

Trauma Clinical Guideline Interfacility Transport

The Trauma Medical Directors and Program Managers Workgroup is an open forum for designated trauma services in Washington State to share ideas and concerns about providing trauma care. The workgroup meets regularly to encourage communication among services, and to share best practices and information to improve quality of care. On occasion, at the request of the Emergency Medical Services and Trauma Care Steering Committee, the group discusses the value of specific clinical management guidelines for trauma care.

The Washington State Department of Health distributes this guideline on behalf of the Emergency Medical Services and Trauma Care Steering Committee. The goal is to assist trauma care services with developing their trauma patient care guidelines. The workgroup has categorized the type of guideline, the sponsoring organization, how it was developed, and whether it has been tested or validated. This information will help physicians evaluate the content of this guideline and its potential benefits for their practice and patients.

The Department of Health does not mandate the use of this guideline. The department recognizes the varying resources of different services, and that approaches that work for one trauma service may not be suitable for others. The decision to use this guideline in any particular situation always depends on the independent medical judgment of the physician. We recommend that trauma services and physicians who choose to use this guideline consult with the department regularly for any updates to its content. The department appreciates receiving any information regarding practitioners' experiences with this guideline. Please direct comments to 360-236-2874.

This is a trauma assessment and management guideline. The workgroup reviewed the guideline, sought input from trauma care physicians and nurses throughout Washington State, and used that input to make changes. The Emergency Medical Services and Trauma Care Steering Committee and the Department of Health Office of Community Health Systems, EMS and Trauma Section endorsed the guideline. This guideline has not been tested or validated.

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Transfer Guidelines

We strongly encourage hospital systems to collaborate with their emergency medical services (EMS) systems to review, revise and implement this guideline based on the availability and staffing capabilities of EMS transport services in their specific area. There is a wide variation of EMS capabilities and configurations statewide. Additionally, applicable content in regional patient care procedures, medical program director (MPD)-approved county operating procedures and patient care protocols need to be reviewed and evaluated for consistency with this guideline to ensure a seamless implementation of this tool.

Decision to Transfer

The decision to transfer to the next higher level of care must be made rapidly based on the physician's assessment and clinical expertise. A trauma patient with multiple injuries who has a potential for deterioration must be transported as rapidly as possible with an emergency department length of stay (ED LOS) of two hours or less. Injured patients who are stable with a limited chance of deterioration but still require interfacility transport should have an ED LOS of three hours or less.

The decision to transfer to the next higher level trauma service must be based solely on the needs of the patient and not on the patient's or referring facilities connection to a preferred provider organization or managed care organization.

Transfer Criteria

The following criterion includes examples of injuries and illnesses that may require interfacility transport to a trauma service of equal or greater level of designation.

Physiologic Criteria

1. Depressed or deteriorating neurologic status
2. Respiratory distress or failure
3. Requiring advanced airway management and/or ventilatory support
4. Serious cardiac rhythm disturbances associated with a traumatic event
5. Status post cardiopulmonary arrest following a traumatic event
6. Shock, uncompensated or responding inadequately to treatment
7. Injuries requiring blood transfusion of two or more units of packed red blood cells (PRBC)
8. High-risk obstetrical patient following a traumatic event
9. Patients requiring any one of the following:
 - a. Invasive monitoring (arterial and/or central venous pressure)
 - b. Intracranial pressure monitoring
 - c. Central venous pressure or pulmonary artery monitoring
 - d. Unresponsive or prolonged vasopressors administrations
 - e. Treatment for severe hypothermia or hyperthermia
 - f. Treatment for renal failure, acute or chronic requiring immediate dialysis

Anatomic Criteria

1. Fractures and deep penetrating wounds to an extremity complicated by neurovascular or compartment injury
2. Fracture of two or more major long bones (such as femur, humerus)
3. Fracture of the axial skeleton
4. Spinal cord or column injuries
5. Traumatic amputation of an extremity with potential for replantation
6. Head injury when accompanied by any of the following:

- a. Cerebrospinal fluid leaks
- b. Open head injuries (excluding simple scalp injuries)
- c. Depressed skull fractures
- d. Decreased level of consciousness
- e. Intracranial hemorrhage
7. Significant penetrating wounds to the head, neck, thorax, abdomen or pelvis
8. Pelvic fracture
9. Significant blunt injury to the chest or abdomen

American Burn Association Referral Criteria

1. Partial thickness burns greater than 10 percent total body surface area (TBSA)
2. Burns that involve the face, hands, feet, genitalia, perineum, or major joints
3. Third degree burns in any age group
4. Electrical burns, including lightning injury
5. Chemical burns
6. Inhalation injury
7. Burn injury in patients with preexisting medical disorders that could complicate management, prolong recovery, or affect mortality.
8. Any patient with burns and concomitant trauma (such as fractures) in which the burn injury poses the greatest risk of morbidity or mortality. In such cases, if the injury poses the greater immediate risk, the patient may be initially stabilized in a trauma center before being transferred to a burn unit. Physician judgment will be necessary in such situations and should be in concert with the regional medical control plan and triage protocols.
9. Burned children in hospitals without qualified personnel or equipment for the care of children.
10. Burn injury in patients who will require special social, emotional, or rehabilitative intervention.

Injured patients with any of the following:

1. Patients less than 15 years old requiring specialized pediatric care.
2. Near drowning associated with injury with loss of consciousness, unstable vital signs or respiratory distress and/or failure.
3. Status epilepticus
4. Potentially dangerous envenomation
5. Potentially life-threatening ingestion of, or exposure to, a toxic substance
6. Severe electrolyte imbalances
7. Severe metabolic disturbances
8. Severe dehydration
9. Potentially life-threatening infections, including sepsis
10. Any adult who may benefit from consultation with, or transfer to, an adult intensive care unit

The following transport team configurations are recommendations. They should be based on the independent medical judgment of the physician and reasonable availability of prehospital EMS and air transport resources. These recommendations are consistent with Revised Code of Washington (RCW) 18.73.150 and the National Highway Traffic Safety Administration (NHTSA) guide to interfacility patient transfer (2006).

Transport Team Configuration Recommendations

- I. Stable with no risk for deterioration: basic life support (BLS)
Oxygen, monitoring of vital signs, saline lock.

Care level recommendation: emergency medical technician (EMT) attending to patient consistent with RCW 18.73.150
- II. Stable with low risk of deterioration: Intermediate life support (ILS, if available) or advanced life support (ALS)
Patent intravenous access (IV), use of IV medications including pain medications, pulse oximetry, increased need for assessment and interpretation skills.

Care level recommendation: EMT with IV endorsement if fluids without medication. If medications are being administered, a minimum of a Washington State certified paramedic.
- III. Stable with medium risk of deterioration: advanced life support (ALS) with consideration of critical care transport team (CCTT)
Cardiac monitoring, basic cardiac medications, e.g., heparin or nitroglycerine: Requires advanced care such as an advanced life support service. An appropriate critical care transport team should be given consideration based on the patient's underlying medical condition and reason for transfer.

Care level recommendation: Washington State paramedic or registered nurse (RN) with critical care and transport training.
- IV. Stable with high risk of deterioration: ALS with use of CCTT highly encouraged
Patients requiring advanced airway management, intubated, stabilized patients with potential for deterioration, based on assessment or knowledge of provider. Requires advanced care such as an advanced life support service, use of a specialty transport team is highly encouraged.

Care level recommendation: Critical care transport nurse or RN with critical care and transport training (may require transferring hospital to provide in some circumstances).
- V. Unstable: ALS with use of CCTT
Any patient who cannot be stabilized at the transferring facility, who is deteriorating or likely to deteriorate, patients requiring invasive monitoring, balloon pump, patients on multiple vasoactive medications, post-resuscitation, or who have sustained multiple trauma-related injuries require the use of specialty transport team. If the decision to transport is determined by the provider then the use of multiple transport personnel is recommended.

Care level recommendation: Critical care transport nurse or RN with critical care and transport training (may require transferring hospital to provide in some circumstances).

Method of Transport

The method of transport is dependent on the variables listed below. Air transport, either by fixed wing or rotary wing, is typically used when speed is critical, long distances are involved, and/or a specialty team is required for patient care. There are circumstances where taking an ALS unit out of a community for an extended period of time leaves the community without an ALS resource. In such cases, an air transport service may be preferred to maintain access to a community's limited ALS resources.

The following guidelines will help the provider determine which type of transport method to use when transferring a critically ill or injured person. This can also be divided into categories when assessing the method of transfer (ground vs. air) as well as crew composition (NHTSA guide, 2006).

1. The availability of critical care and/or specialty care transport team within a reasonable proximity.
2. The modes of transportation and/or transport personnel available as options in the geographic area.
3. Specific circumstances associated with the particular transport situation (e.g., inclement weather, major media event, etc.)
4. Anticipated response time of the most appropriate team and personnel.
5. Established state, local, and individual transfer service standards and/or requirements.
6. Combined level of expertise and specific duties/responsibilities of the individual transport team members.
7. Degree of supervision required by and available to the transporting team members.
8. Complexity of the patient's condition.
9. Anticipated degree of progression of the patient's illness/injury prior to and during transport.
10. Technology and/or special equipment to be used during transport.
11. Scope-of-practice of the various transport team members.

Medical Control

Medical control during transport must follow the law set in the Emergency Medical Treatment and Labor Act (EMTALA) and state RCW. Patient care during transport is the responsibility of the transferring physician and hospital until the patient arrives at the receiving facility. If EMS personnel need to consult during transfer they should first contact the transferring physician or hospital. If the transferring physician/hospital is unavailable they should contact the receiving physician or hospital. If the receiving physician or hospital is unavailable they should contact EMS online medical control indicated in their patient care protocols for direction. During transport for specialty care, it may be necessary to communicate directly with the accepting physician or specialty service.

Definitions

Advanced life support (ALS) –invasive emergency medical services requiring the advanced medical treatment skills of a paramedic.

Basic life support (BLS) –emergency medical services requiring basic medical treatment skills as defined in chapter 18.73 RCW.

Critical care transport –the interfacility transport of a patient whose condition requires care by a physician, RN or a paramedic who has received special training and approval by the MPD.

Critical care transport nurse¹ – A registered nurse who possesses specific knowledge and training in critical care nursing and critical care transport with a minimum of three years of critical care experience in a direct caregiver role.

Emergency department length of stay (ED LOS) – the length of stay in the ED prior to being transferred to the next higher level of care.

Emergency medical technician (EMT) – a person who has been examined and certified by the secretary of health as an EMT to render prehospital EMS care as defined in RCW 18.73.081.

Interfacility transport – medical transport of a patient between recognized medical treatment facilities requested by a licensed health care provider.

Intermediate life support (ILS) –emergency medical services requiring the advanced medical treatment skills and training of an advanced EMT (AEMT).

Paramedic (EMT-P) – a person who has been trained in an approved program to perform all phases of prehospital emergency medical care, including advanced life support, under written or oral authorization of an MPD or approved physician delegate, examined and certified by the secretary under chapter 18.71 RCW.

Registered nurse (RN) – a person licensed under the provisions of chapter 18.79 RCW.

References

American College of Surgeons. Resources for the Optimal care of the Injured Patient: 2014. Chicago, IL.

Feliciano, D., Mattox, K., Moore, E., (2008) Trauma (6th ed.). New York: McGraw Hill.

National Highway Traffic Safety Administration. [Guide to interfacility patient transfer](#). DOT Publication HS 810599. Washington DC (2006).

Revised Code of Washington 18.73.150.

Washington Administrative Code 246-796.

¹Definitions per WAC 246-976-010

²Definition per The Association of Critical Care Transport (ACCT)
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