Alberta Health Services Vision and Mission

AHS Vision, Mission, Values

Our Vision, Mission and Values are core statements describing the overall purpose of our organization, how we operate, and what keeps us moving forward. It clarifies what we do, who we do it for, and why we do it.

AHS Our Mission

To provide a patient-focused, quality health system that is accessible and sustainable for all Albertans.

Central Zone Trauma Program Vision

To provide outstanding trauma care

Central Zone Trauma Program Mission

Our mission is to establish and manage a systematic approach to trauma care in the Central Zone. This will be achieved by using best practices and striving for optimal outcomes, focusing on acute care, rehabilitation and injury prevention.

We support the Provincial Trauma initiative in getting ‘the injured person to the right treatment at the right facility in the shortest amount of time’
Directors Message

Another year has passed, and not surprisingly, it has been another busy year for trauma care in the Central Zone of Alberta. As the data in the following pages outlines, hospitals in the Central Alberta have seen and cared for more high severity trauma patients than ever before. As the accredited Level 3 Trauma Center in the Central Zone, Red Deer Regional Hospital has received more patients with higher acuity for the fourth year in a row. What type of effect does this increase have on our system? Clearly resources remain tight, and access to interventions and operating times remain a struggle. But thanks to the effort of all healthcare workers in our zone, we continue to strive to bring the best quality care to our population. From the physicians and staff at busy peripheral hospitals, to the trauma teams and specialists at Red Deer Regional Hospital, and our EMS colleagues that transport them safely in between, we rise to the occasion on a daily basis.

Despite the increase in workload, we continue to make positive strides in the Central Zone Trauma program. Education and quality control remain our primary focus. The second annual Central Zone Trauma Day was a success thanks to tremendous participation and enthusiasm for learning. We continue to look for opportunities to participate in preventative medicine in regards to trauma. Our continued collaboration with all other provincial trauma centers in collecting data provides a more comprehensive picture of trauma in Alberta as a whole.

Special thanks to the trauma coordinator, data analysts and secretaries that make the Trauma Program run on a daily basis. Their passion and effort has truly affected trauma care in our zone and continues to lead us to better care for our patients.

Lyle Thomas MD, CCFP(EM)
Medical Director Trauma
Central Zone Trauma Program
Emergency Medicine, RDRH
Executive Summary 2011/2012 report

The trauma program has been in place at the Red Deer Regional Hospital since January 2008 and was accredited by the Trauma Association of Canada as a Level 3 Trauma Center in October 2010. The Central Zone Trauma Program is a member of the Provincial Trauma System and the Southern Alberta Trauma System. The Southern Alberta Trauma System was one of the first Trauma Systems to be accredited as a system in Canada. The Central Zone Trauma Program is dedicated to providing optimal trauma care to the residents of the Central Zone.

The year 2011/2012 was busier than ever with Trauma cases at the Red Deer Regional Hospital. There was an 8% increase of traumatic injuries from the previous year. We have participated in ongoing educational opportunities for staff and are working on practice guidelines to improve trauma care. This year we initiated a Performance Improvement and Patient Safety program; we hope to fine tune this program and get it up and running to assist us in improving our care. We have ongoing education going on in the rural hospitals of the Central Zone but are finding it a struggle to get out to the sites. The work on practice guidelines is continuous.

We continue to participate in the Provincial Trauma System. As a member of the Provincial Trauma Committee we helped to develop and rolled out the new Nursing Trauma Documentation form for the entire province. This form is standardized and all medical facilities in the province of Alberta will be using the same form. It should improve communication between facilities and healthcare workers, ensures thorough trauma assessments are done and accurate information goes with the patient.

This report will include a summary of the Trauma activities at the Red Deer Regional Hospital for 2011/2012, as well as the Performance Improvement summary. We strive to provide the best care but want to be transparent in the areas we need to improve in.

This report is available to anyone interested; copies available electronically or hard copies available from the Trauma Program or on the Calgary Trauma Services website.

Key Points:

- There is an increase of 8% of Trauma patients with an ISS ≥12
- The top 3 mechanisms of injury are MVC, falls and assaults/self harm
- Foothills Medical Center receives 72% of our transfers to a higher level of care
- 73% of our patients are brought by ground ambulance, 11 % are transferred from a rural hospital

Brenda Wiggins
Central Zone Trauma Coordinator
Red Deer Regional Hospital, Red Deer, AB

Acknowledgements:

Debbie Westman Acute Care Manager of Emergency and Manager of Emergency Services
Dr Lyle Thomas Central Zone Trauma Medical Director
Brenda Wiggins Central Zone Trauma Coordinator
Kyla Hoogers Central Zone Trauma Data Analyst
Teresa Thomson Central Zone Trauma Data Analyst
Education

In 2011/2012 there were a number of different educational opportunities available to the staff of the Red Deer Regional Hospital, rural hospitals, and EMS in the Central Zone:

- Telehealth-Foothills Medical Center Trauma Services Trauma Rounds available once a month by Telehealth.
- TNCC x 3 rural
- TNCC x 2 Red Deer
- Trauma Coordinator provided trauma lectures/practice scenarios in a rural hospital in East Central AB
- In house education- ER updates which included using the Simulation Doll and ICU new staff orientation ER new staff orientation
- Trauma Education for Unit 23 staff in anticipation that this unit will be used to cohort trauma patients
- Trauma Education Day-September 20, 2011 was the first annual trauma education day held in the Dana Soltes auditorium. 100 participants attended with many being turned away due to the small venue. Excellent reviews
- Trauma Coordinator trained to run Simulation lab, goal to provide trauma simulations to staff in trauma centers/rural hospitals

Accomplishments in 2011/2012

Continued participation in the Provincial Trauma System

April 2011 TAC conference in Banff
- met with Canadian Trauma Coordinators to develop nursing trauma record
- trauma coordinators from Canada met
- further education on report writing for the trauma data analyst

Participation in the Southern Alberta Trauma System Teleconferences

Representation by the Trauma Medical Director in Disaster planning at the Red Deer Regional Hospital

Revision of Trauma Audit filters

First year of data collection and process for Trauma Quality Improvement (Performance Improvement and Patient Safety)

How data is collected

Each month a report is run from the meditech system on all the emergency department patients. Once this is run, the Trauma Coordinator filters out the trauma patients and requests charts to review. The charts are reviewed by the Trauma Coordinator and further culling of those charts is done if they are an ISS of 12 or less. The Trauma Data Analyst will review and enter them into the trauma registry. Only the ISS ≥12 is submitted to the Alberta Trauma Registry and the National Trauma Registry. The Alberta Trauma Registry is housed at Alberta Center for Injury Control and Research (ACICR) in Edmonton, Alberta. The National Trauma registry is housed in Ottawa, Ontario with CIHI (Canadian Institute for Health Information).

The Trauma registry is a requirement for any accredited trauma center, by the Trauma Association of Canada. The trauma registry uses Collector software that was developed in the United States by Digital Innovations. It complies information entered by the data analyst. It is useful to provide statistical information for Performance improvement and injury prevention activities as well as showing trends in traumatic injuries.
**Who qualifies to be in the registry?**

One of the requirements to qualify for the trauma registry is to have an injury severity score of ≥ 12. This is an essential requirement for the Alberta and National Trauma Registry.

If any of the following conditions exists the patient is included in the Central Zone Trauma registry.

- ISS ≥ 12 and admitted to the Red Deer Regional Hospital
- Transferred to a higher level of care
- Trauma Death in the Emergency Department

In the Central Zone we collect any patient that is transferred to a higher level of care even if they don’t have an ISS of ≥ 12. Often we don’t have enough time to thoroughly investigate and diagnose these patients because their injuries are so severe they need transfer to a higher level of care. The Level 1 trauma center will determine their ISS and enter them into the Alberta and National Registry if they have an ISS ≥ 12.

**How the Injury Severity Score (ISS) is calculated?**

**Abbreviated Injury Score (AIS)**

AIS is anatomically based scoring and the score is not contingent on long-term outcome. It assesses the severity of single injuries. There is a scale ranking the level of severity:

1=minor
2=moderate
3=serious
4=severe
5=critical
6=maximum (currently untreatable)

Death is not part of the severity scale; therefore, dying doesn’t automatically mean a score of 6

**Injury severity score:**

ISS (Injury Severity Score) is an anatomical scoring system that provides an overall score for patients with multiple injuries.

Each injury is assigned an Abbreviated Injury Scale (AIS) and is allocated to one of six body regions (Head, Face, Chest, Abdomen, Extremities including pelvis, and External)

Only the highest score in each body region is used. The three most severely injured body regions have their score squared and added together to produce the ISS score.

The range of the ISS is 0-75. The higher the score the more injured the patient.
How many Major Trauma Patients were seen at the Red Deer Regional Hospital In
2011-2012

The total number of Trauma Patients seen in the RDRHC Emergency Department in 2011-2012 with an ISS of ≥12 that were admitted, transferred or died in the ER was 113. **804 records were reviewed** in the fiscal year of 2011-2012 and **113 patients, with an ISS of ≥12, qualified** for the Central Zone Trauma Registry.

There has been a 41% increase since our Trauma Program began in 2008; there is an 8% increase from last year. There were **1067** minor and major trauma admissions, transfers or deaths at the RDRH (regardless of the ISS) for 2011-2012, unchanged from last year. This indicates an increased acuity of the patients we are seeing.

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**Total Number of Trauma Patients**

**Injury Severity Score ≥ 12**

2008 to 2012

- **2008 - 2009**: 67
- **2009 - 2010**: 81
- **2010 - 2011**: 104
- **2011 - 2012**: 113
Trauma Activation 2011/2012

The following are the criteria at the Red Deer Regional Hospital Emergency Department for activation of the trauma team. The triage nurse receives a telephone report from EMS, transferring hospital or the patient arrives by private auto to the Emergency Department. The nurse then makes the decision to activate the trauma team based on the physical assessment and the following criteria.

Vital Signs and Level of Consciousness:

- Glasgow Coma Scale <14 or
- Systolic Blood Pressure <90 or
- Respiratory Rate <10 or >29 (<20 in infant < one year)

Anatomy of Injury

- All penetrating injuries to head, neck, torso, and extremities proximal to elbow and knee
- Flail chest
- 2 or more proximal long-bone fractures
- Crush, degloved or mangled extremity
- Amputation proximal to wrist and ankle
- Unstable pelvic fracture
- Open or depressed skull fracture
- Paralysis

Mechanism of Injury

- Falls
  - Adults: > 20 feet (one story is equal to 10ft)
  - Children: >10 ft. or 2-3 times the height of the child
- High risk auto crash
  - Intrusion: >12 inches occupant site; > 18 inches any site
- Ejection (partial or complete) from automobile
- Death in same passenger compartment
- Auto vs. pedestrian/bicyclist thrown, run over, or with significant (>20mph) impact
- Motorcycle crash >20mph

Special Patient or System Considerations (consider these criteria in combination with the above criteria)

- Age
  - Older Adults: Risk of injury death increases after age 55
- Children
  - Anticoagulation and bleeding disorders
  - Burns
    - 2nd degree and 3rd degree totalling> 20% TBSA
  - Airway/Facial Burns
    - Time sensitive extremity injuries
    - End-stage renal disease requiring dialysis
    - Pregnancy >20 weeks
Trauma Team Activation

Initially the Emergency Department physician, 3 nurses, 1 respiratory therapist, lab technician, and radiology technician respond to TTA (Trauma Team Activation). The Emergency Physician is the Trauma Team Leader. The services of General Surgery, Orthopedics, Plastics, Pediatrics, Anesthesia, and ICU intensivist are available by phone.

Any patient requiring the specialties of neurosurgery, spine surgery, and cardiovascular surgery cannot stay in Red Deer and must be transferred out. They will be stabilized and a transfer arranged.

In 2011/2012, of the 113 severely injured trauma patients with an ISS ≥12, the trauma team was activated 56% of the time.

![Trauma Team Activation Graph](attachment:image.png)
When did these Traumas occur?

August through November seem to be the busiest months for major traumas with 48% of the volume over these 4 months.

It appears that the busiest injury day of the week was Tuesday in 2011/2012. When the Tuesday injuries were reviewed it was found that the majority of the injuries were falls. On average Friday, Saturday and Sunday continue to be the highest injury days in the Central Zone.
How did these injuries occur?

The top 3 Mechanisms of Injury remains unchanged in 2011/2012. First is transportation at 45%, second are the falls at 26% and assaults/self harm in third at 18%. Other mechanisms injury includes burns and drowning. The graph below compares the past 4 years of mechanism of injury.
Vehicle related injuries dominate the 15-64 years. Falls continue to be the primary cause of injury in the 65 years and up category.

Horse related injury and ATV/dirt bike injuries are down from last year. Horse related injury is still more prevalent than other sports related trauma.
Alcohol levels are not drawn on every trauma patient at the Red Deer Regional Hospital. Of the patients that had an ETOH level drawn, 14% were over the legal limit. The legal limit is 17.0.

Seatbelt use is essentially unchanged from previous years. 59% of vehicle occupants used seatbelts, 28% did not use any restraints. There is a 13% unknown because it was not documented or the vehicle occupant was found outside the vehicle or they were unable to confirm use.
Where did the injuries occur?

The top two places of occurrence are the street/highway due to motor vehicle crashes being the top mechanism of injury and the second place of occurrence is the home due to falls.

The lack of documentation or missing documentation accounts for the 23% unknown place of occurrence.

Penetrating injuries are down from 6% to 2% for the 2011-2012 fiscal year.

The actual number of penetrating injuries seen and admitted is higher than 2%. Most penetrating injuries cannot get an ISS score of 12 or greater therefore the 2% reflects only ISS ≥ 12.
How did they get to the RDRHC?

For the year 2011-2012

83 of the 113 trauma patients arrived via ambulance.

18 of the 113 trauma patients arrived via private vehicle or walking

12 of the 113 trauma patients arrived via rural hospital transfer/ambulance

No change from previous years as the graph indicates.
Red Deer Regional Hospital

The top three procedures in the trauma patient that arrive to the Red Deer Regional Hospital are:

- CT Scan
- Peripheral IV start
- Urinary Catheter insertion

Family medicine was the top admitting service with 18/113 patients with an ISS ≥12 in 2011-2012. The admits to each service are from ER to inpatient unit and may of changed as the stay went on, depending if they had to be transferred to another unit during their admission.
The total number of pediatric trauma patients, with an ISS of 12 or greater was 12 for the fiscal year 2011-2012. 7 patients were admitted to the Red Deer Regional Hospital and 5 were transferred to a higher level of care. If the pediatric patient was admitted in Red Deer the admitting services varied between pediatrics, general surgery and orthopedics.
There were 7 ICU admissions last year; the severely injured is usually transferred to a higher level of care. There were 4 admissions directly from the ER and the additional 3 may of come from the operating room or an inpatient unit.

The majority of trauma patients are treated and released within 5 days. The trauma patients staying more than 30 days would of been either palliative or rehab patients. One patient stayed in the ER 2 days before being transferred to a higher level of Care.
51% trauma patients were transferred and 42% were admitted, no change from last year.

In addition to the 113 qualifying patients, there were 25 non qualifying patients that used Red Deer Emergency resources before transfer out to a higher level of care. After arriving to the facility of higher care and further diagnostic testing, the 25 transfers qualified with an ISS ≥ 12. These would be counted at the other facility and put in their registry.
The disposition of trauma patients with an ISS ≥12: 41 were discharged home from an inpatient unit, 7 died in the ER, 2 went to the Rehab unit and 2 went home with homecare support. The 1 ‘other’ went back to jail.

Of the 60 transferred patients: 48 were transferred directly from the ER and 12 were admitted to the Red Deer Hospital then transferred to a higher level of care.

The Foothills Medical Center receives 73% of any transfers to a higher level of care, an increase from last year. Last year 63% went to the Foothills Medical Center. The pediatric transfers are equal divided between Stollery in the North and Alberta Children’s in the South. This remains unchanged from last year.
For 2011/2012 the deaths all occurred in the emergency department. The patients either arrived with CPR in progress or resuscitation attempts were made and the patient died before they could be transferred to a higher level of care.
Performance Improvement and Patient Safety (PIPS)

A retrospective review of all the charts with an ISS of ≥12 and trauma deaths are screened and pulled by the trauma coordinator and the data analyst. All trauma deaths are reviewed. Audit filters/performance indicators assist in flagging charts for review. In addition any trauma patient that is flagged by a staff members’ concern may be pulled and reviewed. The Trauma Medical Director and the Trauma Coordinator do a retrospective review of these charts to identify any issues affecting the quality of patient care.

If any issues are identified, the processes to resolve the issue are dealt with in the following ways:

- The Caregivers are spoken with directly
- EMS issues are discussed with the Central Zone EMS director
- The Hospital Quality Improvement Committee may be contacted about issues that are becoming trends. Processes can be developed via policy or education to resolve the specific identified issues.

Central Zone Trauma Quality Indicators (Audit Filters) for 2011/12

1. Absence of any pre hospital ambulance reports from any phase of patient transport.

2. Absence of q30min chart documentation for patient beginning with ER, including time in radiology, up to admission to the OR, ICU, ward, death or transfer to another hospital.

3. Absence of sequential neurological documentation on ER record if patient had a diagnosis of skull fracture, intracranial injury, or spinal cord injury.

4. Patient with epidural or acute subdural with transfer delay > 4hrs

5. Patient with diagnosis at discharge of cervical spine injury not indicated in admission diagnosis.

6. Did the unstable patient require a laparotomy that was not performed within 1hr of arrival to the ER?
   
   **Unstable: BP<90, uncontrolled bleeding, tachycardia**

7. Patient sustained a gunshot wound to the abdomen who was managed non operatively.

8. Patient with a femur fracture that was operated on >24hrs after admission.

9. If the patient sustained a compound extremity fracture, was the operation performed >6hrs after admission?

10. Was there an unplanned return to the OR within 48hrs of initial procedure?

11. Trauma patient admitted to hospital under other than a surgeon or intensivist.

12. Patient had missed injuries that subsequently required surgery.

13. Was the trauma team called?

13a. Did the team response exceed >10min

14. Length of time at rural hospital was >2hrs?
14a. If <200km from a trauma center, arrive at trauma center within 2.5hrs of initial EMS contact?

14b. If 200-400km from a trauma center, arrive at a trauma center within 4hrs of initial EMS contact?

14c. If >400km from a trauma center, arrive at a trauma center within 6hrs of initial EMS contact?

15. Patient died during transport.


17. What was the length of time the patient was on the backboard?

18. Did the patient meet the trauma activation criteria?

19. Was the Massive Transfusion Protocol ordered?

20. Were the Pre-hospital triage guidelines violated?

21. EMS scene time.

<table>
<thead>
<tr>
<th>Audit Filters – Injury Severity Score ≥ 12</th>
<th>YES</th>
<th>NO</th>
<th>UNKNOWN</th>
<th>Total number of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>The time between the initial medical contact and the arrival at the Trauma Centre was greater than 150 minutes.</td>
<td>13</td>
<td>54</td>
<td>46</td>
<td>113</td>
</tr>
<tr>
<td>Patients with an epidural or subdural hematoma(s) who waited longer than four hours before being transferred to a Level One Trauma Centre.</td>
<td>0</td>
<td>11</td>
<td>-</td>
<td>11</td>
</tr>
<tr>
<td>Patients who waited longer than one hour after arrival to receive a laparotomy.</td>
<td>3</td>
<td>2</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>Patients who waited longer than six hours to receive a repair of their compound fracture.</td>
<td>0</td>
<td>4</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Patients who waited longer than two hours at a rural hospital before being transferred to the Trauma Centre.</td>
<td>7</td>
<td>5</td>
<td>-</td>
<td>12</td>
</tr>
<tr>
<td>Emergency Medical Services scene time in excess of 20 minutes.</td>
<td>28</td>
<td>41</td>
<td>27</td>
<td>96</td>
</tr>
<tr>
<td>Patients who met trauma activation guidelines.</td>
<td>87</td>
<td>26</td>
<td>-</td>
<td>113</td>
</tr>
<tr>
<td>Occurrence of Trauma Team activation.</td>
<td>64</td>
<td>49</td>
<td>-</td>
<td>113</td>
</tr>
<tr>
<td>Trauma Team response time was greater than ten minutes.</td>
<td>0</td>
<td>64</td>
<td>-</td>
<td>64</td>
</tr>
<tr>
<td>Emergency Medical Services forms were missing.</td>
<td>11</td>
<td>85</td>
<td>-</td>
<td>96</td>
</tr>
<tr>
<td>Sequential neurological documentation on the Emergency Department form was incomplete.</td>
<td>31</td>
<td>41</td>
<td>-</td>
<td>72</td>
</tr>
<tr>
<td>Thirty minute chart documentation for the hospital visit was incomplete.</td>
<td>74</td>
<td>39</td>
<td>-</td>
<td>113</td>
</tr>
<tr>
<td>There was a discharge diagnosis of a cervical spine injury that was not indicated in the admission diagnosis.</td>
<td>1</td>
<td>112</td>
<td>-</td>
<td>113</td>
</tr>
<tr>
<td>There was an unplanned return to the operating room.</td>
<td>1</td>
<td>16</td>
<td>-</td>
<td>17</td>
</tr>
<tr>
<td>The patient was admitted by a family doctor, rather than a surgeon or intensivist.</td>
<td>18</td>
<td>39</td>
<td>-</td>
<td>58</td>
</tr>
<tr>
<td>The patient had a missed injury that needed surgery.</td>
<td>3</td>
<td>110</td>
<td>-</td>
<td>113</td>
</tr>
<tr>
<td>The patient died while being transported to the hospital.</td>
<td>0</td>
<td>11</td>
<td>-</td>
<td>11</td>
</tr>
<tr>
<td>The patient died less than 24 hours after arriving at the hospital.</td>
<td>7</td>
<td>0</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>Massive Transfusion Protocol was initiated.</td>
<td>2</td>
<td>112</td>
<td>-</td>
<td>113</td>
</tr>
</tbody>
</table>
PIPS Comments:

A delay in getting a trauma patient to a Trauma Center continues to be a problem. There are a significant number of patients that have a delay in diagnosis and definitive care for their injuries at a trauma center. Over all there is a need to provide information on where specific injuries should be going and how to get that accomplished in the shortest amount of time. Out of 12 transfers from a rural hospital there were 7 patients delayed greater than 2 hours.

87 of the trauma patients met trauma activation guidelines and 26 patients did not. This indicates that our activation guidelines are adequate to capture 77% of major trauma entering our doors. Unfortunately only 56% of the time the Trauma Team is being activated. The activation guidelines could be improved but at this time it appears that further education and follow up needs to be provided to the staff responsible for Trauma Team Activation.

Future Goals

- Cohorting trauma patients on Unit 23
- Further development and improvement to the Performance Improvement and Patient Safety program
- Partnership and work with the Injury Prevention Department in the Central Zone
- Develop discharge teaching information for anyone in the Emergency Department with ETOH involvement in their injury
- Develop an educational document to assist with improving transfers to trauma centers which would include resources and contacts.