TRAUMA OVERVIEW: DEPARTMENT OF HEALTH & SOCIAL SERVICES

<TARGET><BILL></BILL><SUBJECT>TRAUMA OVERVIEW DEPARTMENT OF HEALTH and SOCIAL SERVICES</SUBJECT><COMM>SHSS29</COMM></TARGET>

MARK D. JOHNSON marks.johnson@acsalaska.net
907-209-8165

Department of Health and Social Services (DHSS) Trauma Overview

DHSS Trauma Executive Summary

- Unintentional Injury:
  - Leading cause of death for those aged 1 to 44 in Alaska
  - Third highest trauma mortality in the U.S.
  - More years of productive life lost than heart disease, cancer, and stroke combined
  - In 2009, Alaska had over 5,000 trauma admissions with $121 million in hospital costs alone
  - Patients have up to a 25% lower risk of death when taken to a designated trauma center
  - Only 55% of the state's population is currently within 60 minutes of a Level I or II trauma center
- What is Trauma Care?
  - Trauma care is delivered at specialized hospitals known as trauma centers that are distinguished by the immediate availability of specialized personnel, equipment and services to treat the most severe and critical injuries
  - Trauma care includes ready-to-go trauma teams 24/7/365 that perform immediate surgery and other necessary procedures for people with serious or life-threatening injuries
  - Only 1 in 10 hospitals nationally serve as a trauma center. Emergency rooms treat ill and injured people; Trauma centers handle the most severe, life-threatening, blunt force and penetrating injuries
- Rural Trauma Care:
  - Nearly 60% of all trauma deaths occur in rural areas despite the fact that only 20% of the nation's population live in these areas
  - 87% of rural pediatric trauma patients who died did not survive long enough to reach the hospital
  - 84% of U.S. residents can reach a Level I or Level II trauma Center within an hour, but only 24% of residents in rural areas have access within one hour

Trauma Care Fund:

- The Trauma Care Fund (House Bill 168) was signed into law on June 21, 2010
- The Trauma Care Fund is used to sustain existing trauma centers; support the development of new trauma centers; and develop a statewide trauma system
- The Trauma Care Fund assists facilities with designated trauma status to offset the substantial and non-reimbursable costs of providing optimal trauma care to seriously injured Alaskans
- By 2016, it is projected that 23 of the 24 hospitals in Alaska, or 96%, will be designated trauma centers

Trauma's Role in Disaster Preparedness

Trauma Centers

- Designated Trauma Centers serve as leading institutions for disaster preparedness planning in the region and as significant community resources for disaster response
- Trauma maintains a full schedule of "real-time" drills (including unannounced and off-hour); exercises and tabletop events done in collaboration with state and regional localities, Military, and local community
- Extensive and rapid ability to surge, both on and off campus, with significant capacity for triage, decontamination, ED beds, surgical care , and hospital beds

Trauma Unit

- Training and exercise strategic planning and execution
- Expertise in mass casualty incidents, patient movement, triage and treatment for the DHSS EOC

Trauma System Improvement/Challenges:

- Identifying funding and reimbursement strategies that promote trauma care that is widely accessible, sustainable and cost-effective
- Delays in treatment due to geographical restrictions, lack of air medical services, inclement weather
- Absence of formal destination protocols
- Development of regional trauma committees
- Development of Trauma System Plan

Designated Trauma Centers in Alaska

Level II

1. Alaska Native Medical Center
2. Providence Alaska Medical Center

Level IV

1. Bartlett Regional Hospital
2. BBAHC Kanakanak
3. 673rd JBER
4. Fairbanks Memorial Hospital
5. Peace Health Ketchikan Medical Center
6. Norton Sound Health Corp
7. Providence Seward Medical Center
8. Providence Kodiak Island Medical Center
9. Providence Valdez Medical Center
10. South Peninsula Hospital
11. Samuel Simmonds Memorial Hospital
12. SEARHC Mt. Edgecumbe Hospital
13. Sitka Community Hospital
14. Yukon Kuskokwim Health Corporation

Alaska Trauma Registry Overview

- System Purpose
  - Active surveillance system that collects information on the most seriously injured patients in Alaska, and the treatment they received from Alaska's 24 Acute Care Facilities
  - Complete and valid data set, 1991 - 2013
  - Provides means to evaluate the quality of trauma patient care, trauma system development, and to plan and evaluate injury prevention programs
  - Provides means for evidence-based and cost-effective decision making
  - The registry serves local and national agencies including: Alaska Trauma System Review Committee (ATSRC), local, regional, and state injury prevention and other agencies, legislators, Universities, Center for Disease Control and Prevention (CDC), National Institute for Occupational Safety and Health (NIOSH), National Highway Traffic Safety Administration (NHTSA), Injury Prevention Associations

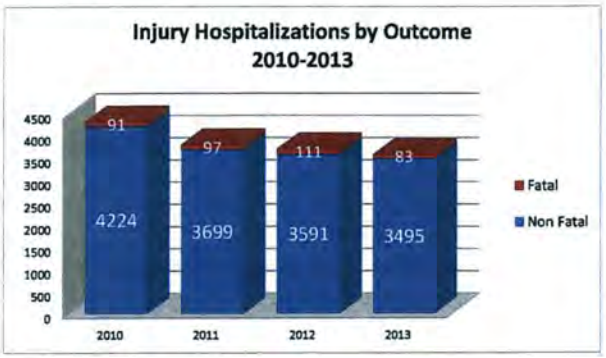
Figure 1: Injury Characteristics 2010-2013

- Data Stored in the System
  - The Alaska Trauma Registry is a repository of the most seriously injured patients admitted to an Alaskan hospital and includes circumstances surrounding the patient demographics, injury event, patient transport, treatments, and outcomes

Criteria for inclusion in the trauma registry:
Patients who are:

- admitted to an Alaska hospital
- held for observation (since 1/1997)
- transferred to another acute care hospital
- declared dead in the emergency department
- left Against Medical Advice (would have been admitted)
- for whom contact occurred within 30 days of the injury

Figure 2: Injury Outcome 2010-2013



- Data-Sharing Agreements For Ongoing Research
  - Alaska Highway Safety Office
  - Alaska Injury Prevention Center
  - Alaska Native Tribal Health Consortium
  - National Institute for Occupational Safety and Health
  - UAA Justice Center
  - Southeast Regional Health Corporation
  - Southcentral Foundation
  - DHSS/DPH Health Planning and Systems Development CODES Project
  - DHSS/DPH Epidemiology special research projects
  - Office of Boating Safety (DNR)
  - National Trauma DataBank

- Health Indicators Monitoring For Ongoing Research
  - Alaska Brain Injury Network
  - Comprehensive Integrated Mental Health Plan
  - Maternal and Child Health Block Grant Program
  - Health Alaskans
  - DPH Health Status Indicators
  - Kids Count
  - Rural Hospital Flexibility Program

The Alaska Trauma Registry Program receives 50 – 100 requests for information per year for research, program support, public policy support, and education. These requests encompass the broad spectrum of injury mechanisms to include; suicide, falls, motor vehicle child occupant injuries, teen driving injuries, motor vehicle vs. moose crash injuries, biking injuries, off-road motor vehicle injuries, dog bite injuries, firearm injuries, fire and burn injuries, traumatic brain injuries, alcohol-related injuries, work-related injuries, elderly and child abuse, assault injuries, near drowning, cold injuries, injuries to Alaska Natives, and regional injuries.

Medicaid costs

Development of an inclusive trauma system has been shown conclusively to save lives. It is important to realize that there is also evidence to show increased cost savings with an inclusive trauma system. One of the biggest drivers of Medicaid costs in Alaska is travel and aeromedical evacuation. An important part of an inclusive system is the development of patient care guidelines and regional triage criteria . When these are in place, patients avoid unnecessary transfers and avoid receiving unnecessary duplicate care at outlying facilities.

Here in Alaska, head Injury guidelines developed by the trauma systems review committee and implemented in the tribal system among decreased unnecessary medical evacuations for minor head trauma by over 80% with a cost savings of over $300,000 at one facility. Development of regional triage criteria have resulted in seriously injured patients being brought directly to higher level trauma centers bypassing smaller facilities saving both precious time and decreasing costs.

MEDICAID PATIENTS TRAUMA ACTIVATIONS 2015

	TRAUMA TEAM FULL	TRAUMA TEAM PARTIAL	Total
ALASKA NATIVE MEDICAL CENTER	7	14	21
BARTLETT REGIONAL HOSPITAL	2		2
FAIRBANKS MEMORIAL HOSPITAL	2	4	6
KANAKANAK HOSPITAL (BBAHC)			
KETCHIKAN PEACE HEALTH, MEDICAL CENTER		1	1
MAT-SU REGIONAL MEDICAL CENTER		3	3
PROVIDENCE ALASKA MEDICAL CENTER	14	21	35
PROVIDENCE KODIAK ISLAND MEDICAL CENTER		2	2
PROVIDENCE SEWARD MEDICAL CENTER	1		1
PROVIDENCE VALDEZ MEDICAL CENTER	1		1
SAMUEL SIMMONDS MEMORIAL HOSPITAL			
SOUTH PENINSULA HOSPITAL	2	1	3
YUKON KUSKOKWIM DELTA REGIONAL HOSPITAL		2	2
Grand Total	**29**	**48**	**77**

TRAUMA CARE IN ALASKA 2016

In 2008, the American College of Surgeons conducted a review of Alaska's state-wide trauma system and made several recommendations.

In 2010 the Alaska Legislature passed the Trauma Fund Act (AS 18.08.085) creating grants to state certified trauma centers. Since passage of this act, there has been rapid and sustained development of an inclusive trauma system in Alaska.

The number of Alaska hospitals meeting the standards for trauma center designation has increased from 5 of 24 hospitals in 2009 (20%) to 17 hospitals currently (70%) -15 level IV (basic) and 2 level IIs (highest in Alaska). There still is a need for Level III trauma centers in mid-sized communities.

Alaskans now have quicker access to medical providers with special training in care of injured patients.

Better protocols and cooperation between hospitals working as a system have resulted in a decrease in patients in rural areas requiring two hospital evaluations and multiple medical transports to reach definitive care.

In 2014 there was a 33% decrease in double transports. Seriously injured patients are now more frequently brought directly to the hospitals where they can get definitive care. This resulted in approximately 50 fewer indirect air medical transports in 2015 compared to 2010.

The average cost for an air medical transport from the bush to Anchorage was $64,000. Approximately 20% of all trauma medical evacuations are Medicaid recipients.

Physicians in Fairbanks report that, since Providence Alaska Medical Center became a level II Trauma Center in February 2015, there has been a decrease in sending injured patients from Fairbanks to Harborview Trauma Center in Seattle.

Fairbanks to Seattle (Harborview) air ambulance transports cost $153,655. Fairbanks to Anchorage air ambulance transports cost $36,745. Sending trauma patients from Fairbanks to Anchorage instead of to Seattle results in significant savings in air ambulance transport costs.

Trauma centers provide teams of trauma trained medical professionals available to care for severely injured patients without delay. On notification of the pending arrival of a seriously injured patient, hospital resources and personnel are mobilized to be immediately available to evaluate, stabilize and treat the injuries. This is a proven approach that has resulted in up to a 25% reduction in death from serious injury.

Levels of trauma team activation are determined by the local community, state, and/or American College of Surgeons triage criteria, and are applied based on the medical condition of the patient.

Trauma centers, like EMS, fire and police departments, are available 24 hours, 7 days a week. Few trauma centers are publically financed in a similar manner to EMS, fire, and police which are primarily funded through local taxpayer dollars.

FUNDING and OPTIONS

From 2010-2015, $5.9 million was allocated and dispersed to the 17 designated trauma centers through the Alaska Trauma Fund. All money went to trauma training, equipment and personnel. A 2015 audit by DHSS showed all funds were used appropriately.

In FY 2016 no money was allocated to the trauma fund.

Most states use directed fees or surtaxes to fund their trauma systems. The Alaska Constitution makes this a difficult option due to the prohibition of dedicated funds.

1. **Appropriate money for the trauma fund**. This is a time of significant austerity but the trauma fund has been an excellent investment and has helped institute a system not just for treating injured patients but also a process for moving Alaskans with any time critical condition to the right place in the right amount of time.

2. **Permit Medicaid to pay for trauma team activations at designated trauma centers and require private insurers doing business in Alaska to pay for trauma activations.** In most of the U.S., the Centers for Medicare and Medicaid Services (CMS) and private insurers pay trauma activation fees to designated trauma centers for care of seriously injured patients. Prior notification by outside medical entities (i.e. EMS or transferring hospital) is required.

The trauma team activation fee was designed to better reimburse the cost of readiness and trauma team activation. Trauma team activations are based on levels of activation, determined by the local community, state, or the American College of Surgeons triage criteria, and are applied based on the patient's medical condition. Fees are based on the amount necessary to operate the trauma center for all who need it, but typically vary based on the level of activation.

The level of commitment by trauma centers coupled with the public expectation for high quality care requires trauma centers to make considerable investments in readiness.

Appropriation of money to the trauma fund and assuring that private insurance carriers in Alaska and Medicaid pay for trauma activations at designated trauma centers will help sustain the gains made in trauma system development. Lack of financial support to offset the costs of higher training and availability of qualified medical personnel threatens those gains. The cost of readiness is expended regardless of patient volume or insurance status. Allowing trauma centers to recoup some of their readiness costs will help sustain and develop our trauma system resulting in both improved patient care and outcomes and significant cost savings.

For additional information, contact:

Frank Sacco, MD, FACS, Chief of Surgery, Alaska Native Medical Center

Chairman, Alaska Trauma System Review Committee

fsacco@anthc.org

Danny Robinette, MD, FACS, Chairman, American College of Surgeons, Alaska Chapter

Surgeon, Fairbanks Memorial Hospital

drrobinette@gmail.com

Thomas Knowlmayer, MD, FACS, Trauma Surgeon, Providence Alaska Medical Center

Member, Alaska Trauma System Review Committee

tknowlmayer@gci.net

Mark S. Johnson, MPA

Member, Alaska Trauma System Review Committee

marksjohnson@acsalaska.net

ALASKA TRAUMA SYSTEM

WHAT IS TRAUMA?

Trauma is any bodily injury from external force. Although many people think of trauma as "accidents", it is better thought of as a disease. Like heart disease and cancer, trauma has identifiable causes and risk factors; and like these conditions prevention is the best strategy. Even with the best prevention efforts we need to be able to take care of seriously injured patients. We need to show the same commitment that we bring to cardiac and cancer treatment to trauma care. Optimal treatment of the seriously injured patient requires integration of personnel, transport and facilities to get the patient to "the right place in the right amount of time."

IMPACT OF TRAUMA IN ALASKA

Trauma is a tremendous burden on Alaskan families and government.

- Alaska has the third highest death rate from trauma in the US.
- Trauma is the leading cause of death for Alaskans ages 1-44.
- More than 400 Alaskans die from injuries every year.
- For every trauma death there are an estimated 3 patients discharged with a permanent disability.
- On average ~800 Alaskans are hospitalized each year with head or spinal cord injuries.
-Motor vehicle accidents, firearm related injuries and falls are the leading causes of injury death.
-Approximately one in four hospital admissions for trauma was uncompensated and there were over 177 million dollars in hospital costs alone for trauma care.

YEARS OF POTENTIAL LIFE LOST TO TRAUMA

Death from trauma is tragic at any age. Society's loss is especially great because so many young people die from this disease. Public health specialists measure this impact "in years of potential life lost", that is the number of years between early death from injury and an average age of death at 70 years old. Using this measure trauma results in more years of potential life lost than cancer and heart disease and HIV combined.

WHAT IS A TRAUMA SYSTEM?

A trauma system is a predetermined organized, multidisciplinary response to managing the care and treatment of severely injured people. It spans the full spectrum of care; from prevention and emergency care to definitive therapy and rehabilitation. Best practice standards guide each stage of care to ensure that injured patients receive optimal care as they are promptly transported to and treated at facilities appropriate to the severity of their injuries.
A statewide trauma system also provides the framework for disaster preparedness and response. The nature of a functioning trauma system is such that there is ongoing monitoring and coordination of the care of the severely injured. Ideally the

system identifies the needs and resources available at any moment and responds to insure optimal care.

WHY HAVE A TRAUMA SYSTEM?

.Among states with comprehensive inclusive systems, studies have shown a 15-25 percent increase in the survival rates of seriously injured patients..

For a seriously injured person, the time between an injury and definitive care is an important determinate of survival – the "golden hour". The chance of survival diminishes with time despite the most modern technologies. Trauma systems enhance the chance of survival by making sure that patients are brought to the most appropriate facility in the most efficient manner and that they receive optimal care each step of the way. Trauma systems benefit everyone regardless of locale, income, race or political beliefs. The efficacy of a system approach was first demonstrated by the military in time of war and has subsequently been adopted by most states with demonstrated improvements in outcomes and care.

DISASTER PREPAREDNESS

Trauma systems play a vital role in the community response to natural disasters or manmade incidents. We do know that Alaska will experience major earthquakes or other untoward events in the future. For the best outcomes in these critical events, the system needs to communicate, respond and coordinate. These functions are part of a functioning trauma system and are implemented every day and reviewed on a regular basis. A functioning trauma system provides the framework for developing an organized coherent response to these incidents.

ALASKAS TRAUMA SYSTEM

In the early nineties, similar to many other states, Alaska began planning a statewide trauma system. In 1993 legislation was passed giving the Department of Health and Social Services - EMS the authority to designate trauma centers in Alaska. Criteria were established using nationally accepted standards and a process for review was developed. The legislation did not mandate hospital participation nor did it have any incentive for facilities to participate.

Under this approach, in 2008, fifteen years after implementation only five of twenty-four hospitals had been able to meet the standards of care for designation as trauma centers. Four hospitals had been designated as Level IV centers with the capability to stabilize seriously injured patients for transport. Only one facility, the Alaska Native Medical Center (ANMC), met the standards for a Level II facility capable of providing definitive care for the most seriously injured.

ALASKA TRAUMA CARE REVIEW

The Alaska Department of Health and Social Services (DHSS) contracted with the Committee on Trauma of the American College of Surgeons (ACS) in November 2008 to review trauma care in Alaska. The full report is available on the DHSS

website (www.chems.alaska.gov). It notes our strengths and weaknesses and makes recommendations for improving trauma care in our state.

Strengths included: well established injury prevention programs; extensive and creative networks for ground and air medical transport; medical subspecialty care availability at Anchorage hospitals; and a good relationship with Harborview Medical Center (Level I trauma center) in Seattle.

The review team members noted that among the nontribal hospitals there was no statewide trauma plan and no incentive or requirements for hospitals to participate in the system. Additionally, there were few resources at the state level for trauma system management and coordination. Perhaps as important as any of the above, they noted that there seemed to be very little public awareness of trauma system issues.

The review team made 15 priority recommendations. Several involved better organization of state resources and development of a comprehensive statewide trauma plan. The most sweeping recommendation was that all acute care hospitals be required to become designated trauma centers at a level appropriate to their resources and size within two years. In addition, there should be financial support of hospitals that meet the standards for trauma center designation. They further stated that there should be a second level II trauma center in Anchorage as soon as possible.

2008 TO PRESENT

Shortly after publication of the report, the state created a state trauma program manager position in the Department of Health and Social Services. This along with the passage of the Trauma Fund Act in 2010 has stimulated participation in the statewide trauma system. The legislation created a fund that disperses money to designated trauma centers to assist with the cost of maintaining training, personnel and equipment to meet national standards of trauma care. To date, $6,000,000 has been dispersed over 5 years for equipment, training and personnel. After 15 years of only 5 hospitals meeting criteria for trauma center designation, the five years following passage of the Trauma Fund Act saw an additional 11 facilities achieve Level IV designation. In addition, Providence Alaska Medical Center became the second ACS verified Level II trauma center in Alaska.

PRESENT / FUTURE

The ACS report and trauma fund legislation has advanced the development of the Alaska trauma system with improvements in care and outcomes of injured Alaskans. The challenge going forward is that state grant funding is no longer available. No money has been allocated for FY 2016. The state's current fiscal crisis makes further

allocations to the trauma fund problematic. How do we sustain the progress that has been made and continue to improve the system?
This has long been an issue for trauma systems around the country and has been addressed a number of ways. Targeted fees and taxes are common including "sin" taxes, revenues from speeding tickets or vehicle registration. In Alaska these targeted revenues have not been an option.
Outside of Alaska the payment of trauma activation fees by insurance companies, Medicare and Medicaid (CMS) has been instrumental in sustaining trauma centers. At a designated trauma center, when a seriously injured patient arrives, a team is readily available to treat the patient's time critical life threatening conditions. A trauma activation fee is the cost of mobilizing the trauma team members and of having them trained and readily available.
Having Medicaid pay for trauma activations at designated trauma centers and requiring commercial insurers selling insurance in Alaska pay the activation fees from designated centers would help sustain and grow the trauma system in Alaska. The impact on the state budget would be revenue neutral. (How do we convince Legislators that this won't increase Medicaid costs for the state? Can you cite studies showing that improved outcomes can save money?)
It is important to note that for tribal beneficiaries treated at tribal facilities, all Medicaid fees are paid by the federal government not the state

Frank Sacco MD FACS
Chair Alaska Trauma Systems Review Committee
fsacco@anthc.org

Daniel Robinette MD FACS
Governor, Alaska Chapter of the American College of Surgeons
drrobinette@gmail.com

Tom Knolmayer MD FACS
State Chair Committee on Trauma American College of Surgeons
tknolmayer@gmail.com

Mark Johnson, MPA
State of Alaska DHSS EMS section chief 1979-1996 and Chief, Community Health and EMS 1996 - 2004(retired)
Member, Alaska Trauma Systems Review Committee
marksjohnson@acsalaska.net