utilization.