IDAHO TRAUMA SYSTEM

This document is intended to begin discussion on trauma system development in Idaho and is a work in progress.
Idaho Trauma System

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Discussion Document - Not Final
Public Health Issue
Trauma

- **Epidemiology:**
  - Trauma is the number 1 cause of death between the ages of 1-44 (American College of Surgeons Committee on Trauma [ACS], 2006)
  - Mortality rate within this age group greater than all other causes combined
  - Trauma is the greatest cause of disability in the country (ACS)
  - Motor vehicle collisions cause one million deaths and an estimated 20-30 million significant injuries annually (ACS)
  - 90% of all crashes occur in developed countries
Public Health Issue
Trauma

- Epidemiology Cont.
  - Over 70% of trauma patients have been diagnosed as having post-traumatic stress disorder with a resulting significant decrease in the quality of life (Kiely, Brasel, Weidner, Guse, & Weigelt, 2006; Jackson et. al., 2007)
  - Rural residents are 50% more likely to die from trauma than their urban peers (Gonzalez, Cummings, Mulekar, Rodning, 2006)
  - Trauma is the leading cause of lost years of life and lost productivity
    - Trauma is a disease of young, healthy productive members of society
    - Estimates are as high as 500 lost years of life per 100,000 population (Celso, Tepas, Langland-Olsen, Pracht, & Lottenberg, 2006)
  - By 2020 it is estimated more than 1 in 10 people will die from trauma globally
  - Trauma is a disease
    - Host (the patient)
    - Vector of transmission (mechanism of injury)
  - Despite the costs and preventive nature of this disease less than 4 cents on the dollar are spent on trauma research
Trauma is the #1 cause of death in the age group 1-44 (2009 Idaho vital Statistic Report)

In 2009 in Idaho there were 665 lives lost to trauma (2009 Idaho vital Statistic Report)

Average number of productive life lost in Idaho is 32.7 years
- Similar statistics are seen at the National level for loss of productive years in these patients
- Idaho has a higher death rate for trauma than the national average
  - 43% versus 41% (2009 Idaho Vital Statistic Report)

Falls are the leading mechanism (37%) of trauma with MVC (car crashes) a close second (31%)
- Blunt trauma accounts for 98% of trauma within the state
- Many MVC’s are associated with reckless driving behaviors, distracted driving or DUI
In 2009 in Idaho there were 665 lives lost to trauma

Projected possible lives saved are 99.75 (15% of 665)

- 15% mortality decrease is the most commonly cited survival percentage for blunt trauma

Average number of productive life years lost in Idaho is 32.7 years

3261.8 years of productive life lost (99.75 X 32.7)

$36,319 per life year or $790,931 per life are some cost estimates cited (Mackenzie, et al)

$118 million could have been saved based on 99.75 lives

3.6 million could have been saved per productive life-year
Trauma Systems

- A trauma system allows for a regional coordination of often scarce resources
- Defined by Health Resources and Services Administration (HRSA) as a ‘Preplanned, comprehensive and coordinated statewide and local injury response network that includes all facilities with the capability of care for the injured’ (HRSA, 2002)
- A trauma system involves a combination of pre-hospital and hospital resources
- Trauma systems allow for dissemination of information regarding primary prevention through rehabilitation and play an integral role in mass casualty incidents response
- Trauma systems, both state and regional, provide a way to optimize trauma care by providing continuing medical education, prevention outreach, research, and quality assurance standardization to ensure the system provides the best services available (ACS, 2006)
- Critical access hospitals and tertiary trauma centers are equally important to an effective system (Utter et. al., 2006)
Trauma System Development

- Comprehensive Statewide Trauma System
  - Step 1
    - Hospital Designation
      - Voluntary
      - Support Facility Review Process
      - Develop State Multidisciplinary Trauma Committee
      - Develop Support Relationship with Local EMS and Voluntary Transport Agencies
      - Implement Appropriate Activation Criteria and Billing once Designated
  - Step 2
    - Statewide EMS system enhancements
Trauma Centers Levels of Care

- **Level I**
  - Regional trauma center
  - Provides leadership and able to provide care to every aspect of injury from prevention to rehabilitation
  - Leader in education, research and system planning
  - Surgical Residency and Trauma research

- **Level II**
  - Tertiary care center, although may not have the same comprehensive services as a Level I
  - Often provides system support and educational leadership when a Level I is not geographically close
  - Often the regional trauma center in isolated regions (Idaho)

- **Level III**
  - Provides service to communities that do not have immediate access to a Level I or II
  - Provides patient assessment, resuscitation, emergency operations and stabilization
  - May provide some definitive care depending on level and type of injury

- **Level IV**
  - Generally located in rural settings
  - Stabilizes and transfers to higher level, usually a Level I or II
Advantages

- Every hospital could become a trauma center regardless of size
  - Voluntary
  - Participation and level would depend on the extent the hospital’s resources would allow
- Improved hospital length of stay
- Overall improvement in quality of patient care
- Disaster preparedness
- Regional designation standards
- Proven improved contribution margin (income) for hospitals that become trauma centers (Maggio, Brunage, Hernandez-Boussard, Spain, 2009)
Advantages cont.

- Only designated/verified hospitals may be reimbursed by payers for trauma response fees and trauma critical care
  - Revenue code 68x can only be used by trauma centers/hospitals as licensed or designated by the state or local government division authorized to do so, or as verified by the American College of Surgeons
  - Payment for trauma response fees would help hospitals recover trauma program costs
  - Improved support for transfer facilities
Hospital Requirements

- Trauma system infrastructure
  - Internal trauma staff such as a Trauma Coordinator and Trauma Medical Director
    - FTE needs are based on volume
  - Education of staff
    - Advanced Trauma Life Support (ATLS) for physicians
    - Trauma Nurse Core Curriculum (TNCC) for nursing staff
    - Ongoing continuing trauma education
Montana Trauma System Example

- Montana
  - Montana began their trauma system in 2006
    - Initial funding from grants
  - 39 facilities are currently designated
    - Number is increasing yearly
  - Main function of the trauma system is to provide a mechanism for hospital designation and support of the regional boards
  - Current budget is $157,000/year mainly in the salary costs
    - General funds

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Idaho Trauma System
Vision and Mission

A statewide trauma system will improve cost effectiveness of trauma care delivery, reduce the incidence of inappropriate or inadequate trauma care, prevent unnecessary suffering and reduce the personal and societal burden resulting from trauma. The system will also provide an additional framework for the state disaster preparedness and response plan by allowing for coordination of healthcare resources.
Idaho Trauma System
Position Statement

- It is essential for an inclusive trauma system to be designed to care for all injured patients and to provide a continuum of services including prevention, prehospital care, definitive care and rehabilitation.

- A trauma care system that ensures a coordinated approach to the swift identification of injury victims and transport to optimal care is critical to the reduction of preventable deaths and associated losses.
Idaho Trauma System
Goals and Objectives

- The primary objective of an inclusive trauma care system is to assure efficient, effective and timely care of injured persons. The injured person must receive rapid and appropriate care at the scene from law enforcement and emergency medical services personnel and receive rapid, definitive, medical/surgical treatment at an appropriate medical facility.
- An inclusive system of care would allow facilities to participate up to their resource capability as defined by the designation level.
  - Providing optimal care for the trauma patient;
  - Preventing unnecessary death and disability from trauma and emergency illness;
  - Conducting trauma prevention activities to decrease the incidence of trauma; and
  - Participating in local and regional disaster planning and exercises.
Idaho Trauma System
Structure

- The Idaho statewide trauma system is voluntary and governed by the Idaho State Trauma Authority (ISTA) and three Regional Trauma Advisory Committees (RTAC)
  - Northern RTAC
  - Southwestern RTAC
  - Southeastern RTAC.

- Each RTAC consists of representatives from each of the participating medical facilities and associated EMS agencies.
The ISTA, established by statute, will be broad-based and responsible for:

- The adoption and implementation of a trauma care plan; and
- Serving in an advisory capacity to Idaho State Trauma/EMS System.

**Trauma Care Plan**

- The ISTA’s Trauma Care Plan will:
  - Define an appropriate role for each participating hospital;
  - Specify capabilities and resources of hospitals on a regional level;
  - Assist with training for all pre-hospital and in-hospital personnel; and
  - Contain a quality assurance/quality improvement component to ensure patients receive optimal treatment based on available resources and integrate training with quality assurance/quality improvement.
Idaho State Trauma Authority (ISTA)
Regional Trauma Advisory Committees (RTACS)
Facility Site Visit Process
Trauma Registry

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Characteristics of optimal pre-hospital services include medical control, quality assurance protocols and a quality improvement plan that is based on:

- Triage protocols to assure right patient - right facility;
- Training in recognition and management of trauma patients and assuring knowledge of trauma system operation;
- Data collection capabilities; and
- Sufficient Telecommunications and on-line medical control.
Inpatient Care

ISTA will facilitate the improved care of trauma patients in all hospitals by:

- Establishing, through self-assessment and on-site evaluation, the capabilities of each hospital to manage the various types of trauma patients;
- Participating in developing regional plans for trauma patients;
- Establishing appropriate referral mechanisms and procedures for each hospital;
- Enhancing each hospital's capabilities to manage the trauma patient consistent with the trauma care plan;
- Documenting uncompensated trauma care;
- Training and educating physicians and nurses;
- Providing technical assistance to help hospitals improve their trauma care;
- Encouraging injury prevention programs; and
- Improving telecommunications and on-line medical control
Data Collection

- Collecting data on trauma cases meeting Idaho Trauma Registry inclusion criteria as required in Idaho Code §57-2001 through §57-2007;
- Identifying areas for improving the delivery of trauma care through quality assurance/quality improvement activities using trauma registry data, including patient outcome data;
- Adhering to the established trauma registry standards;
- Conducting data analysis to evaluate system performance both pre-hospital and in-hospital;
- Coordinating data from public safety, emergency medical services, medical facility and medical examiners; and
- Determining problems of care at all levels, and making changes in the system
The newly created Idaho State Trauma Authority, a Division of Public Health, in conjunction with Idaho Emergency Medical Services, will be designated as the lead agency to plan, develop, and implement a state-wide trauma system and will promulgate rules that include:

- A process for trauma center designation and classification;
- Standards for data collection, triage criteria and quality assurance/improvement activities;
- Provisions to ensure data confidentiality and protection from discovery; and
- Legal protection of the quality assurance/quality improvement process per Idaho Code §57-2006 and 2007
Proposed Organizational Structure

- **Oversight**
  - Department of Health

- **Staff**
  - 1 FTE Program Manager/Nurse Coordinator
  - .5-1.0 FTE or contracted Medical Director
  - 1 FTE Trauma Registry/Data Analyst
  - Administrative support
  - Contracted Survey teams
    - Surgeon/nurse team
Projected Costs
Similar to Montana’s Trauma System

- **Personnel**
  - Medical Director
    - $50-100K, depending on hours
    - Could also be a volunteer role held by current Trauma Medical Directors on a 2 year rotational basis
  - Program Manager
    - $80-90K
    - Usually Master’s prepared nurse
  - Trauma Registrar/Data Analyst
    - $35K
  - Administrative support
    - 30K, could be part-time

- **Operations**
  - Survey team-contracted approx $3,000 per site (doctor/nurse team)
    - 44K/year based on 1/3 of all Idaho hospitals surveyed yearly
  - Office overhead

- **Travel**
  - $40-$60k per year

**Potential total yearly budget minimum $350,000/year**
- Does not include ongoing trauma registry costs
Next Steps

- Endorsement of Stakeholders
  - IHA town hall meeting May 1st
  - Series of town hall meetings with EMS agencies, TBD

- Legislative Sponsor
  - Need to draft legislation allowing for the designation of hospitals
  - Need to include a clause allowing for further development of the trauma system including the enhancements of EMS

- Define regional and state structure
  - ISTA
  - RTACS

- Support EMS with needed enhancements
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<td>1. Stakeholder Engagement</td>
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<td>- EMS</td>
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<tr>
<td>- IHA</td>
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<td>- IMA</td>
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<td>Town hall meetings; EMS, IHA stakeholders</td>
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<td>2. Draft Legislation</td>
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<tr>
<td>- Allowing for hospital designation</td>
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<td>- Include a sunset clause allowing for future development of a comprehensive system</td>
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<tr>
<td>Legislative sponsored engagement</td>
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<td>3. Regional structure development</td>
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<td>Definition of ISTA and 3 RTACS</td>
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<td>Continued regional engagement</td>
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<td>4. Begin discussion on further comprehensive system development</td>
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<td>Further System development designed to enhance EMS</td>
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