



Washington State Department of Health  
Emergency Care System Assessment

Responses to American College of Surgeons  
Systems Consultation Pre-review Questionnaire (PRQ)

March 6, 2019

**Table of Contents**

Section 1 – Emergency Care System Assessment .....3  
    I - Injury Epidemiology.....3  
    II - Indicators as a Tool for System Assessment .....6  
Section 2 – Emergency Care System Policy Development .....7  
    I - Statutory Authority and Administrative Rules (RCW & WAC).....7  
    II - System Leadership..... 12  
    III - Coalition Building and Community Support ..... 16  
    IV - Lead Agency and Human Resources within the Lead Agency..... 17  
    V - Trauma System Plan..... 19  
    VI - System Integration ..... 20  
    VII - Financing ..... 24  
Section 3 – Emergency Care System Assurance ..... 26  
    I - Prevention and Outreach ..... 26  
    II - Emergency Medical Services ..... 29  
    III - Definitive Care Facilities ..... 35  
    IV - System Coordination and Patient Flow ..... 42  
    V - Rehabilitation ..... 46  
    VI - Disaster Preparedness..... 48  
    VII - System-wide Evaluation and Quality Assurance ..... 52  
    VIII - Trauma Management Information Systems ..... 56  
    IX - Research ..... 59  
Section 4 – Post consultation measures..... 61  
Section 5 - PRQ addendum – additional contract deliverables..... 61  
    I – EMS and trauma minimum and maximum levels of service and distribution regionally and statewide ..... 61  
    II - Rural EMS and trauma sustainability ..... 64  
    III - Trauma rehabilitation care sustainability..... 64  
    IV – EMS oversight – medical program directors (MPDs) ..... 65  
    V – EMS and trauma regional plans ..... 66  
    VI - Interfacility transports..... 66  
Section 6 – Documents list ..... 68

## Section 1 – Emergency Care System Assessment

## I - Injury Epidemiology

## 1. Describe the epidemiology of injury in your region and unique features of:

## a. Children

- Infants (<1 year old): 57% (65 out of 119) of injury-related deaths in infants were caused by unintentional suffocation. The rates for unintentional suffocation decreased from 21 to 14 per 100,000 between 2013 and 2017. In 2015, there were 218 infants hospitalized because of unintentional injury with falls as the leading cause, 33 because of assault, and 35 with undetermined cause.
- Children 1-4 years old: Unspecified Assault is the leading cause of injury-related deaths in this age group (14%) (19 out of 137), with Unintentional injuries by motor vehicle-traffic, fire/burns, and other pedestrian following close behind (18 deaths each), and unintentional drowning (15 out of 137). In 2015, there were 455 hospitalized because of unintentional injury with falls as the leading cause, 27 because of assault and 7 with undetermined cause.
- Children 5-9 years old: The leading cause of injury-related deaths was unintentional motor vehicle traffic (25 out of 75). In 2015, there were 358 hospitalized because of unintentional injury with falls as the leading cause, 3 because of self-inflicted, 7 because of assault, and 13 with undetermined cause.
- Children 10-14 years old: The leading cause of injury-related deaths was self-inflicted suffocation in (30 out of 123). In 2015, there were 404 hospitalized because of unintentional injury with falls as the leading cause, 184 because of self-inflicted with poisoning as the leading cause, 18 because of assault, and 18 with undetermined cause.

## b. Adolescents

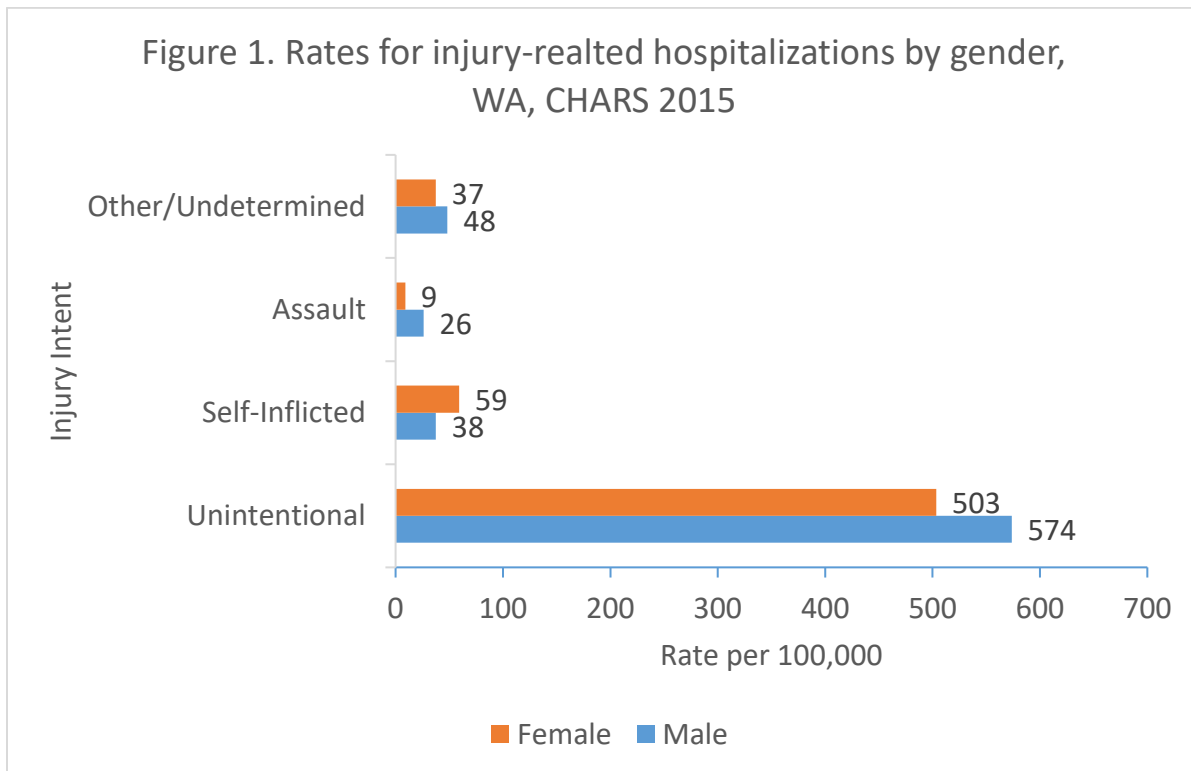
The leading causes of injury-related deaths in those 15 to 24 years old were unintentional motor vehicle traffic (556 out of 2188), followed by unintentional poisoning (339 out of 2188) and self-inflicted firearm (329 out of 2188). Between 2013 and 2017, the trends in the self-inflicted firearm related deaths increased from 5.8 to 8.5 per 100,000. In 2015, there were 1924 hospitalized because of unintentional injury with motor vehicle traffic as the leading cause, 762 because of self-inflicted with poisoning as the leading cause, 251 because of assault with the firearm as the leading cause, and 187 with other/undetermined cause.

## c. Elderly people

Among people 65 years and older, 55% of injury-related deaths were caused by unintentional falls (4206 out of 7672), followed by self-inflicted firearm (684 out of 7672). Between 2013 and 2017, the trends in unintentional falls related deaths increased from 78 to 92 per 100,000. In 2016, 12% of people 65 and older reported having fall-related injury in the past 12 months (BRFSS data). In 2015, there were 22160 hospitalized because of unintentional injury with falls as the leading cause, 193 because of self-inflicted with poisoning as the leading cause, 71 because of assault with the firearm as the leading cause, and 1341 with other/undetermined cause.

d. Other special populations

- American Indian/Alaskan Native: the rates for unintentional and intentional (suicide) injury-related deaths was highest among American Indian/Alaskan Native (114, 26 per 100,000 population, respectively).
- Black: The rates for assault-related deaths was highest among Black (14 per 100,000 population, respectively).
- Male: the rate for injury-related deaths in males was more than two times as much as in females (84, 39 per 100,000, respectively). In 2015, the hospitalization rates for unintentional and assault related injuries were higher in males than in females, while the rates for intentional self-harm hospitalizations were higher in females than in males (Figure 1).



2. Describe the databases that are used to formulate the injury epidemiology profile (for example, population-based and clinical).

The databases currently used to develop the injury epidemiological profiles are death certificates, the Comprehensive Hospital Abstract Reporting System (CHARS) hospital discharge data from the Washington Department of Health Center for Health Statistics and Washington Behavioral Risk Factor Surveillance System (BRFSS) data and the Healthy Youth Survey. WA State Patrol Toxicology Lab data is also used in surveillance of the opioid epidemic.

- Death certificates data are population-based data, which establish legal benefits and provide information about causes of death and characteristics of decedents. The death certificate system covers all deaths in Washington and those of Washington residents who die in other states; the Washington State Department of Health Center for Health Statistics estimates that the system includes 99% of deaths to Washington residents.
- CHARS data are clinical based. CHARS is a Department of Health system which collects record level information on inpatient patient community hospital stays and is used to: Identify and analyze hospitalization trends; Establish statewide diagnosis related group weights, as a way of comparing hospital stays across all hospitals; Identify and quantify health care access, quality, and cost containment issues. CHARS covers hospital licensed by the Washington State Department of Health. These hospitals are basically the community hospitals in the Washington State. CHARS does not cover Federal hospitals, such as Veteran's Administration and Indian Health Service, Military and Department of Social and Health Services (Western and Eastern Psych).
- BRFSS data are population-based data. BRFSS provides indicators of health-risk behavior, preventive practices, healthcare use and access, knowledge and attitudes about health-related behaviors and practices, and prevalence of selected diseases in Washington. From 1987–2010, BRFSS included adults living in households with landline telephones. In 2011, the survey began including a sample of cell phones. The proportion of surveys completed on cell phones has increased from 5% of calls in 2011 to 47% in 2016. In addition to the statewide sample, since 2003, BRFSS has oversampled small counties to allow reporting of BRFSS information by county.
- [Washington State Violent Death Reporting System](#) provides details about the circumstances of violent deaths (suicides, homicides, firearm deaths) occurring in Washington State. The system has just become statewide in 2018. Data is available to the public by request.

Additional data sources that can be incorporated into the profile include in the future:

- Emergency Department data from the Rapid Health Information System (RHINO),
- Washington State Emergency Medical Services Information System (WEMSIS) data, and
- [Healthy Youth Survey](#) which provides data on health risk behaviors among youth in Washington State.

- RHINO and WEMIS are growing systems and the coverage is not yet statewide. Washington State Department of Health began collecting emergency department data through RHINO in 2016.
3. Have system epidemiology profile results (for example, mortality rates, distribution of mechanism, or intent) been compared with benchmark values? If so, please provide comparisons and origins of the benchmarks.

The data is shared with key stakeholders and these stakeholders may have safety plans with their specific goals, e.g., Washington State has [Target Zero: Strategic Highway Safety Plan](#). Other sources of benchmarks include [Healthy People 2020](#) and [Results Washington](#).

4. Describe how emerging injury control patterns (for example, from trend or surveillance data) were identified and acted on.

Historically, annual data reports for the state and each EMS region are prepared and shared with the regions. This data also has been made available on the Department of Health's website. The EMS regions review this data to identify the top causes of injury related hospitalizations and fatalities to prioritize prevention work.

5. Describe how ongoing and routine injury surveillance is completed and how results are shared with constituent groups.

Data are updated and presented annually with partners at a statewide and regional level. Data profiles are also available publically available on the [Department of Health web site](#). However, the [injury and violence data tables](#) have not been updated since 2014, as DOH has been in the process of moving public injury data to the Washington Tracking Network and to Tableau dashboards, currently under construction. It is anticipated data tables will be available in 2019. Through [Washington Tracking Network](#) external partners can perform data queries. DOH also responds to many direct data requests from the public, local health agencies, press and communities.

The EMS and Trauma regions have historically received regional injury and violence annual data reports through a presentation by the IVP epidemiologist at the Injury and Violence Prevention Technical Advisory Committee meetings. In addition, the IVP epidemiologist is scheduled to present the most recent injury and violence data to the EMS & Trauma Steering Committee once a year.

1. Has a multidisciplinary stakeholder group participated in the scoring and consensus process associated with the benchmarks, indicators and scoring (BIS) tool? If not, are there plans to do so?

Yes. A comprehensive process using the benchmarks, indicators and scoring (BIS) tool was completed in 2006. This was a two day retreat by the department of Health, EMS and Trauma Care Steering Committee, the technical advisory committees and stakeholders. In 2014, 2016, and 2018 the EMS and trauma care strategic plan was updated with new goals, objectives, action plans and projected dates for completion of activities.

2. If the process has been completed, how were the findings used?

Findings drove development of the state EMS and Trauma System strategic plan (AKA state plan). They were also incorporated into the state Government Management Accountability and Performance (GMAP) process as well as Results Washington and the Health of Washington state.

3. Is there a date (year/month) set for a reassessment using the BIS tool to mark progress toward agreed on goals or benchmarks?

We will revisit the tool after the ACS consultation if needed.

## Section 2 – Emergency Care System Policy Development

### I - Statutory Authority and Administrative Rules (RCW & WAC)

1. Describe how the current statutes and regulations allow the state or region to:
  - a. Develop, plan, and implement the trauma system,

The authorization to develop a statewide trauma care system stems from the 1990 Washington State Trauma Project (report to the legislature) which led to the Trauma Care Systems Act. The Act included the following main components of the current trauma care system:

- financial support
- authority and responsibility
- designation
- prehospital verification
- field triage
- regional planning
- cost containment

- injury prevention
- registry
- regional quality assurance
- rehabilitation
- system evaluation

The statute which directed the development of the current system is RCW 70.168.

b. Monitor and enforce rules,

There are several sections within the RCW 70.168 which allow for monitoring and the enforcement of each area of the trauma system.

The department monitors and enforces rules regarding the trauma services through the designation process based on the authority in RCW 70.168.060(13) and 70.168.070. The designation process is further defined in WAC 246-976-580 which includes the application process, decision making, and determinations for both acute care and rehabilitation services. During the designation, trauma services are evaluated based on the Trauma Service Standards WAC 246-976-700 and the Rehabilitation Services Standards WAC 246-976-800. Trauma services are fully designated or provisionally designated based on their ability to comply and meet the standards in the referenced WAC.

Prehospital trauma care services are included in RCW 70.168.080 and is further defined in WAC 246-976-390 - 400 (Trauma Verification of EMS prehospital services) denoting the monitoring, compliance and enforcement of trauma care by prehospital providers.

The trauma registry statutory authority comes from RCW 70.168.090 and is further define in WAC 246-976-420 (Department Responsibilities) and 246-976-430 (Provider Responsibilities). The registry is monitored through monthly submission audits and verification reports. Trauma services are required to submit trauma registry data in a calendar quarter by the end of the following quarter. This submission requirement is monitored by the department Trauma Registry Coordinator in monthly submission reports. Trauma services who are not meeting the submission requirement are notified and provided assistance as needed. Verification reports are developed and monitored by the Trauma Registry Coordinator in conjunction with other program staff. The verification reports are intended to monitor for data entry errors. When errors are discovered the associated trauma service is notified to correct the entry error.

c. Designate the lead agency,



The lead agency is designated as the Department of Health (the department) in RCW 70.168.050. The RCW states the department, in consultation with, and having solicited the advice of, the emergency medical services and trauma care steering committee, shall establish the Washington state emergency medical services and trauma care system.

d. Collect and protect confidential data, and

The Washington State Trauma Registry is authorized in RCW 70.168.090 which allows the department to collect and analyze data on the incidence, severity, and causes of trauma. All data within the trauma registry related to the identification of individual patient's, provider's, and facility's care outcomes are kept confidential and are exempt from discovery by subpoena or admissible as evidence per 70.168.090(3). The department is further directed to maintain confidentiality of the Trauma Registry in WAC 246-976-420(2) (Department Responsibilities). Individual trauma services are directed to maintain confidentiality of trauma registry data in WAC 246-976-430(1) (Provider Responsibilities).

e. Protect confidentiality of the quality improvement process.

All patient care quality assurance proceedings and reports are confidential and exempt from discovery by subpoena or admissible as evidence per RCW 70.168.090(3). The exemption also includes regional and individual trauma service quality assurance programs and reports per 70.168.090(4). The EMS & Trauma Care Region Quality Assurance Programs are protected from public disclosure and are directed to be maintained as confidential as directed in RCW 70.168.090(3) and (4). The statute notes all patient care and data elements related to the identification of individual patient's, provider's and facility's care outcomes shall be kept confidential. The protection of confidential health information and data is further defined in WAC 246-976-910(6)(e) which directs the regional quality assurance programs to develop policies regarding confidentiality.

Individual trauma services are further directed to maintain patient confidentiality in WAC 246-976-700(4)(l) which mandates a process must be in place to ensure the confidentiality of patient and provider information.

2. Describe the process by which trauma system policies and procedures are developed or updated to manage the system including:

a. Adoption of standards of care

RCW 70.168.060(2) (Department Duties) requires the department to establish standards of care for trauma. The standards are defined in rule (Washington Administrative Code –WAC) and reviewed and updated through the rule-making and amendment process approximately every four years. In addition, each trauma service must have written standards of care to ensure appropriate care of the trauma patient as noted in WAC 246-976-700(5). In this case, the standards of care for trauma designation are assessed during the application review process and during the on-site visit and medical record review. In terms of training/education requirements for facility personnel, each trauma team member has reoccurring educational requirements noted in WAC 246-976-700 which ensures current standards of care are provided

Standards of care for trauma facilities are further developed and defined in Trauma Care Guidelines. An evidenced based Trauma Care Guideline exists for each major injury type and is available for all trauma services to use and reference. The guidelines are developed in a subcommittee of the Hospital TAC and approved by the EMS & Trauma Steering Committee. The subcommittee periodically evaluates the guidelines for accuracy, completeness, and current evidence.

b. Designation or verification of trauma centers

The system polices related to the designation of trauma services is include in WAC 246-976-580 (trauma designation process) and 246-976-700 (Trauma Service Standards). These standards are updated periodically based on input from stakeholders through the Hospital Technical Advisory Committee (TAC) and EMS & Trauma Steering Committee. When a change to the process or service standards is needed the department formally implements the rule making process where the respective rules are revised and amended.

c. Direct patient flow on the basis of designation

Patient flow within the trauma system is assessed during the designation process by reviewing transfer patterns. All designated trauma services are directed to transfer trauma patients to higher levels of care within the trauma system. In addition, each trauma service must maintain transfer-in and transfer-out guidelines in addition to interfacility transfer agreements. The contents of the transfer guidelines is defined in WAC 246-976-700(8-10) which ensures the appropriate flow based on designation level and the trauma services scope of care.

Patient flow patterns are more broadly assessed annually in the Outcomes TAC, EMS & Trauma Steering Committee, and Regional Quality Assurance Committee meetings. Recommendations regarding transfer patterns are communicated to the regions and individual trauma services by the department and designation team.

d. Data collection

Trauma system policies related to data collection and the trauma registry are contained in WAC 246-976-420 and 246-976-430. These registry rules are opened periodically for revision based on changes in national standards (NTDS) and any ACS-COT recommendations found in the Resources for Optimal Care of the Injured Patient. Stakeholder recommendations are obtained in the rule making process and reviewed by the Hospital TAC and EMS & Trauma Steering Committee.

The data collection and abstraction process are further defined in the Trauma Registry Data Dictionary. The data dictionary is updated annually based on recommendations from stakeholders, advisory committees, and the NTDS. The dictionary is also revised based on changes in the data collection software (Collector V5). Changes and recommendations are reviewed by the subcommittee of the Outcomes TAC (Quality Assurance Committee), the Outcome TAC, and the Hospital TAC.

e. System evaluation

System evaluation is conducted on many levels:

- i. At the state level, the Department of Health, Emergency Care System section together with the EMS and Trauma Care Steering Committee have a strategic plan for the system. Each component of the system evaluates and reports on progress, accomplishments, emerging issues and future objectives on an annual basis. A similar annual system evaluation of this strategic plan is done each year in September.
  - ii. At the regional level, RCW 70.168.090 – Quality assurance program – requires quality assurance programs to be established by levels I, II and III trauma facilities in an EMS and trauma care region. These systems quality assurance programs evaluate trauma care delivery, patient care outcomes, and compliance with the requirements for system quality assurance. The DOH Trauma Epidemiologist provides data from the trauma registry to these programs to support their evaluation.
3. Within the context of statutes and regulation, describe how injury prevention, EMS, public health, the needs of special populations, and emergency management are integrated or coordinated within the trauma system.

Washington's EMS and Trauma Care system is an integrated continuum of care with leadership through the Washington Department of Health and the EMS and Trauma Care Steering Committee. A strategic plan is maintained and it serves to ensure active planning to address system needs and identify opportunities for integration and collaboration with injury

prevention, EMS, public health, needs of special populations and emergency management. Within this framework, the following statutes and regulations inform the roles and responsibilities of stakeholders in implementing the EMS and trauma system.

RCW 70.168.020 – Steering Committee – identifies appointment requirements and duties of the committee. The committee is composed of representatives knowledgeable in EMS and trauma care, including emergency medical providers such as emergency and trauma physicians and surgeons, nurses, emergency medical technicians and paramedics, local government officials, such as fire chiefs and commissioners, city/county officials, cardiologist and stroke neurologists.

WAC 246-976-960 – Regional EMS and Trauma Councils identify and analyze system trends to evaluate the EMS/TC system and its component subsystems, using trauma registry data provided by the department. This analysis and data is used by the Regional Councils to develop and submit to the department regional EMS/TC plans every two years. These plans:

- Identify the need for and recommend distribution and level of care (basic, intermediate or advanced life support) for verified aid and ambulance services for each response area. The recommendations are based on criteria established by the department relating to agency response times, geography, topography, and population density.
- Identify EMS/TC services and resources currently available within the region.
- Describe how the roles and responsibilities of the Medical Program Director are coordinated with those of the regional EMS/TC council and regional plan.
- Describe and recommend improvements in medical control communications.
- Include a schedule for implementation.

## II - System Leadership

1. How does the lead agency bring constituency groups together to review and monitor the trauma system throughout each phase of care?

The forums for constituency groups to review and monitor the trauma system throughout each phase of care occur at two levels: (1) state level, and (2) regional level. At the state level the forum is the state EMS and Trauma Care Steering Committee. Steering committee meetings are held 5 times a year, or more if needed, and are open public meetings where any stakeholder is welcome to provide input. There are 10 subcommittees of the steering committee (technical advisory committees (TACs) or workgroups), chaired by steering committee members, that are responsible for focused work. At the regional level the state is divided into eight EMS and trauma regions and each region has a QI committee that reviews and monitors system care in their respective regions.

2. Describe the composition, responsibilities, and activities of the multidisciplinary trauma system advisory committee(s) and the working relationship(s) with the trauma lead agency and the EMS lead agency, if they are different.

Composition: The EMS and Trauma Care System statute requires that a system steering committee be “composed of representatives of individuals knowledgeable in emergency medical services and trauma care, including emergency medical providers such as physicians, nurses, hospital personnel, emergency medical technicians, paramedics, ambulance services, a member of the emergency medical services licensing and certification advisory committee, local government officials, state officials, and consumers.” (The emergency medical services licensing and certification advisory committee was merged into the steering committee in 2009)

Responsibilities/Activities: The EMS and Trauma Care Steering Committee’s statutory responsibilities are to:

- Advise the department regarding emergency medical services and trauma care needs throughout the state
- Review the regional emergency medical services and trauma care plans and recommend changes to the department before the department adopts the plans
- Review proposed departmental rules for emergency medical services and trauma care
- Recommend modifications in rules for emergency medical services and trauma care

Relationship to lead agency: The lead agency DOH is responsible for managing the steering committee member appointment process, arranging and staffing all meetings, managing all communications, and follow up on steering committee advice or inquiries.

- a. Identify pediatric representatives on the multidisciplinary trauma system advisory committee and any pediatric advisory groups that provide input into trauma system development.

There is a dedicated position on the steering committee representing pediatrics and is endorsed by the Washington Chapter of American Academy of Pediatrics. The Pediatric TAC (subcommittee) is composed of: a nurse with emergency pediatric experience, a physician with pediatric training, emergency physician (a physician who primarily practices in a pediatric emergency department), an EMT or paramedic, and family representative.

- b. Describe the process of involving experts in, and advocates for, special populations and how they help drive regional trauma system policy.

DOH solicits expert consultation as needed to drive regional trauma system policy. Steering committee members are also empowered to provide expert advice or solicit expert advice from the colleagues as needed. For examples see, (1) Pediatric TAC EMS

care guidelines attached, (2) EMS and Trauma Steering Committee meeting minutes and presentation to address trauma surgical subspecialist care in shortage regions. Over the years several such experts have been invited to share information and collaborate with the department and steering committee on issues such as emergency management, traumatic brain injury, trauma rehabilitation, hospital surge capacity, EMS prehospital response, opioid over-dosing, air-medical response, suicide and injury prevention.

- c. Describe how the multidisciplinary advisory committee is involved in trauma system performance evaluation (for example, review of system performance reports).

The principal forum for steering committee involvement in trauma system performance evaluation is via the Quality Outcomes Technical Advisory Committee (Outcomes TAC). The Outcomes TAC meets at least 6 times during the year and provides regular data updates at the steering committee meetings. Performance evaluation is also worked on and monitored via our strategic plan. Strategic plan progress is reported on at steering committee meetings. The steering committee also reviews all trauma care guidelines, triage tools, EMS patient care procedures and EMS skills and procedure lists which support system performance evaluation.

3. Provide examples of how the lead agency and trauma system leadership (for example, trauma centers, trauma medical director, nurse coordinator, trauma administrator, and other stakeholders) inform and educate policy makers, elected officials, community groups, and others about the trauma system, its strengths, and its improvement opportunities.

The EMS and trauma system program at DOH, along with system leadership, acts as resources to inform and educate policy makers about the trauma system strengths and improvement opportunities.

For example:

- Development of guidelines for the evaluation and management of blunt abdominal injury. The purpose of these guidelines is to reduce unnecessary radiation exposure for injury patients. As a result, the guidelines help providers make evidence-based decisions that balance the needs of patient care with the long-term risks of radiation exposure. The guidelines were originally developed by a working group of Hospital and Trauma Medical Directors TACs. A draft version was then reviewed by the steering committee and finalized in May 2017. The guidelines are on the DOH website for access by all providers. The guidelines are reviewed and updated periodically to maintain consistency with evidence-based medical practice and registry trends. Any provider can provide feedback on the guidelines at any time either directly to DOH or through the steering committee or other subcommittee meetings. DOH regularly assesses the impact of the clinical guidelines using the state trauma registry.

- Trauma system leaders held a Stop the Bleed education day during the legislative session at the state capital in January 2018. They educated legislators and their staff through hands on demonstrations and discussed the value of bleeding control education and equipment for the public, similar to AEDs. The education day also provided indirect opportunities to inform and educate about the EMS and trauma system. From 1995 – 2005 and annual EMS and Trauma Day was held at the Washington State capitol to inform legislative policy makers about the EMS and Trauma system.
- Media releases about the accomplishments of EMS, trauma, cardiac and stroke system are periodically done by the Department of Health, Trauma Designated Services (hospitals), EMS and Trauma Regions and other stakeholders to inform policy makers and the public.

4. Describe the process to build or expand effective trauma leadership within the trauma system (for example, succession planning, leadership courses, and workshops), including the lead agency and trauma centers.

We have a 30 member EMS and Trauma Care steering committee made up of representatives of the system. We recruit experts to fill vacant positions on the steering committee, technical advisory committees and councils. We provide an orientation for new steering committee and regional council members. Periodic retreats and meetings are held for the committees and councils to strengthen strategic planning work, data analysis, clarify roles and responsibilities. We provide regular trainings for new trauma program managers (TPMs) and trauma registrars. TPMs and registrars receive mentorship and technical assistance from the state program staff. We hold quarterly Trauma Nurse and Trauma Registrar Network meetings in different parts of the state each year. We have eight EMS and trauma regions and each region has a Council that meets regularly and actively works on system planning.

5. Describe the process by which lead agency staff would identify changes in system performance.

Our trauma system epidemiologist leads the Quality Outcomes Technical Advisory Committee and is the lead agency point of contact, participates in and provides data and analysis support to regional QI/QA committees. He meets regularly with the state director to discuss trends and changes in system performance.

6. Describe how the multidisciplinary advisory committee is involved in trauma system performance evaluation.

The principal forum for steering committee involvement in trauma system performance evaluation is via the Quality Outcomes Technical Advisory Committee (Outcomes TAC). The Outcomes TAC meets at least 6 times during the year and provides regular updates at the steering committee meetings. Performance evaluation is also worked on and monitored via our strategic plan. Strategic plan progress is reported on at steering committee meetings. The

steering committee also reviews and advises on all trauma care guidelines, triage tools, EMS patient care procedures and EMS skills and procedure lists.

### III - Coalition Building and Community Support

1. What is the status of the trauma system's coalition (for example, what is the status of recruiting members and building a coalition? Is the coalition strong and active? Does the coalition need new energy? Who is not currently involved but should be a part of your coalition?)?

- a. What is the role of the coalition members (constituents and stakeholders) in promoting trauma system development?

The EMS and Trauma Care steering committee is the statewide coalition for Washington's EMS and trauma system. The 30 member committee has broad representation of all components of the system. It is a strong and active coalition. In 2010 the membership was updated to include cardiac and stroke representation when the legislature placed cardiac and stroke system under the oversight of the EMS and Trauma steering committee.

The eight EMS and Trauma Regional Councils serve as coalitions at the regional and local level. The councils have broad representation of all components of the system with about 15 – 30 members in each council.

- b. What is the method and frequency for communicating with coalition members?

The EMS and trauma care steering committee meets in-person at least 5 times a year. The Technical Advisory Committees meet approximately 5 – 10 times a year. There are also workgroups assembled for specific short term projects such as the Air Medical Workgroup and these meet as needed. Communication with committee members is via email, telephone, and in person. We make GoToMtg available for most of our meetings to allow stakeholders to participate remotely.

2. Describe how the trauma system leadership mobilizes community partners to improve the trauma system through effective communication and collaboration.

- a. How has the community been approached to identify injury control concerns?

The Injury and Violence Prevention Technical Advisory Committee – a subcommittee of the EMS and Trauma Care steering committee, is made up of representatives from each of the 8 EMS and Trauma regions and injury prevention stakeholders from the



community. The EMS and Trauma regions are asked to look at their regional data on injuries to identify injury types, causes and trends and use this information to target their prevention efforts. Community prevention representatives, groups and organizations are invited to participate in the regional injury prevention strategic planning and efforts. Public-private partnerships are encouraged to work on injury prevention activities. For example, in one region a partnership between a trauma designated hospital, Fed-Ex and EMS/Trauma region was established to provide bicycle helmets to children in need. Fed-Ex stores and delivers the helmets directly to the children.

b. What key problems has the community identified?

Adequate funding to support injury prevention efforts is the primary challenge raised by the local communities. It is also difficult to measure whether their particular injury prevention work is making a difference in terms of saving lives or reducing disabling injuries.

c. How do stakeholders bring system challenges or deficiencies to the attention of the lead agency?

Stakeholders bring system challenges or deficiencies to the department of Health through their regional and local planning groups and committees. This is supported through the strategic planning work at the local level which is captured and reported in the EMS and Trauma Regional plans. These plans are updated every two years and presented to the EMS and Trauma Care Steering Committee and Department of Health for approval.

#### IV - Lead Agency and Human Resources within the Lead Agency

1. Describe the number, position titles, and percentage of full-time equivalency of all personnel within the lead agency or contract personnel who have roles or responsibilities to the trauma program.

- Emergency Care System Executive Director
- EMS Manager
- Research, Analysis, Data Manager
- Trauma Nurse Consultant
- Trauma Designation Administrator
- Trauma Epidemiologist
- Trauma Administrator
- EMS Administrator

- EMS Education and Training Specialist
- EMS Specialist
- EMST Regional Administrator
- EMST Regional Administrator
- Research Investigator
- Pediatric/Emergency Cardiac and Stroke System Consultant
- Trauma Care Fund Coordinator
- EMS and Trauma Administrative Assistant
- EMS and Trauma Administrative Assistant (50%)
- Coverdell Stroke Program Coordinator
- Coverdell Stroke Nurse Consultant
- Coverdell Stroke Epidemiologist
- Coverdell Stroke Coordinator

There are 20.5 full-time equivalent personnel who have roles or responsibilities the EMS, Trauma, Cardiac and Stroke program.

2. Identify other personnel resources that support the trauma program activities of the lead agency (for example, epidemiology support from other units within the health department, public health interns)

- Office Director for Community Health Systems
- Office Deputy Director for Community Health Systems
- EMST Injury and Violence Prevention Specialist (50%)
- Injury Epidemiologist (30%)
- Grants and Contracts Specialist
- Office of Community Health Systems Administrative Assistant
- Office Manager for Community Health Systems
- HSQA division budget specialist

3. Describe the adequacy of personnel resources available to the lead agency to sustain trauma program assessment, policy development, and assurance activities.

The EMS and Trauma Program has experienced several budget reductions over the last 25 years resulting in reduction of personnel in all areas including emergency preparedness, data and communications. We have a solid core team of experts and an EMS and Trauma Care Steering Committee who actively participate in program assessment, policy development and assurance activities.

- a. Identify impediments or barriers that hinder system development.

The health care landscape has changed dramatically in the last several years. Health care reform and the Affordable Care Act has brought about changes that are both beneficial and challenging. We have seen mergers of hospitals and EMS districts that ultimately impact access to EMS and trauma care for the patient.

## V - Trauma System Plan

1. Describe the process for the development or revision of the trauma system plan. Include the role of advisory and stakeholder groups in the process.

Revision of the state plan is incorporated into our regular order of business and collaborative stakeholder meetings at both the state and regional level. The first state plan was developed in 1992 and updated every two years. In 2006 the state plan converted to a strategic plan that was developed by the EMS and Trauma Care Steering Committee, the Technical Advisory Committees, Department of Health and stakeholders. The strategic plan is comprised of components of the trauma system and according to the appropriate corresponding Technical Advisory Committees (TACs) of the steering committee. Each TAC maintains work plans for their component of the plan appropriate to the scope of the component. Input and leadership from the TAC members and system stakeholders are integral to state strategic plan work. Each TAC updates the steering committee on their work plans annually. The steering committee review the full plan on a periodic basis. The state plan is then adapted by each EMS and Trauma region to match the specific needs of their communities.

2. Is there ongoing assessment of trauma resources and asset allocation within the system?

Yes. Resource and asset allocation is continuous and monitored in two ways: (1) we stay aware of epidemiological trends and system gaps and (2) we use regular venues (steering committee and TAC/subcommittee meetings) to support input and feedback from system partners and stakeholders. For example we recently mapped all EMS related resources statewide in a GIS system that allows both DOH and regional partners to clearly identify gaps and develop informed strategies to address them.

3. Describe the process used to determine trauma system standards and trauma system policies.

Standards and policies take many forms in Washington. At the highest level are laws and rules. Next are policies, procedures, and protocols. Finally there are guidelines and recommendations. Each level involves different processes to determine system standards and policies.

- a. How are they reviewed and evaluated?

The department of health is primarily responsible for review and evaluations of system standards, rules and policies. We use evidence based data analysis and stakeholder input in our regular monitoring of standards. This monitoring is then collaboratively acted on via regular stakeholder meetings at both the state and regional levels. Rules (Washington Administrative Code) are reviewed and amended approximately every four years through the department's formal rule-making and amendment process.

- b. What standards and policies exist for special populations, including rural and frontier regions?

Washington has a diverse geography ranging from urban to rural and frontier areas. Washington also has a diverse population which includes special populations such as 12 tribal nations, migrant workers in some of our agricultural areas, and some ethnic groups across the state. Washington is a home rule state, consequently each region or county has considerable influence over how to address their specific communities' needs through ordinances and empowered to adapt local standards and policies directly.

- c. How are specialized needs addressed, including burns, spinal cord injury, traumatic brain injury, and reimplantation?

Specialized needs are address primarily at the level of guidelines. The Trauma Medical Directors workgroup periodically consult on what guidelines are needed and then develop them. Guidelines are regularly reviewed and updated to reflect best evidenced based practice. The guidelines are reviewed by the steering committee and then posted on the Department of Health webpage.

## VI - System Integration

1. What is the trauma system's collaboration and integration with EMS, public health, and emergency management and programs such as:

- a. Prevention Programs

Injury and Violence Prevention (IVP) is the first component of the trauma system. RCW 70.168.060 (20) requires that injury prevention programs be developed and coordinated. IVP programs are developed and implemented at several levels. At the state level the Department of Health manages several injury and violence prevention programs from falls, motor vehicle crashes, traumatic brain injury, pedestrian safety, suicide, sexual assault/rape, child passenger safety, opioid overdosing, and gun violence. At the EMS and Trauma regional level, injury prevention programs are supported with

funding from Department of Health and used to support prevention of injuries seen in that region. These targeted injury prevention programs collaborate with local communities in implementation of prevention work.

b. Mental Health

- i. In 2015, the Washington State Legislature passed legislation (SHB 1721) allowing emergency medical services to transport patients from the field directly to mental health or chemical dependency services. The law called for the department to work in consultation with the Department of Social and Health Services to convene a workgroup comprised of members of the steering committee and representatives of ambulance services, firefighters, mental health providers, and chemical dependency treatment programs. The workgroup developed guidelines for the development of protocols, procedures, and applicable training appropriate to the level of emergency medical service provider. The guidelines were made available to EMS on July 1, 2016.
- ii. Suicide Prevention programs are administered by the Department of Health's Injury and Violence Prevention section. There are a few federal and state funded suicide programs that focus efforts to reduce suicide in Washington state. The EMS and Trauma system stays informed on trends and rates for suicide and collaborates with stakeholders on prevention efforts.

c. Social Services

- i. In 1997 the Trauma Reimbursement legislation passed which required the Department of Health EMS and Trauma System to partner with Health Care Authority Medicaid program to disburse funds to trauma care providers for care of Medicaid trauma patients. We currently disburse over \$30 million a biennium to eligible trauma care providers for care of Medicaid trauma patients.
- ii. In 2018, the Washington State Legislature passed legislation (HB 1358) to develop reimbursement standards for community assistance referral and education services (CARES) programs established by fire departments. The legislation requires the department of health to review the professional certification and training of health professionals participating in a community assistance referral and education program, review the certification and training requirements in other states with similar programs, and coordinate with the health care authority to link the certification requirements with the covered health care services recommended for payment in RCW [74.09.335](#). The department will submit recommendations to the appropriate committees of the

legislature for any changes and suggestions for implementation within six months of the development of the payment standards. CARES programs include a variety of collaborative programs between EMS and healthcare systems that utilize certified EMS providers in an expanded role and are also referred to as community based EMS programs. Programs are primarily designed to (1) reduce the inefficient use of mobile emergency medical resources (2) reduce the inefficient use of hospital emergency departments and (3) reduce hospital re-admissions.

d. Law Enforcement

The EMS and Trauma System partners and collaborates with law enforcement on several levels and through many specific projects and programs. The Washington State EMS and Trauma Care steering committee has a dedicated law enforcement representative position on the committee. The EMS and Trauma System has partnered with Washington State Patrol (WSP) and Washington Traffic Safety Commission (WTSC) on several projects from development of the WTSC Target Zero strategic plan to achieve zero traffic related deaths by 2030 to patient transfer across borders coordination with WSP and other injury prevention programs such as child car seat safety and bicycle helmets. The recent King and Snohomish County response and recovery center pilot project is another example of collaborative work between EMS and law enforcement.

Law enforcement agencies in Washington State play a supportive role in the local EMS & Trauma system. In critical circumstances such as search and rescue or tactical combat (i.e. active shooter) where immediate access to casualty care is critical or in rural areas where traditional EMS resources are not typically available, law enforcement personnel cross train as certified EMS personnel and operate as primary EMS responders.

To allow law enforcement officers who were also certified EMS personnel to have a recognized agency affiliation in order to receive and maintain certification and not create an undue burden on law enforcement agencies to meet EMS service licensing requirements, the department developed the Emergency Services Supervisory Organization program (ESSO) and amended Washington Administrative Code in the year 2011 to add law enforcement agencies as an organization that can provide affiliation for certified EMS personnel. The department issues an ESSO recognition to law enforcement agencies that use certified EMS personnel in these circumstances.

Currently, there are 15 law enforcement agencies that cross train law enforcement officers to be certified EMS providers and are recognized as Emergency Services Supervisory Organizations in Washington.

e. Child Protective Services

The Injury and Violence Prevention program participates on statewide Child Death Review teams where cases are reviewed and analyzed and strategies for prevention identified. Opportunities to collaborate with child protective services are sought out from a prevention perspective. In addition, emergency medical services personnel are trained and informed on reporting to child protective services if they encounter cases where they think it might be necessary.

f. Public Safety

Like law enforcement agencies, organizations that exist in areas where traditional EMS resources are not typically available or unique industrial environments increase the risk of injury, organizations such as ski patrols, remote logging operations, or large manufacturing businesses such as Boeing, Kaiser Aluminum, and Weyerhaeuser may apply for and receive recognition as an Emergency Services Supervisory Organization (ESSO) so certified EMS personnel can be made immediately available to people in these areas.

There are 29 ESSO's that meet the criteria above that are currently recognized across Washington.

g. Emergency cardiac and stroke system

- i. In 2010, Washington State Legislature passed a law to allow voluntary establishment of an emergency cardiac and stroke care (ECS) system. [RCW 70.168.150](#) requires the department to endeavor to enhance and support the ECS system through encouraging hospitals to voluntarily self-identify cardiac and stroke capabilities and identify which level of cardiac and stroke service the facility provides. The law requires that the ECS Technical Advisory Committee (TAC) advises the department on general principles of cardiac and stroke care and make recommendations to improve the ECS system. The TAC works to improve cardiac and stroke care in Washington State by creating and implementing key aspects of their strategic plan which include the creation of the prehospital cardiac and stroke triage tools, creating and streamlining the facility categorization application/process, and reducing overall time to treatment through data analysis and QI programs.
- ii. Washington State has a categorization system in which facilities self-attest to their level of cardiac and stroke care. There are three levels of stroke care and two levels of cardiac care, with Level I being the most comprehensive level of

care. There are currently 86 categorized facilities in Washington State in both cardiac and stroke care.

- iii. The Emergency Cardiac and Stroke Technical Advisory Committee is a sub-committee of the EMS and Trauma Care Steering Committee. This is an active committee made up of over 30 members who meet regularly to advise on the planning for cardiac and stroke.
- iv. In 2016 Washington Department of Health was awarded the Coverdell Stroke Prevention grant. This 5-year grant funded at over \$750,000 annually to build a sustainable stroke prevention program for Washington. This program is organizationally a part of the larger Emergency Care System.

h. Emergency management

The prehospital emergency preparedness workgroup is comprised of key stakeholders representing all regions across the state whose primary role or experience is related to the activities that occur in the intersection between emergency management and EMS. Washington State Department of Health personnel from the Office of Emergency Management and Office of Community Health Systems - EMS lead this workgroup.

## VII - Financing

1. How does the lead agency track and analyze internal trauma system finances?

Internal Emergency Care System finances are integrated into overall state financial and accounting systems. We track and analyze finances using these systems consistent with GAAP, direction from the state Office of Financial Management, DOH policies and procedures, Health Care Authority policies and procedures, federal CDC and HRSA policies and Federal CMS Medicaid policies where applicable.

a. How does the advisory committee participate in the financial review process?

Stakeholder advice is provided for the development of the trauma fund spending plan (budget) for trauma reimbursement. Stakeholder advice is formalized via a subcommittee of the state EMS and Trauma Care Steering Committee known as the Cost Reimbursement Technical Advisory Committee (Cost TAC). The Cost TAC meets before the start of each biennium to advise on the trauma fund spending plan. The Cost TAC is convened as needed to address system financial threats and opportunities as they arise.



b. How frequently are trauma system financial reports published?

DOH produces regular financial reports monthly.

c. Which financial data are reported (lead agency data, health facility data, or both)?

DOH produces reports inclusive of all financial information for EMS and trauma care system budgets. Hospital financial data is included in self attested data submitted by hospitals to the state quarterly. Additional financial data is available in the Comprehensive Hospital Abstract Reporting System (CHARS). Summaries of the patient discharge data are produced regularly. All sources of financial data may be queried at any time as needed.

2. What is the lead agency’s budget for the trauma system?

Biennial expenses:

Salaries and benefits	\$ 3,847,000
Pass-Thru	\$ 11,780,000
Trauma supplemental Medicaid (state portion*)	\$ 15,086,000
Other	<u>\$ 4,320,000</u>
	\$ 35,033,000

\* This amount is matched 1:1 by federal Medicaid funds

3. What is the source of funding available to support the development, operations, and management of the trauma system (for example, general funds, dedicated funds)?

Funding for the Emergency Care System (EMS, trauma, cardiac and stroke) comes from four sources:

- a) General Fund State (GF-S)
- b) Dedicated state funds (trauma fund)
- c) Federal (Medicaid) matching funds
- d) Federal grants (CDC, HRSA)

General fund state (GF-S) funding is appropriated by the legislature. GF-S is the primary revenue source for development, operations and management of the state EMS and trauma program.

Dedicated funds consist of revenue from two fees: a \$6.50 administrative fee on the purchase or lease of new or used vehicles; and a \$5 surcharge on moving violations. These are deposited into state trust account for the trauma system. Funds from this account are disbursed as pass through (grants) to system providers and used to supplement trauma care to severely injured

Medicaid patients. The supplemental payments are matched by federal Medicaid funds as part of our state plan with CMS.

Federal grants from CDC and HRSA fund our Coverdell Stroke, Emergency Medical Services for Children and Emergency Cardiac and Stroke programs. Financial oversight for these federal grants is provided by Department of Health with input from respective stakeholder advisory committees.

Some additional smaller sources of funding are used for particular elements of the system, e.g. fees are collected from hospitals to offset part of the cost of trauma designation, some EMS agencies are supported by local levies, etc.

4. What financial incentives and disincentives exist for trauma center participation in the trauma system?

A cost study conducted in 2007 indicated that reimbursement was insufficient to meet costs for: (1) trauma team physicians, (2) trauma rehabilitation centers, and (3) EMS agencies. Since that study we have heard of financial struggles for rural trauma centers and some rural hospitals have closed. Implementation of the Affordable Care Act (ACA) has reduced the total burden of uncompensated patients while increasing the number of Medicaid patients. However the loss of Disproportionate Share Hospital (DSH) funding has diluted the improvement in payer mix for safety net facilities.

- a. Specifically include arrangements for uncompensated and undercompensated care.

We incentivize provider participation in the EMS and trauma system by subsidizing part of the costs associated with uncompensated and undercompensated care. We do this through both pass through funding (grants) and trauma supplemental Medicaid payments.

## Section 3 – Emergency Care System Assurance

### I - Prevention and Outreach

1. List organizations dedicated to injury prevention within the region and the issues they address (for example, MADD, SADD, SafeKids Worldwide, Injury Free Coalition for Kids, American Trauma Society, university-based injury control programs).
  - a. WAC 246-976-700 requires facilities with a designated trauma service to have an injury prevention programs (DTS levels I-III) or participate in a community or regional injury

- prevention program (DTS level I-IV). These programs cover a wide range of activities including motor vehicle injury prevention, bicycle safety, Stop the Bleed, Trauma Nurses Talk Tough, and older adult fall prevention.
- b. County/Regional Fall Prevention Coalitions – older adult fall prevention
  - c. Drowning Prevention Networks (State & local coalitions) – water safety
  - d. Kiwanis Club – bicycle safety
  - e. Local Fire & EMS Districts – fire safety, motor vehicle safety, water safety, older adult fall prevention, bicycle/pedestrian safety, safe babysitter course, safe sleep, traumatic brain injury, poisoning prevention, suicide prevention, child abuse prevention, firearm safety
  - f. Local law enforcement and Sheriff offices – motor vehicle injury prevention, bicycle/pedestrian safety, water safety
  - g. Local Public Health Jurisdictions - fire safety, motor vehicle safety, water safety, older adult fall prevention, bicycle/pedestrian safety, safe babysitter course, safe sleep, traumatic brain injury, poisoning prevention, suicide prevention, child abuse prevention, domestic violence prevention
  - h. Mary Bridges Children Hospital – child injury prevention
  - i. Northwest Infant Survival & SIDS alliance – safe sleep
  - j. Public school districts – bicycle/pedestrian safety, Stop the Bleed
  - k. Safe Kids – unintentional child injury prevention (ages 0-19)
  - l. Seattle Children’s Hospital – child injury prevention
  - m. Senior Centers – older adult fall prevention
  - n. University of Washington (includes Northwest Center for Public Health Practice) – wide range of injury prevention areas including: overdose prevention, traumatic brain injury, water safety, suicide prevention, firearm safety, child injury prevention, motor vehicle safety, etc.
  - o. Washington Domestic Violence Coalition – violence prevention
  - p. Washington Poison Center – poison prevention
  - q. Washington State Park and Recreation Boating Program – water and boating safety
  - r. Washington Traffic Safety Commission – motor vehicle injury prevention
2. Describe how the trauma lead agency has funded and coordinated system-wide injury prevention or outreach activities. Which injuries (including pediatric injuries) have been identified and prioritized for intervention strategies?

Annually, each region reviews data for the top causes of injuries and fatalities for their region. Based upon the data and community need, the regions prioritize injury topics. Many regions provide mini grants to local organizations that target the top causes of injuries and fatalities for their particular area.

Given the high levels of injury and fatality statewide, most regions include older adult fall prevention and motor vehicle safety as priority areas.

3. Identify any dedicated lead agency or other agency staff member (full- or part-time) responsible for injury prevention outreach and coordination for the trauma system.
  - a. One 0.5 FTE Injury and Violence Prevention (IVP) Coordinator at Washington State Department of Health dedicated to coordination and leadership for IVP with the EMS and trauma system.
  - b. Each region has an Injury and Violence Prevention Coordinator. Many of the regions have the position split as part time with the administrative assistant. Southwest and South Central Regions share an Injury Prevention Coordinator.
4. What is the source of funding?
  - a. Salary for 0.5 FTE through general fund state at WA State Department of Health
  - b. EMS and Trauma regions receive funding from Department of Health for EMS and Trauma implementation at the regional level. Each region has the ability to dedicate a small portion of this funding to injury and violence prevention. Seven of the eight regions support injury and violence prevention programs through this funding and other funds they get from grants and organizations.
5. Explain the evaluation process for injury prevention projects that are conducted by the lead agency, trauma facilities, or other community based organizations.

Many regions provide mini-grants to community based injury prevention programs and as a part of these mini-grants reports and assessments are required. The assessments vary from project to project, but can include pre- & post-quizzes, surveys, number of people receiving education, percentage of people completing a program, number of materials distributed, and fidelity checks for curricula based classes (such as SAIL).

6. Identify any gaps in injury prevention efforts for population groups in the state.

Data support limitations – [Injury and violence data tables](#) after 2013 are not available on the DOH website for the EMS regions. DOH has 1.0 FTE injury epidemiologist for all injury and violence prevention work. With the opioid epidemic and high rates of suicide in WA, the data demands have risen exponentially without additional staffing. This has led to the regions receiving sporadic data reports and there has been a long turn-around time after requesting data. Lack of access to current injury data has limited the regions' abilities to prioritize injury areas and monitor injury trends for the region.

- a. Limited funding – Only one injury and violence prevention coordinator serves a region, which can have up to 9 counties in it, each with unique needs. Most regions cannot afford a full time injury and violence prevention coordinator, often splitting the position with an administrative assistant. Additionally, there is limited money that the regions can allocate to injury prevention work and trainings.
- b. Assessment of injury programs – many injury prevention coordinators don't know where to start with assessment of a program or how to accurately measure if a program is working.

Some regions have reported having a difficult time getting buy in from EMS providers who see their role as responding to and not preventing injuries.

## II - Emergency Medical Services

1. Provide information on the last assessment of EMS, including assessor and date.

EMS and trauma services needs assessment is conducted on a continuous basis through the eight EMS and trauma regions planning process. A minimum and maximum number of EMS BLS and ALS services needed in each county are identified through the planning process and adjusted as necessary to meet patient needs. The min/max verification process is attached.

EMS Assessment Project: We recently received federal FLEX grant funding to conduct an assessment of EMS services relevant for urban and rural communities. The EMS services will be assessed on attributes related to operations, finance, quality, public relations, and human resources. Results from the assessment will be used to:

- Educate policy makers on challenges facing EMS
- Inform where to best allocate funding
- Inform strategic planning efforts at state, regional, and local levels; and
- Provide EMS services with a roadmap for improvements.

Washington State is in the process of deploying this assessment and the results will be analyzed and reported this year.

- a. Describe the EMS system, including the number and competencies (that is, ALS or BLS) of ground transporting agencies, non-transporting agencies, and air medical resources.

Washington's EMS system is comprised of 497 licensed and verified EMS services that provide aid level first response and ambulance transport by air and ground at BLS, ILS, and ALS levels. There are 16,460 certified EMS providers (EMR, EMT, AEMT, and

Paramedics). The department maintains an updated list of EMS services on a [GIS map](#) hosted on the department website that is available to the public.

Air medical resources. The department of health recognizes air medical services as having a distinctive role in the emergency care system. The multi-regional and statewide flight range capabilities along with logistical considerations for aircraft are factors that require a coordinated system of medical response and a statewide strategic approach in managing air medical services (EMS) resources. This approach enables citizen access to the best patient care and transport capabilities and works to mitigate an unsafe prehospital transport environment to the extent possible. Air ambulances can provide the highest level of out of hospital care and rapid, expedient transport for critically sick and injured patients. Strategic development, deployment, and quality assurance strategies for air medical services can improve outcomes in patient care. Washington has a statewide Air Ambulance Plan (plan). The purpose of this plan is:

- To assess and analyze statewide utilization of air ambulances in order to generate a strategic approach for coordination and improvement of emergency care provided in the out of hospital setting.
- To provide evidence based, peer reviewed guidance regarding utilization of air ambulance assets for emergency care system partners.
- To serve as both a planning resource for each EMS & Trauma Care Region's (regional EMSTC) biennial plan for prehospital resources and a guideline for the development of regional EMS patient care procedures (PCP) related to the utilization of air ambulance services.

b. How are these resources allocated throughout the region to serve the population?

EMS licensed and verified ground ambulance services are allocated using regional driven planning processes. In accordance with in [RCW 70.168.110](#), the department established eight emergency medical services and trauma care planning regions. Each region is managed by a Regional EMS and Trauma Care Council. Regional council activities are prescribed in [RCW 70.168.100](#). The department contracts with the regional council and provides funding to support regional planning and other activities further defined in [WAC 246-976-960](#).

The determination for distribution of ground EMS services is managed in part through the regional council planning process, which is reflected and memorialized in the regional plans. Regional councils develop and revise regional plans on a biennium. Plans reflect current resources, prescribe trauma response areas and minimum / maximum numbers for ambulance services based on needs assessments conducted by local and regional councils. Plans also identify unserved and underserved areas.

Distribution of Air medical services is determined through statewide planning with stakeholders representing licensed and verified air ambulance services and memorialized in a statewide air medical plan. The rationale for managing distribution of ground services in EMS regional plans and air services in the state air ambulance plan is related to the distinctive differences between air and ground vehicles such as the overlay of federal aviation regulations and state limitations in regulation of air ambulance services, time/distance capabilities, and county versus statewide licensing processes. Additional influences unique to the distribution of air ambulance services include the market and capital cost of helicopters, airplanes, and specially trained clinical staff. The department evaluates and monitors statewide need and distribution of air ambulance services and collaborates with air ambulance services to identify where air ambulance bases should be established. To promote consistency in statewide EMS planning processes, this work is memorialized in the air ambulance plan which serves as the primary document that reflects the evaluation, monitoring, and outcomes of air ambulance utilization. This plan is managed on a biennial basis. Every two years the plan is analyzed, revised, reviewed and approved through the same process as the EMS regional plans.

- c. Describe the availability of enhanced 911 and wireless E-911 access in your region.

The [Department of Military Emergency Management Division](#) maintains authority and oversight over the statewide 911/E911 program.

The Washington State Enhanced 911 (E911) Program is the result of a 1991 voter referendum directing enhanced 911 emergency communications systems to be available statewide by Dec. 31, 1998. The referendum provided for a state E911 coordination office. The office facilitates local planning and installation of such systems. Funding provisions are included in the referendum for county and state excise taxes to support implementation of E911 plans and systems. The state used state 911 excise taxes to help fund those counties that could not implement E911 with excise taxes collected by their own county. The E911 Unit of the Emergency Management Division works with counties and communications' companies to ensure the E911 system is operational and available to all in the State of Washington.

The DOH does not have oversight of E-911, as such we coordinate and work closely with the Department of Military, Emergency Management Division to monitor and participate in statewide activities related to communications. The department has a dedicated position, representing EMS and Trauma, on the Statewide E911 Advisory Committee.

- d. Identify any specialty pediatric transporting agencies and aeromedical resources.

Air ambulance services in Washington provide specialized services such as neonatal care, transport of cardiac assist devices, and other such specialties. Local and regional EMS and Trauma Councils work with air medical services within their region to identify specialized services available and coordinate care accordingly.

American Medical Response and FALCK Northwest, two private-for-profit licensed and verified ambulance services in Washington state contract with Seattle Children's Hospital and Mary Bridge Children's Hospital to provide an ambulance and EMT driver for NICU and PICU transport teams for children.

- e. Describe the availability of pediatric equipment on all ground transporting units.

[WAC 246-976-300](#) and [246-976-390](#) identify minimum equipment required on all licensed and verified aid and ambulance ground services and [WAC 246-976-320](#) identifies the minimum equipment required on all licensed and verified air ambulance services which includes equipment specific for pediatric patients. Licensed and verified EMS services must meet the minimum requirements for equipment standards to become licensed and verified.

DOH is a recipient of the Federal Emergency Medical Services for Children (EMSC) State Partnership grant. This grant has been used to develop EMSC activities and systems in the state to improve emergency pediatric care for children. Working to meet the Health Resources Services Administration (HRSA) performance measures, Washington EMSC uses the grant funds it receives on projects to improve the quality of care provided to children throughout the state. One of the requirements of the grant is to perform surveys of EMS agencies throughout the state and determine specific pediatric equipment needs. The most recent survey was performed in 2014 and it was determined that 23% of BLS and 30.9% of ALS transporting vehicles carry all pieces of essential ground vehicle ambulance pediatric-specific equipment identified as essential in the survey.

2. Describe the procedures for online and off –line medical direction, including procedures for the pediatric population.
- a. Describe how EMS and trauma medical direction and oversight are coordinated and integrated.

Medical Program Directors (MPDs) are certified by the department in accordance with [RCW 18.71.212](#). One MPD provides medical oversight in each county with the exception of a few rural areas where one MPD has been appointed to provide oversight for more than one county. MPD's are contracted by the department and receive a stipend for



their work. The department indemnifies physicians appointed as an MPD. Recruitment and retention of MPDs in rural areas is difficult. There is a healthcare workforce shortage in rural areas and insufficient succession planning for MPD replacements at local or statewide levels. Future strategies including regionalization of MPDs are being considered to address continuity in medical oversight across the state.

MPD roles and responsibilities are prescribed in [WAC 246-976-290](#). Qualifications required for an MPD certification include: (1) a current and valid license to practice medicine and surgery, or osteopathic medicine and surgery (2) Be qualified and knowledgeable in the administration and management of emergency medical care services (3) Complete a medical director training course approved by the department (4) Be recommended for certification by the local medical community and local emergency medical services and trauma care council. In general, MPDs provide medical control and direction to certified EMS providers through written patient care protocols (MPD protocols). MPDs provide oversight for training programs and instructors and perform routine quality assurance activities at local levels and may counsel providers, assign remediation, and if needed recommend disciplinary action to the department. MPDs recommend providers for certification, recertification and other applicable credentialing processes.

The department convenes a MPD meeting once a year with all state MPDs to conduct state level business and strategic planning with MPDs. MPDs attend local and regional EMS and Trauma Care Council meetings where they participate in regional planning and development of County Operating Procedures regional Patient Care Procedures which memorialize operational guidance related to response and transport.

The EMS for Children program in collaboration with the Pediatric Technical Advisory Committee worked to develop guidelines to establish the standard of care for pediatric emergency medical care in Washington State. These guidelines inform the development of regional patient care procedures, county operating procedures, and also help Medical Program Directors develop offline medical direction such as county EMS and Trauma protocols.

3. Describe the prehospital workforce competencies in trauma:

EMS workforce competencies in trauma begin with training. In Washington, training programs, instructors, and courses must meet requirements in WAC 246-976 and are approved by the department. Training programs are required to conduct training programs in accordance with standards in WAC 246-976-022. The department monitors the geographical spread of training programs and NREMT certification testing sites to support maintenance and development of EMS workforce. The department also monitors successes and challenges for training programs: <https://fortress.wa.gov/doh/ems/index.html>

EMS Instructors and evaluators must meet the requirements prescribed in WAC 246-976-031 which includes a provision that the instructor must follow department approved curricula and instructional guidelines prescribed in WAC 246-976-023.

- a. Initial EMS training course requirements are prescribed in WAC 246-976-023. Instructors must follow course curricula or instructional guidelines for the level of training conducted in accordance with the National Highway Traffic and Safety Association’s National EMS Educational Standards and Instructional Guidelines. All instructors and evaluators must be approved by the department and/or the medical program director in the county where the course will occur.

Initial training and certification/licensure requirements can be found in [WAC 246-976-141](#), and includes a provision that requires candidates to provide proof of successful EMS course completion from a department-approved EMS training program. For paramedic applicants, this proof must be from a training program accredited by a department-approved national accrediting organization. This requirement provides assurance that applicants applying for certification have completed a training course that includes trauma training as prescribed in national standards.

Other credentialing activities such as reciprocity, challenge, reversion, reissuance, and reinstatement all require education that meets national standards inclusive of trauma training.

EMS students and certified providers are required to demonstrate proficiency in patient care skills consistent with the Department of Health (DOH) approved scope of practice of EMS providers. These skills include advanced airway skills such as intubation, and establishing intravenous and intraosseous access for the purposes of administering fluids and medications to sick and injured people. Additionally, certified paramedics are required to demonstrate proficiency in skills in order to renew their state certification. In an effort to support these requirements and activities, EMS and trauma care laws were designed to include provisions to ensure training opportunities were provided and to address liability concerns. [WAC 246-976-700 \(35\) Trauma Service Standards](#) – requires that a facility with a designated trauma service have “Provisions to allow for initial maintenance training of invasive manipulative skills for prehospital personnel.” [RCW 18.71.210](#) and [RCW 18.71.215](#) in part states “the Department of Health shall defend and hold harmless approved medical program directors, delegates, or agents, including but not limited to hospitals and hospital personnel in their capacity of training emergency service medical personnel for certification or recertification pursuant to this chapter at the request of such directors, for any act or omission committed or omitted in good faith in the performance of their duties.”

- b. Continuing education and recertification/relicensure requirements are prescribed in WAC 246-976-16, WAC 246-976-162, and WAC 246-976-163.
- c. Pediatric trauma training requirements for recertification are prescribed in both methods of EMS provider certification in Washington under WAC 246-976-162 CME and WAC 246-976-163 OTEP. Pediatric topics specifically identified education appropriate to the level of certification include: cardiovascular, intubation, intravenous line placement, interosseous line placement, patient assessment, spinal immobilization, trauma and other pediatric topics. Other pediatric topics are defined as anatomy, physiology, and medical problems including special needs patients. Pediatric topics require demonstration on knowledge and skill competency. Pediatric airway management is specifically identified for paramedics.
- d. Air ambulance services and their response zones can also be found on the [DOH GIS MAP](#). (Use the data icon in the top tool bar to un-check general trauma designation and response areas, then check air ambulance. Click the arrow in the air ambulance field to see the drop down box for visualizing flight zones.)

#### 4. Notes on associated documents

WAC 246-976-920 prescribes the development of patient care protocols to department certified MPD's. With a few exceptions, there is one set of MPD protocols for each county in Washington. For the purposes of this assessment, provided is an example of an urban, suburban, and rural set of EMS protocols for review.

WAC 246-976-920 prescribes the development of patient care protocols to department certified MPD's. With a few exceptions, there is one set of MPD protocols for each county in Washington. For the purposes of this assessment, provided is an example of an urban, suburban, and rural set of EMS protocols for review.

Patient care protocols are reviewed and approved by the department. Protocol documents are maintained on a SharePoint site where MPD's and the department can maintain, coordinate updates, and monitor protocols as necessary.

### III - Definitive Care Facilities

1. Describe the extent to which all acute care facilities participate in the trauma system.

Washington has 122 acute care hospitals, of which 82 (67%) participate in the trauma system. Washington State designates five levels of acute trauma services and three levels of pediatric acute trauma services. The current distribution of trauma services is as follows:

Level I: 1 (>1%)  
Level 2: 8 (10%)  
Level 3: 24 (29%)  
Level 4: 35 (43%)  
Level 5: 14 (17%)

Level I Pediatric: 1  
Level II Pediatric: 2  
Level III Pediatric: 6

- a. Describe the availability and roles of specialty centers within the system (pediatric, burn, TBI, SCI).

Specialty center availability and roles are as follows:

- i. Burn Center: Harborview Medical Center in Seattle is our only burn center. All trauma services have burn protocols that includes the American Burn Association transfer criteria to ensure appropriate triage of burn patients to Harborview.
- ii. Pediatric trauma care: There are nine pediatric trauma services throughout the State. The level I and II pediatric trauma services are located in the most population dense areas of the State (Seattle, Tacoma, Spokane) while the level III pediatric centers tend to be located in the more rural portions of the state (Wenatchee, Walla Walla, Yakima). Patients requiring specialized pediatric trauma care, such as complex isolated orthopedic injuries are sometimes transferred to Seattle Children’s Hospital, which is not a designated trauma center.
- iii. TBI: Traumatic brain injury (TBI) patients receive definitive care at the level I or level II trauma services. There are no specifically designated TBI specialty centers. Severe TBI patients are currently transferred to the level I for definitive care.
- iv. SCI: Spinal cord injury (SCI) patients receive definitive care at level I or level II trauma services. There are no specifically designated SCI specialty centers. Severe SCI patients are generally transfer to the level I for definitive care.

2. Describe the roles of the non-designated acute care facilities in the trauma system.

- a. Address their representation on the regional trauma committee.

Non-designated hospitals do not serve on regional trauma committees. Occasionally they might be invited to specific meetings or discussions as needed.

- b. Do they submit registry and/or financial data?

Non-designated hospitals do not submit trauma registry or financial data to the Department of Health. The department does not have authority to require non-designated hospitals to submit trauma data or financial data.

- c. What is their degree of engagement in the system-wide performance improvement process?

Non-designated hospitals do not engage in the system-wide performance improvement process. Individual trauma designated hospitals engage directly with non-designated hospitals as needed.

3. Describe the process for verification and designation. Briefly outline the extent of authority granted to the lead agency to receive applications and to verify, designate, and de-designate regional trauma centers.

In 1990, the Washington State Legislature passed RCW 70.168, the Statewide Emergency Medical Services (EMS) and Trauma Care System Act. This act directed the Department of Health to develop and maintain a comprehensive EMS and trauma care system. The trauma designation process rule, WAC 246-976-580, directs the department to evaluate facilities applying to participate in the state trauma system as adult and/or pediatric trauma centers. The designation process rule also outlines the process by which the department can de-designate or provisionally designate a trauma service applicant. The trauma service standards, WAC 246-976-700, outline the specific trauma service standards that must be met to participate in the Washington trauma system. The trauma designation process map (see documents) clearly demonstrates the entire designation process as an algorithm.

All designated trauma services must meet the applicable trauma care standards to participate in the Washington Trauma system. The application for trauma service designation is based on the standards for trauma care, which are derived from the Washington Administrative standards WAC 246-976.

Clinical providers, who are experts in trauma care, examine a facilities application and conduct an on-site review to evaluate the appropriateness and quality of their trauma care. This is done in compliance with the applicable Washington State trauma care standards (WAC 246-976) for

each facilities specific level of designation. Department staff, knowledgeable in WAC 246-976 (Trauma Designation Administrator, Trauma Nurse Consultant) also accompanies the clinical experts on the site review.

A final report is due back to the trauma service no later than 90 days after the site visit for designation levels IV and V and 120 days for levels I, II, and III. Any additional requirements to complete an application for full designation will be listed in the final report. If a facility does not meet full designation requirements they will be granted a “provisional designation”, which gives the facility time to address the issues from their report. Once the compliance issues from the report have been fixed the facility may present the appropriate proof that they have made corrections and they will receive full designation

4. Describe your standards for trauma center verification (including pediatric standards) and the extent to which they are aligned with national standards.

The department recently updated these standards to align with the current ACS-COT standards (Resources for Optimal Care of the Injured Patient). The rule revision was adopted in January, 2019.

- a. Describe any waivers or program flexibility granted for centers not meeting verification requirements.

To ensure adequate trauma care in the state, the department may provisionally designate trauma services that are unable to meet all of the designation requirements. In these cases, a department-approved plan of correction is prepared specifying steps necessary to bring the trauma service into compliance and an expected date of compliance. The department may conduct a site review to verify compliance with required standards.

- b. Describe the process and frequency of use of dedesignation of trauma centers.

The department rarely, if ever has needed to dedesignated a trauma service, because a provisional designation agreement has served to address any deficiencies or concerns. The Administrative Procedure Act, chapter 34.05 RCW, and chapter 246-10 WAC govern the suspension and revocation process that the department uses to dedesignate a trauma service. The department uses the following process to dedesignate a trauma service, per WAC 246-976-580(10):

- i. The department will send the trauma service a written notice to explain the reasons it intends to suspend or revoke the designation and to explain the trauma service’s right to a hearing to contest the department's intended action under WAC 246-10-201 through 246-10-205;

- ii. The notice will be sent at least twenty-eight days before the department takes action, unless it is a summary suspension, as provided for in the Administrative Procedure Act and WAC 246-10-301 through 246-10-306;
  - iii. If a trauma service requests a hearing within twenty-eight days of the date the notice was mailed, a hearing before a health law judge will be scheduled. If the department does not receive the facility's request for a hearing within twenty-eight days of the date the notice was mailed, the facility will be considered in default under WAC 246-10-204;
  - iv. For non-summary suspensions, in addition to its request for a hearing, the trauma service may submit a plan within twenty-eight days of receiving the notice of the department's intent to suspend, describing how it will correct deficiencies:
  - v. The department will approve or disapprove the plan within thirty days of receipt;
  - vi. If the department approves the plan, the facility must begin to implement it within thirty days;
    1. The trauma service must notify the department when the problems are corrected;
    2. If, prior to sixty days before the scheduled hearing, the trauma service is able to successfully demonstrate to the department that it is meeting the requirements of chapters 246-976 WAC and 70.168 RCW, which may require a site review at the facility's expense, the department will withdraw its notice of intent to suspend designation;
  - vii. The department will notify the regional EMS&TC council of the actions it has taken.
5. Outline how the geographic distribution and number of designated acute care facilities is aligned with patient care needs.

Trauma care regions conduct bi-annual needs assessments as part of their formalized regional planning efforts. As part of this needs assessment, the region determines the minimum and maximum number of trauma care services at each level needed to meet patient care needs based on a review of trauma registry data and local statistics such as current population and estimated population growth. The trauma care region minimum and maximum numbers can be viewed in the Trauma System Min/Max document.

- a. Describe the process by which additional trauma centers are brought into the system.

If a trauma care region has an opening for designation, then that region has indicated that they have not met their maximum level of trauma services desired, and thus have a need for a trauma service at that level. Since this is considered a need, a hospital may apply for that trauma designation at any time. If successful in pursuing designation, they

may have to reapply again with their trauma care region to align with that regions redesignation schedule.

If there is not a need indicated for a specific designation in a trauma care region, then that potential applicant would have to wait to apply until the official designation period opens for that specific region. At that time, they would be competing in a competitive application process along with all of the other hospitals applying for those available designation levels. The department would review applications, conduct onsite reviews, and review other supplemental information, such as geographic trends, availability of services, and history of compliance with designation standards, to award the available designations to the most suitable applicants. All other services would either not be designated or would have to apply for designation at a different level.

- b. Describe the system response to the voluntary withdrawal of designation by acute care facilities.

When a trauma service voluntarily withdraws their designation, the department notifies the trauma care region and the region's minimum/maximum trauma service numbers are updated to reflect the change. The region notifies all local trauma services and prehospital agencies. The EMS and Trauma Steering Committee is also updated.

- c. Describe the mechanism for tracking and monitoring patient volume and flow between centers and how this influences the overall configuration of designated facilities.

Trauma care regions access the trauma registry data to evaluate patient volume and flow when updating their regional plans. The regions take into consideration increases or decreased in overall volume and transfer volume when determining their minimum and maximum number of trauma services.

- 6. Describe your system for assessing the adequacy of the workforce resources available within participating centers.

- a. Address nursing and subspecialty needs (trauma or general surgery, intensivists, neurosurgeons, orthopedic surgeons, anesthesiologists, pediatric surgeons, and others, as required).

There are several parts of the department that deal with various aspects of workforce and quality assurance, independent of the EMS and Trauma program, e.g. rural provider recruitment program. Specific EMS and trauma workforce issues are addressed through the existing regulatory, quality assurance, and stakeholder frameworks. See section 2.2 for example of rural area access to surgical subspecialists.



- b. What human resource deficiencies have been identified, and what corrective actions have been taken?

Rural trauma service areas have difficulty recruiting and maintaining specialty services, in some cases. Specifically, the inability for rural areas to maintain neurosurgery resources. Additional time has been given to provisionally designated trauma services in the past to allow for recruitment of more surgeons, but overtime, most of the level II services have dropped their designation to level III.

Trauma program manager (TPM) turn-over in rural areas specifically for level IV and V trauma services has been an issue in the past and continues to plague many services. The department has taken the following courses of action to try and limit turnover:

- Improve TPM support
- Developed an initial meet & greet with all new TPMs to provide an open line of communication and orientation to the program.
- Revised the TPM course to improve knowledge and understanding
- Proactively assists TPM with the re-designation process
- Implemented a TPM mentorship program

7. Describe the educational standards and credentialing for emergency physicians and nursing staff, general surgeons, specialty surgeons, and critical care nurses caring for trauma patients in designated facilities.

- a. What regional educational multidisciplinary conferences are provided to care providers?

The department organizes and promotes the Trauma Nurse Trauma Registrar Network (TNTRN) meeting which is a conference style day-long event that occurs three times per year. The meeting is open to all trauma system participants but is mainly directed at trauma program managers and registrars. The meeting includes educational topics regarding the trauma system, data collection, quality improvement, and specific clinical topics.

There are several trauma conferences occurring annually in the State. The University of Washington and Harborview Medical Center have a conference occurring in September which is directed at identifying critical concerns in the continuum of care, discussing new modalities, and identifying recent evidence. The Tacoma Trauma Trust hosts a conference annually that features current clinical practice recommendations, simulations, and interactive learning. In addition, Sacred Heart Medical Center (level II) in Spokane hosts the Inland Northwest Trauma Conference which is conducted annually and directed at rural prehospital agencies and trauma services. Flyers for each of these conferences are in the documents.

b. Who is responsible for organizing these events?

The department is responsible for the TNTRN meetings. The individual facilities are responsible for the conferences they host.

#### IV - System Coordination and Patient Flow

1. Describe the source of prehospital trauma triage protocols, and specify whether they are consistent with national guidelines.

Prehospital trauma triage protocols must meet the minimum standards of the Washington State Prehospital Trauma Triage (Destination) Procedure. The trauma triage procedure was developed by the Centers for Disease Control in partnership with the American College of Surgeons, Committee on Trauma. The guidelines have been adopted by the Department of Health based on the recommendation of the State EMS and Trauma Steering Committee.

a. Describe how children and patients with severe TBI and SCI are triaged from the field to appropriate facilities.

Children and patients with severe TBI and SCI are triaged from the field to appropriate facilities using the Washington State Prehospital Trauma (Destination) Procedure. The procedure allows EMS and trauma responders to quickly determine if the patient is a major trauma patient. Major trauma patients must be taken to the highest appropriate level trauma facility in the defined system within 30 minutes transport time (air or ground). The defined system is the trauma system that exists within an EMS and Trauma Care Region. Any certified EMS and trauma responder can identify a major trauma patient and activate the trauma system. This may include asking for advanced life support response or air medical evacuation. The triage procedure lists criteria for vital signs and level of consciousness, anatomy of the injury, mechanism of injury, evidence of high energy impact, and special patient or system considerations to guide EMS and trauma responders to identify the severity of the trauma make a destination decision.

2. Within the system, what criteria are used to guide the decision to transfer patients to an appropriate resource facility and are these criteria uniform across all centers?

Each trauma service is required to have transfer agreements with all trauma services that they transfer patients per WAC 246-976-700(10). The transfer agreements help establish a consistent transfer process to include identifying medical control and addressing the responsibilities of the sending and receiving trauma services.

In addition, each trauma services must also have both transfer-in and transfer-out guidelines IAW WAC 246-976-700(8-9). These guidelines further support and ensure a consistent transfer process by identifying the type, severity, and complexity of the injuries that exceed the sending trauma service's capabilities and, for which, the receiving trauma service can safely accept, admit, and provide definitive care for.

The department has published an interfacility transfer guideline which helps further establish a uniform transfer process. The guideline includes information surrounding the decision to transfer, transfer criteria, transport team configuration recommendations, methods of transport, and medical control. The guideline serves as a reference and is not a standard for which all trauma services must follow. The standards regarding the transfer of patients is addressed in WAC 246-976-700.

The assessment of transfer patients occurs during the designation process. Each trauma service transfer patterns are assessed every three years when they are undergoing re-designation. The transfer pattern assessment includes a review of the receiving trauma services, transfers to non-designated facilities, emergency department length of stay prior to transfer, diagnosis, injury severity score, transfer after admission, and double-transfers.

3. Specify whether there are interfacility transfer agreements to address the needs of each of the following:

a. Transfer to an appropriate resource facility

Each designated trauma service is required to have transfer-in and transfer-out guidelines. They are also required to have interfacility transfer agreements with each receiving trauma service per WAC 246-976-700 (9 - 10).

To help ensure the appropriateness of transfer, each trauma service's transfer-in guideline must specifically identify the type, severity, and complexity of injuries they can safely accept, admit, and provide with definitive care per WAC 246-976-700(8). The transfer-in guidelines are assessed during the designation application review and the on-site visit.

As noted above, transfer patterns are assessed during the re-designation process. All trauma services are encouraged to transfer trauma patients within the trauma system to higher designated trauma services which can safely provide definitive care for the patient. The appropriateness of the transfer and transfer location is assessed during the designation process.

- b. TBI - We do not address specific injury types in transfer agreements. Generally, the ability of a trauma service to care for a specific injury type is addressed in the trauma services transfer-in guideline. This applies to b, c, d, e, f, and g.

Transfer agreements and the supporting standard in WAC 246-976-700(10) does not specifically mandate the inclusion of traumatic brain injuries (TBI) or other specific injury types. The ability to care for specific injury types is addressed in the facilities transfer-in guideline and indirectly in the trauma services standards WAC 246-976-700 which defines the level of care, surgical services, and consultation services that must be provided at each level of designation. Definitive care for TBI patients is directed to all level I and II trauma services with some ability to care for these injuries at level III trauma services.

- c. SCI

Transfer agreements and the supporting standard in WAC 246-976-700(10) does not specifically mandate the inclusion of spinal cord injuries (SCI) or other specific injury types. The ability to care for specific injury types is addressed in the facilities transfer-in guideline and indirectly in the trauma services standards WAC 246-976-700 which defines the level of care, surgical services, and consultation services that must be provided at each level of designation. Definitive care for SCI patients is directed to all level I and II trauma services.

- d. Reimplantation

Transfer agreements and the supporting standard in WAC 246-976-700(10) does not specifically mandate the inclusion of reimplantations or other specific injury types. The ability to care for specific injury types is addressed in the facilities transfer-in guideline and indirectly in the trauma services standards WAC 246-976-700 which defines the level of care, surgical services, and consultation services that must be provided at each level of designation. Definitive care for reimplantation injuries is directed to the level I trauma service.

- e. Burns

Transfer agreements and the supporting standard in WAC 246-976-700(10) does not specifically mandate the inclusion of burns or other specific injury types. The ability to care for specific injury types is addressed in the facilities transfer-in guideline and indirectly in the trauma services standards WAC 246-976-700 which defines the level of care, surgical services, and consultation services that must be provided at each level of designation. Definitive care for burn injury patients is directed to the level I trauma service which is the only burn center in the State. Each trauma service is directed in WAC 246-976-700(29) to transfer all patients meeting the American Burn Association

(ABA) transfer criteria to a designated burn center. In addition, the state burn injury guideline directs the transfer of burn injury patients to the designated burn center using the ABA transfer criteria.

f. Children

Transfer agreements and the supporting standard in WAC 246-976-700(10) does not specifically mandate the inclusion of pediatric injuries or other specific injury types. The ability to care for specific injury types is addressed in the facilities transfer-in guideline and indirectly in the trauma services standards WAC 246-976-700 which defines the level of care, surgical services, and consultation services that must be provided at each level of designation. Definitive care for pediatric injuries is directed to designated pediatric trauma services. Each trauma service caring for a pediatric patient that requires critical care services is directed in WAC 246-976-700(26)(g) to transfer the patient to a designated pediatric trauma service with critical care services in its scope of care.

g. Repatriation

Repatriation is not commonly included in many of the statewide transfer agreements. In the example provided, repatriation is mentioned and includes the need to have bed space available for the patient upon their discharge from the receiving trauma service if admission is required.

4. Describe the system-wide policies addressing the mode of transport and the type and qualifications of transport personnel used for interfacility transfers.

All trauma patient interfacility transfers must be transported by a trauma verified prehospital transport agency per WAC 246-976-700(10). Verified trauma services must meet the staffing requirements in WAC 246-976-260 and WAC 246-976-390 for the level of service that they provide. For example, if a licensed and verified ambulance service provides advanced life support care, they must staff the ambulance with one certified paramedic and one certified EMT. Air ambulance services must meet the staffing requirements in WAC 246-976-320. In order to become certified, EMS personnel must meet national standards and the qualifications and requirements in WAC 246-976-141 and WAC 246-976-142.

5. Specify whether there is a central communications system to coordinate interfacility transfers. Describe how this system has access to information regarding resource availability within the region.

Washington does not have a central communications system to coordinate interfacility transfers. Each transfer is coordinated through direct communication between the transferring and receiving trauma service.

Washington does use a web-based healthcare resource tracking tool and alert system for statewide collaboration during emergency responses. The tool (WaTrac) is updated daily and provides real-time hospital capacity and resource information. Trauma services frequently use WaTrac to help determine available patient destination locations and surrounding hospital capacities.

## V - Rehabilitation

1. Provide data about the number of rehabilitation beds and specialty rehabilitation services (SCI, TBI, and pediatric) available within the trauma system's geographic region. On average, how long do patients need to wait for these rehabilitation beds? Does the average wait vary by type of rehabilitation needed?

There are currently eleven designated trauma rehabilitation (rehab) services in Washington. Rehab services designate as either adult (level I and II) or pediatric (level I). All eleven rehab services are located in metropolitan areas with a larger portion in the western and south central regions of Washington (see trauma rehab services map). There are currently 271 dedicated rehabilitation beds available at the eleven rehab services based on a 2016 facility survey (see Rehab Bed Count 2016 document). After the patient is clinically able to participate in rehabilitation care, there is generally no waiting period for admission.

Rehabilitation specialty services vary by location and designation level. The trauma Rehabilitation Service Standards (see WAC 246-976-800) do not specifically define what specialties must be provided based injury type (ie. SCI, TBI, and pediatric). The service standards do define which specialties and consultative services must be available to care for rehabilitation patients (see WAC 246-976-800(14)). At a minimum, patients with SCI and TBI injuries are directed to level I rehab services as noted in WAC 246-976-800(2) which states level I rehabilitation services must treat adult patients regardless of disability, level of severity or complexity. This same standard is applied to pediatric patients in (3).

2. Describe how existing trauma system policies and procedures appropriately address treatment guidelines for rehabilitation in acute and rehabilitation facilities.

Rehabilitation care and treatment guidelines are indirectly addressed in the Rehabilitation Service Standards (see WAC 246-976-800). The service standards help ensure rehabilitation care is current and appropriate. This is demonstrated in the following service standards:

- All trauma rehab services must be accredited with the Commission on Accreditation of Rehabilitation Facilities (CARF). The CARF accreditation process helps ensure individual rehab services treatment guidelines and care are appropriate.
  - A physiatrist must be available and responsible for the daily clinical management and treatment plan of trauma patients.
  - All rehab patient care plans must be reviewed and approved by a certified rehabilitation registered nurse (CRRN).
  - A CRRN must be on duty and available when a trauma patient is present in the rehab unit.
  - Specific rehab services and consultative services must be available for rehab patient care (see a complete list in WAC 246-976-800(14) and (15)).
  - A formal program of continuing trauma rehabilitation education must be present for nurses and allied health care professionals.
3. Identify the minimum requirements and qualifications that rehabilitation centers have established for physician leaders (for example, medical director of SCI program, medical director of TBI program, and medical director of rehabilitation program).

The minimum standards for the rehabilitation program director are addressed in the Rehabilitation Service Standards (WAC 246-976-800(11)). The minimum rehabilitation program director requirements are:

- Is a physiatrist
- Is responsible for the organization and direction of the trauma retaliation service
- Participates in the trauma rehabilitation services quality improvement program

There are no requirements for other rehabilitation physician leaders.

4. Describe how rehabilitation specialists are integrated into trauma system planning and advisory groups.

All trauma rehab services are invited to participate in the Rehabilitation Technical Advisory Committee (Rehab TAC) which advises and informs the larger EMS & Trauma Steering Committee. The chair of the Rehab TAC, represents one of the designated trauma rehabilitation services also serves on the EMS & Trauma Steering Committee. Individual rehabilitation services also participate in their associated Regional EMS & Trauma Council and Regional Quality Improvement Committee.

5. Notes on associated documents

In 2017, 37% of SCI patients\*, 10.4% of TBI patients, 11.8% of major trauma (ISS >15) patients, and 7.7% of pediatric patients (age ≤12 years) with major trauma (ISS >15) were discharged

from a trauma facility to an inpatient rehabilitation center. These data were obtained from the Washington Trauma Registry.

\*Spinal cord injury patients were defined as having any of the following ICD-10 codes: S14.0, S14.1, S24.0, S24.1, S34.0, S34.1, T09.3, T93.1. ASIA impairment scale data are not collected in the Washington Trauma Registry.

We current do not track staff to patient ratio of inpatient rehab units.

## VI - Disaster Preparedness

1. When was the last assessment of trauma system preparedness resources conducted, and what were the significant findings of the assessment as they relate to emergency preparedness?
  - a. The Prehospital Technical Advisory Committee (TAC) has an Emergency Preparedness workgroup that meets regularly to identify, recommend, and implement strategies for prehospital care. The goal is to integrate planning and preparedness activities with emergency management and public health emergency preparedness. The workgroup is currently working on developing resources such as best practices, implementation plans, etc., for EMS providers at the regional and local levels to use in mass disasters.

At the local level, in Pierce County, there was an Amtrak derailment in 2017, which resulted in activation of the emergency response for an MCI. During the response there where EMS agencies responding not only from Pierce County, but also Thurston County (the neighboring county to the South of Pierce), which resulted in a multi-county response. After the incident was concluded, there was an after action assessment where the incident was reviewed for both things that went well and things that could be improved on. Lessons learned included: start using StatBand Laser Triage tags immediately, call for assistance early, call DMCC early, get the MCI containers out immediately, and a few more. What went well included: LE cleared lane for ambulances to gain egress to scene, patient care, timely clearing of patients and “uninjured” from scene, scene safety, and a few more. What can be improved included: Communications, command control, aspects of MCI plan, and extraction.

- b. An assessment was conducted in 2014 as part of our state’s activities related to Ebola readiness. This assessment focused on transport capabilities within Washington state. Assessment activities and findings included:

Findings:



- Need to develop and test quarantine capabilities, including patient transport and logistical facility support;
- Need for coordination between headquarters and satellite offices around the state and across all divisions within DOH;

Activities:

- Effective daily policy briefings;
  - Engaged executive leadership during an emergency; and
  - Heavy investment in incident management training of DOH Office of Emergency Preparedness and Response (OEPR) staff resulted in improved performance.
- c. Another assessment was conducted in 2017 on the Ebola response readiness. This assessment was done via a survey to the 11 agencies that had volunteered to provide the Ebola response and transport. All 11 agencies completed the survey.
- Survey findings indicated that the agencies surveyed were generally well prepared to manage an Ebola Virus Disease (EVD) patient with strengths in protocols and plans. However, there were some gaps in EMS preparedness for EVD and improved interagency collaboration needed. One issue identified is lack of consistency in policies and procedures, which in Washington State is likely a result of the different configuration of the Emergency Preparedness versus the EMS and Trauma regions. It is the responsibility of the state Department of Health to establish guidelines and minimum standards for the EMS and Trauma care. The EMS and Trauma Care Regional Councils and the county Medical Program Directors then respectively lead the development of County Operating Procedures and Patient Care Protocols.
- d. Prior to 2016, Washington healthcare coalitions, led some multi-county and sub-state regional assessments. The Northwest Healthcare Response Network facilitated key work in King & Pierce Counties that now expands across most of Western Washington.
- e. Washington's system utilizes a Disaster Management Control Center (DMCC) process in the I-5 corridor. Components of the DMCC system are exercised on a regular basis at the local level.
- f. Other assessments include the ACEP evaluation and National index conducted around 2015. <https://www.emsworld.com/article/12306026/how-a-novel-disease-threat-brought-ems-and-public-health-together>

2. What actions were taken to remediate or mitigate the gaps identified through tabletop or simulated responses in disaster drills among the acute care facilities participating in the system?

Agency wide after action review along with a corrective action program that assigns responsibilities and timelines based on priority rankings (1, 2, or 3, with 1 being highest/life safety issues).

Washington State uses the corrective action plan program (CAP) to identify, develop, and implement corrective actions using After Action Reports (AAR) and Improvement Plans written after incidents. Once corrective actions are identified, they are implemented into the preparedness cycle. The CAP guides the development and management of improvement planning after incidents. The CAP is a supportive element to a robust preparedness program, along with the preparedness cycle.

The preparedness cycle is the process used to develop strong plans and procedures, equipment, response personnel, train staff, and validate those plans, equipment, and training through exercise. It is referred to as a cycle because each action builds on the last to continue improvement and build capability. The preparedness cycle also helps establish a strong culture of continuous strategic improvement in emergency preparedness.



Figure 1. Preparedness Cycle

3. What is the trauma system plan to accommodate a need for a surge in personnel, equipment, and supplies?

Medical surge and transport projects:

Washington DOH contracted with a national expert to conduct medical surge and emergency evacuation assessments of every clinical care area in every hospital in the state. In addition to identifying the short- and long-term physical surge capability in each of these areas, the project noted the necessary staff and equipment necessary in order to support the surge. The next step

for Washington DOH is to conduct a study of the identified staff and resource gaps and make determinations as to what actions, if any, may be taken at the facility, healthcare coalition and state levels to address the resource needs. Furthermore, ongoing work within Washington DOH around developing Health and Medical Emergency Response strike teams (nursing, pediatric, etc.) will support this effort.

On the emergency evacuation side of this project, the team looked at what types of transport assets would be necessary to evacuate the entire facility using census data on the day of the assessment. This snapshot of statewide evacuation needs can help inform future work around how to maximize patient movement.

4. How is the trauma system integrated into the state's incident command system and the communications center?

In Washington our trauma centers (all levels) are integrated into our state incident management system, through our states healthcare coalitions. There are two healthcare coalitions in Washington. One primarily responsible for connecting hospitals in western Washington and the other for connecting hospitals in eastern Washington. These 2 coalitions function as extensions of the emergency support function 8 (health, medical, and mortuary services) at the state emergency operations center. Through this structure trauma centers can share information to maintain a common operating picture and request resources necessary to perform their roles in disasters.

5. What strategies and mechanisms are in place to ensure adequate interhospital communication during an MCI?

Local DMCC has a role and the state DMCC has a role as well as patient movement coordination.

Patient Movement Functions:

If medical systems are overwhelmed, Washington State Emergency Support Function (ESF) 8 (Public Health and Medical Services) must be prepared to support and coordinate the following patient movement functions:

1. Patient Coordination – including medical system situational awareness, capacity monitoring, patient placement, and destination coordination
2. Patient Transportation – including physical movement of patients from the point of origin to a point of definitive care, an Alternate Care Site (ACS), and/or a Point of Embarkation (POE)
3. Patient Holding and Care Capacity – including maximizing capacity to hold and care for patients in the impacted area, at points of embarkation and debarkation, at alternate

- care facilities outside of the impacted areas, and at hospitals and other healthcare facilities
4. Emergency Triage, Treatment and Stabilization – including working to reconstitute necessary critical services to assure communities have access to needed care
  5. Patient Tracking – including the ability to know at any given time the location and the status of a patient from the time of movement to the time of return
  6. Patient Return – following successful treatment, the ability to return patients to their originating facility, rehabilitation or step-down care, their residence, or an alternate location, and reunify families
  7. Resource Tracking, and Demobilization – includes the capability to track and manage resources during the time that they are assigned to patient movement operations, and the ability to demobilize these resources and return them to their owner following the completion of their assignment.

Patient movement via NDMS is “regulated,” meaning that patients must be assessed, treated, and listed on a flight manifest, which must be approved by federal officials prior to transport. Patients must also be tracked carefully throughout each phase of movement for the purposes of accountability, family reunification, and eventual patient return. Patient movement is a risky, costly, and complicated endeavor and as such, it must be conducted with the highest degree of advance planning and coordination.

The purpose of this Concept of Operations (ConOps) is to establish and communicate the statewide framework for mass movement of patients, regardless of hazard or incident cause. Furthermore, this ConOps is intended to communicate to all stakeholders and interested parties the concepts for command and control, resource allocation, mission prioritization, and operations used when conducting mass patient movement. ConOps is not intended to serve as tactical direction during an incident, nor is it intended to serve as a standalone document. The Mass Patient Movement Standard Operating Guide (SOG) contains resources, tools, and specific guidance for use in conducting such mass patient movement operations.

## VII - System-wide Evaluation and Quality Assurance

1. What is the membership of the committee charged with ongoing monitoring and evaluating of the trauma system?

The statutory Steering Committee delegates initial responsibilities for QA oversight to the Outcomes Technical Advisory Committee (TAC). And at the regional level QA is led by the hospital regional QI committees.

a. To whom does it report its findings?

QA reports are provided to the Washington State EMS and Trauma Steering Committee, Technical Advisory Committees, and EMS and Trauma Regional quality improvement committees.

b. How does it decide what parameters to monitor?

The Outcomes TAC examines parameters at the suggestion of the EMS and Trauma Steering Committee and other TACs. Statewide and regional reports are created every other month for the Outcomes TAC, State EMS and Trauma Steering Committee and TACs. Topics are selected by TACs based on the schedule below:

- January: Hospital TAC and Cost TAC
- March: Pediatric TAC  
May: Injury TAC
- September: Pre-Hospital TAC and Emergency Cardiac and Stroke TAC
- November: Rehabilitation TAC

This schedule is based on system strategic planning and ensures that each component (aspect of the component) of the system is analyzed and shared with the EMS and Trauma Care Steering Committee for their expert input for system quality improvement.

c. What action is it empowered to take to improve trauma care?

The Outcomes TAC provides evidence to the EMS and Trauma Steering Committee and other TACs to inform decision making related to improving patient outcomes. This may result in guideline development or changes, policy implications, changes in data collection processes, etc. Trauma service level reports are created by the facilities as needed using data collection software Report Writer.

2. Describe the trauma system performance improvement efforts as they pertain to the system for the following groups of providers in the context of system integration:

- a. Dispatch centers: Not applicable.
- b. Prehospital provider agencies: Not applicable.
- c. Trauma centers

Trauma services directly upload their data into the Collector V5 tool, which feeds into the WTR. One trauma facility within our system has a tool that pulls data from electronic patient records and feeds them directly into the Collector.

Trauma facilities have access to the Report Writer tool, which provides them access to the data that they have entered into the WTR. This allows facilities to query records and run reports on their patients.

- d. Other acute care and specialty facilities: Not applicable. Washington does not have separate specialty care facilities for SCI, TBI, etc.
  - e. Rehabilitation centers: Reports are provided to the rehabilitation TAC on an annual basis using data from the trauma rehabilitation registry and the WTR. These datasets are merged at the DOH
3. List the process and patient outcome measures that are tracked at the trauma system level, including measures for special populations.

The department, along with the Outcomes and Hospital TAC comprised a list of audit filters which are monitored to evaluate the trauma system. The audit filters are reported to the EMS & Trauma Steering Committee and the individual regions upon request. The audit filters (measures) are included in the documents titled “Regional and State Trauma Quality Improvement Filters (090602017).doc”.

4. As part of your system-wide performance improvement, specify whether each of the following is assessed on a regular basis:
- a. Time from arrival to a center and ultimate discharge to a facility capable of providing definitive care. If yes, specify the mean time to transfer.

The mean time to transfer (total length of stay at initial facility among transfer patients) in 2017 was 13.3 hours (SD = 137.4) with a median time of 3.7 hours (Q1 = 2.6, Q3 = 5.3). Mean transfer times varied by trauma designation level:

<b>Level</b>	<b>N</b>	<b>Mean</b>	<b>Std Dev</b>	<b>Median</b>	<b>Lower Quartile</b>	<b>Upper Quartile</b>
1	51	209.69	444.85	61.88	9.80	190.62
2	673	18.83	80.32	3.93	2.72	5.72
3	2310	10.34	44.96	3.66	2.60	5.27
4	2115	11.06	197.61	3.58	2.53	5.10
5	310	5.86	16.81	3.40	2.23	5.07

- b. Proportion of patients with injury more severe than a predefined injury severity threshold (for example, ISS >15, or other criteria) who receive definitive care at a facility other than a Level I or II trauma center (under triage)

Among trauma patients in 2017 with an injury severity score greater than 15, 20.5% were treated at a level 3 (17.9%), level 4 (2.5%), or level 5 (0.2%) trauma facility as their final acute care facility.

- c. Proportion of patients with injury less severe than a predefined injury severity threshold (for example, ISS <9) who are transferred from any facility to a Level I or II trauma center (over triage)

Among trauma patients in 2017 with an injury severity score lower than 9, 11.2% were transferred into a level 1 (7.1%) or level 2 (4.1%) facility as their final acute care facility. The sole level 1 facility in the State of Washington also serves as the only American Burn Association verified burn center in the State. Of the patients with an ISS lower than 9 transferred to the level 1 facility, 21.3% were burn patients.

5. Describe how your system addresses problems related to significant over triage or under triage, both primary and secondary.

Overtriage and undertriage is assessed during the designation process. Each trauma service must include their current overtriage and undertriage rates in their re-designation application. The state uses the American College of Surgeons Committee on Trauma (ACS-COT) recommendation of 30% overtriage and 5% undertriage rates as a benchmark for trauma services. If a trauma service is not meeting the ACS-COT benchmark they are issued a requirement to fix. The requirement generally asks the trauma service to develop a plan to lower their undertriage rate and resubmit in one year. Problems related to overtriage are generally rare and are addressed as recommendations to improve and not necessarily requirements to fix.

6. Notes on associated documents:

List of the agencies represented on the committee responsible for trauma system quality assurance. The EMS and Trauma Steering Committee, Outcomes TAC and all EMS and Trauma Regional Quality Improvement committees have responsibilities for leading trauma system quality assurance. In addition, all of the TAC and workgroups contribute to the overall quality improvement of the system.

The Department of Health, in conjunction with the Outcomes TAC, produces a report every five years on the general state of the Trauma Registry (See document "Trauma chart report first 15 years.pdf"). In previous years, annual reports were created that addressed many of the areas

covered in the report referenced above. The DOH moved away from that approach in more recent years to focus on specific requests as they arose from the Steering Committee, TACs, and regions. The DOH has created a list of commonly requested topics and quality improvement filters with plans to return to the creation of an annual report that will cover these topics (see “Regional and State Trauma Quality Improvement Filters (090602017).doc”).

## VIII - Trauma Management Information Systems

### 1. Which agency has oversight of the trauma MIS?

The Washington State Department of Health oversees the Washington Trauma Registry with input from the State EMS and Trauma Steering Committee.

- a. Describe the role and responsibilities of the lead agency in collecting and maintaining the data.

The Washington State Department of Health leads the collection and maintenance of the Washington Trauma Registry. The department responsibilities are found in law/statute RCW 70.168.090 and further detailed in WAC/rule 246-976-420 which is included in the PRQ documents.

- b. How are the completeness, timeliness, and quality of the data monitored?

Collector version 4 (data prior to 2015), data quality report was created after receipt of data and sent back to the facilities. Version 5 (2015 to present), regular logic checks performed after data are received. Any data errors identified during data compilation are relayed back to the facilities. Monthly education and reviews on specific data elements are provided the departments Trauma Registry Coordinator to trauma services. The department monitors submissions on at least a weekly basis from each trauma service and has a process in place regarding contacting them about late submissions and errors.

### 2. Specify which of the following data sources are linked to the information system. Describe the method of linkage (for example, probabilistic or deterministic).

- a. Motor-vehicle crash or incident data: Not linked.
- b. Law enforcement records: Not linked.
- c. EMS or other transporting agency records:



Washington Emergency Medical Services Information System (WEMSIS) data has been linked to the Trauma Registry using deterministic and probabilistic approaches with last name, first name, and date of birth as the linking fields within Link King software for ad hoc projects.

- d. ED records: Not linked.
- e. Hospital records (hospital trauma registries):

The Washington Trauma Registry captures information through Collector V5 software at each trauma service, which is manually abstracted and entered by trauma registrars. This includes data on topics included in this list as they pertain to trauma (ex. prehospital, discharge information, in hospital death).

Several trauma services have an import module purchased from the software vendor (DiCorp) which pulls data directly from their electronic medical record into the Collector software.

- f. Hospital administrative discharge data:

Washington Comprehensive Hospital Abstract Reporting System (CHARS) data has been linked using deterministic and probabilistic approaches with last name, first name, and date of birth as the linking fields within Link King software for ad hoc projects.

- g. Rehabilitation data:

Washington Trauma Rehabilitation Registry has been linked using deterministic and probabilistic approaches with last name, first name, and date of birth as the linking fields within Link King software for ad hoc projects.

- h. Coroner and medical examiner records:

Death certificate data from vital statistics has been linked using deterministic and probabilistic approaches with last name, first name, and date of birth as the linking fields within Link King software for ad hoc projects.

- i. Financial or payer data: Not linked.
- j. Dispatch: Not linked.

3. What are the regional trauma registry inclusion criteria?

The trauma registry inclusion criteria is uniform across the state and is not regional specific. The criteria follows that published by the National Trauma Data Bank (NTDB) with a few minor criteria additions related to injury types, trauma team activations, and EMS transport). The trauma registry inclusion criteria is included in the PRQ documents.

4. Which stakeholders had a role in selecting the data elements for inclusion into the regional registry?

Trauma registry data elements are defined in rule WAC 246-96-430. Rule revisions are open public forums for which all stakeholders are invited to attend. Since the passing of the trauma legislation in 1990, the Trauma Registry rules have been opened about seven times to address changes in trauma registry including selecting and updating the data elements for inclusion in the registry. In the latest revision of WAC 246-976-430 all trauma services were invited to attend seven rule revision meetings. The majority of participants were trauma program managers and trauma registrars from level I – III trauma services as well as a few trauma surgeons and trauma medical directors..

- a. From what source(s) were the data field definitions derived?

Many of the data elements were derived from those suggested by the American College of Surgeons Committee on Trauma and the National Trauma Data Set (NTDS). The definitions for each data element is derived from the NTDS data dictionary. Definitions for data elements not included in the NTDS were derived from the department with stakeholder input.

- b. What pediatric data elements are captured?

Pediatric patients have specific components in the trauma registry inclusion criteria. There are no specific pediatric data elements beyond the pediatric trauma score. Other fields are collected on pediatric patients, but are not unique to them.

5. What local or system-wide reports are routinely generated and at what frequency?

Trauma service level reports are created by the facilities as needed using data collection software Report Writer. Statewide and regional reports are created every other month for the State EMS and Trauma Steering Committee and TACs. Topics are selected by TACs based on the schedule below:

- January: Hospital TAC and Cost TAC
- March: Pediatric TAC
- May: Injury TAC
- September: Pre-Hospital TAC and Emergency Cardiac and Stroke TAC
- November: Rehabilitation TAC

This schedule is based on system strategic planning and ensures that each component (aspect of the component) of the system is analyzed and shared with the EMS and Trauma Care Steering Committee for their expert input for system quality improvement.

6. Are data contributed to the National Trauma Data Bank (NTDB) or other outside agencies? If so, please specify which agencies.

Trauma services may voluntarily submit data to the NTDB. Data are submitted directly from the trauma service. This activity is not required or tracked by the department. Trauma registry data is not submitted to any other agencies.

In the latest rule revision for WAC 246-976-700 trauma services designed as level I and II have mandatory participation in the ACS-COT Trauma Quality Improvement Program (TQIP) which will require the submission of data to the NTDB. This change in rule was adopted in late 2018. Trauma services designated at those levels are beginning the TQIP submission process.

Policies and procedures related to release of data are found in WAC 246-976-420 (2), WAV 246-976-910 (6e), RCW 70.168.090 (3), Trauma Registry Inclusion Criteria

## IX - Research

1. Describe the current procedures and processes investigators must follow to request access to the trauma system registry.

Requests for aggregated data tend to come directly to the DOH. These requests are fulfilled at the department based on resource availability.

Requests for individual level records must undergo review through the Washington State Institutional Review Board (IRB). The IRB review process requires direct communication and coordination between the requestor and the DOH before the review is completed. This requires submission of a document (see "Appendix G (blank).doc") that describes how the data would be used, purpose of the research, other data involved in the project, inclusion criteria, etc. DOH screens the request for appropriateness and if DOH has the resources available to fulfill the request then Appendix G is sent back to the IRB where a final determination is made.

2. What are the mechanisms used to ensure patient confidentiality when regional trauma registry data are used by investigators?

Washington Trauma Registry has statutory protections to ensure patient confidentiality. RCW 70.168.090 (3)). External data sharing is permissible for de-identified data after department and

IRB review and approval. Aggregate data can be shared without IRB review at the discretion of the department and must adhere to the Washington Department of Health Agency Standards for Reporting Data with Small Numbers (see “SmallNumbers.pdf”). Regional quality improvement committees are required to sign confidentiality agreements prior to reviewing identifiable data (patients and facilities) in quality improvement meetings.

3. Provide examples of where research was conducted for the purpose of providing evidence that the processes of care and outcome of injured patients in the system’s region are within acceptable standards.

A regional QI program is statutorily required of each EMS and Trauma region (RCW 70.168.090 (2) EMS and Trauma Care regions are required to have a trauma quality assurance program for trauma services. The purpose of this QI program is to evaluate trauma care delivery, patient care outcomes, and compliance with the requirements for trauma care in Washington). The Trauma Designated Services (hospitals) and EMS providers in the region are invited to participate in these forums (mostly quarterly for each region) where specific trauma patient cases are reviewed and data from WTR is shared for the purpose of looking at processes of care and outcome of injured patients. The information shared and discussion at these forums are confidential and protected by state law. Over the years we have seen several changes in processes of care by trauma designated services and EMS providers ranging from modifications to response times, trauma team activations, use of intubation instruments, medications allowed, trauma guidelines, etc.

4. How has research been used to modify policy or practice within the system?

[EMS and Trauma Care Clinical Guidelines](#) have been created under the direction of the EMS and Trauma Steering Committee with assistance from related TACs and specialty work groups as needed. These guidelines were created with heavy emphasis from research findings. In the case of the trauma clinical guidelines for the [Evaluation and Management of Blunt Abdominal Trauma](#) and [Pediatric Consultation and Transfer Guidelines](#) research has been performed by Bowman et al. (2008) and Booth et al. (2018) (see “WTR Bibliography.doc”) using WTR data to examine the impacts of these guidelines in conjunction with quality improvement efforts geared toward the management of patients with pediatric spleen injuries.

5. What resources (for example, personnel and fiscal) are available to the lead agency to assist in conducting system research?

One epidemiologist is assigned to the trauma system at DOH. One trauma administrator performs duties of cleaning trauma data to support good data quality. While this position does not conduct system research, having good, clean data is essential for conducting research and analysis.

#### Section 4 – Post consultation measures

This section will be reviewed after the consultation site visit scheduled for April 2019

#### Section 5 - PRQ addendum – additional contract deliverables

This addendum section includes the additional questions from ACS relating to needs assessment portion of the consultative review. It also has questions and answers in the PRQ format to inform on the additional contract deliverables.

#### I – EMS and trauma minimum and maximum levels of service and distribution regionally and statewide

1. For all of the above areas where you have had trauma system configuration (addition or removal of trauma centers in a region) changes, please also provide data from the “before” period, as well as the “after” period, following the implementation. This will enable a more accurate and data-supported assessment of your system’s needs (volume/ severity of injury).

An excel spreadsheet with hospital trauma designation changes in level history from 1998 to present is included with the documents for this section.

2. How current statutes and regulations influence the needs assessment and specifically the maximum and minimum numbers and locations (geographic distribution) of EMS and trauma services.

Hospital Trauma Designation: Washington State limits the number of designated trauma services based on need. The trauma care regions are responsible for conducting a needs assessment to determine their regional needed minimum and maximum (min/max) number of designated trauma services and document that in their regional plan. The min/max process was established in RCW 70.168.060(4). The min/max number of designated trauma services is also influenced in the designation process WAC 246-976-580(3) which prescribes a competitive process when the number of facilities applying for designation exceeds the number authorized by the region. Current regional designated trauma services min/max numbers are documented in the individual eight plans for the EMS and Trauma Regions.

**Issue:** We are interested in improving methodologies, analysis, needs assessment for determining hospital trauma designated services min/max numbers and locations.

EMS and Trauma Regional Councils are responsible for conducting the needs assessment and establishing and maintaining the min/max number of designated trauma services. Regional councils may choose to have a subcommittee such as the research and propose changes to min/max numbers based on their needs.

EMST Regions are asked to consider the following criteria when determining the optimal number, level, and distribution of designated trauma services.

- Current availability of resources
- Distribution of trauma patient volume
- Population demographics (density, growth, age distribution)
- Forecasted population demographics
- Trauma patient volumes (current and forecasted)
- Trauma patient acuity (injury severity)
- Patient flow patterns:
  - Patients transported or transferred to non-designated facilities
  - Transfers to higher levels of care
  - Location of injury relative to existing trauma services
- ED length of stay for trauma patients admitted and transferred.

Regions are supported with data and reports from the department with access to data sets in the trauma registry, hospital discharge (CHARS), death records, non-confidential CQI information, and regional maps to help with their needs assessment.

Prehospital Trauma Verification: Washington State limits the number of trauma verified EMS services based on need. The EMS & trauma care regional councils are responsible for determining their regional minimum and maximum (min/max) number of trauma verified EMS services and documenting it in their regional plan. Min/max was established from RCW 70.168.060(5). WAC 246-976-390 and WAC 246-976-395 prescribes a process when the number of EMS services applying for verification exceeds the number authorized by the region. Current regional min/max numbers for trauma verified EMS services are documented in the EMS & Trauma Council Regional Plans. The min/max number of trauma verified EMS services is influenced by changes such as population growth, redistricting of taxable area, EMS service mergers, regionalization, consolidation, reductions in level of service such as EMS service downgrades from advanced life support paramedic to basic life support EMT only, or from transport capable to first response aid only, and total loss of services.

3. How is the needs assessment done at the regional level? What data, research, methodology is used to determine the ideal number and location of EMS and trauma services and resources?

EMS and Trauma Regional Councils are responsible for establishing and maintaining the min/max number of trauma verified EMS services. Regional councils collaborate with local EMS

councils and other jurisdictional authorities regarding needs and assessments to help inform planning efforts in the biennial regional planning process. Regions are asked to consider the following criteria when determining the optimal number, level, and distribution of prehospital trauma verified EMS services.

- Demand for prehospital EMS resources. Has demand increased to a level where additional resources are necessary?
  - Population. Have population numbers changed (increase or decrease) or are there projections for population changes that may impact need for EMS resources.
  - Increased trauma responses. Has the number of emergencies involving severely traumatized patients increased?
  - Available prehospital EMS resources. Has the number of available prehospital resources changed?
  - Response time. Does system quality improvement/evaluation suggest that response time for prehospital EMS resources has increased? Do current resources meet response time requirements outlined in WAC 246-976-390?
  - Level of verified Trauma service. Is there a demonstrated (data-driven) need for another level of service (ILS or ALS)?
4. How are decisions made to approve new services or change minimum and maximum levels for both EMS and trauma services?

For both hospital trauma services and prehospital trauma verified services, after the min/max changes are reviewed, analyzed and approved as meeting the needs of the region, the proposed changes must be presented on behalf of the Regional Council to the EMS and Trauma Steering Committee for their review. The Steering Committee recommends approval or denial or modification to the Department of Health. The Department of Health makes the final decision on min/max changes based on recommendations from the Steering Committee.

5. What are the limitations or gaps in the needs assessment and current approach for determining the maximum and minimum numbers and locations of EMS and trauma services statewide?

The methodology varies for assessing needs or determining distribution of resources related to EMS services currently being deployed by any EMS & Trauma regions. This results in inconsistent planning efforts across regions and an increase in requests to change min/max numbers outside of a planning cycle. There is difficulty in evaluating the necessity for change because of the lack of relevant and quality baseline data in the plan from which to compare the proposal to. The Fire/EMS redistricting or zoning changes and hospital mergers also appear to influence local planning.

There has been inconsistencies in how the needs assessments and related min/max analysis is conducted amongst regions. The weighting and priority of criteria varies. There may be a tendency to propose changes based on what currently exists or there is weak analysis and planning resulting in inconsistencies in distribution of resources at local level to meet patient needs.

In theory the needs assessment is intended to drive appropriate levels and distribution of services in each region and statewide. The reality is that a few trauma designated services are designated at one level but performing at another level. The Level 2 trauma designated services in more rural parts of the state have difficulty meeting the neurosurgeon requirement.

How can the needs assessment regional planning process be improved to result in better distribution of resources i.e. trauma designated hospitals and trauma verified prehospital services?

**Issue:** We are interested in improving methodologies, needs assessment, and analysis for determining prehospital trauma verified services min/max numbers and locations. Please provide expert advice.

## II - Rural EMS and trauma sustainability

1. How are rural EMS and trauma system assets and inputs deployed to allow the system to continue providing appropriate, timely, high quality patient care, over the longest term?

Washington follows the regional trauma system model which helps support and allow for participation from rural communities.

Washington, unlike many states, provides trauma designation for smaller rural community hospitals. These hospitals designate as level V. The designation of level V facilities in rural communities facilitates rural trauma care oversight which ensures resources for trauma care are available, care is appropriate, quality improvement occurs, and support from larger trauma services and the department is available.

**Issue:** What more could we do to support sustainability of rural EMS & trauma services?

## III - Trauma rehabilitation care sustainability

1. How are trauma rehabilitation system assets and inputs deployed to allow the system to continue providing appropriate, timely, high quality patient care, over the longest term?



Designated trauma rehabilitation services are included in the determination of min/max as described above. Washington designates rehabilitation facilities as either level I or level II. The Regional Council determines the need for and distribution of rehabilitation services in the same manner as described above for acute care trauma services.

We are seeing a trend in the closures of rehabilitation services in the changing healthcare landscape. We have heard anecdotal reports that hospitals feel financial pressure to replace rehabilitation beds with acute care beds due to inadequate reimbursement.

**Issue:** What can we do to support sustainability of trauma rehabilitation services?

#### IV – EMS oversight – medical program directors (MPDs)

1. Describe the EMS medical care oversight model, patient destination policy, and tools, and regional variance across the state.

EMS medical program directors (MPD's) are certified by the department in accordance with [RCW 18.71.212](#). One MPD provides medical oversight in each county with the exception of a few rural areas where one MPD has been appointed to provide oversight for more than one county. MPD's are contracted by the department and receive a stipend from the department. The department indemnifies physicians appointed as an MPD for providing oversight to EMS.

MPD roles and responsibilities are prescribed in [WAC 246-976-290](#). Qualifications required for an MPD certification include: (1) a current and valid license to practice medicine and surgery, or osteopathic medicine and surgery (2) Be qualified and knowledgeable in the administration and management of emergency medical care services (3) Complete a medical director training course approved by the department (4) Be recommended for certification by the local medical community and local emergency medical services and trauma care council. In general, MPD's provide medical control and direction to certified EMS providers through written patient care protocols (MPD protocols). MPD's provide oversight for training programs and instructors and perform routine quality assurance activities at local levels and may counsel providers, assign remediation, and if needed recommend disciplinary action to the department. MPD's recommend providers for certification, recertification and other applicable credentialing processes.

Destination determination for trauma, cardiac, stroke, and transport to chemical dependency and mental health facilities from field calls are determined using state guidelines which are discussed in section 3.4. Regional EMS & Trauma Care Councils are required to develop regional patient care procedures (PCP) that provide direction to EMS & trauma services in each region to operationalize patient transport, coordination, and care to include consideration for regional nuances. Counties are then authorized to develop county operating procedures (COP) that provide more nuanced direction to EMS & trauma services within a county.

**Issue:** Recruitment and retention of MPD’s in rural areas continues to be difficult. While succession planning for MPD replacements is one strategy being deployed, the difficulty filling MPD vacancies in rural counties is a challenge.

#### V – EMS and trauma regional plans

1. Describe the process for developing EMS plans, methodologies for assessing resource allocation, and any variance across the state

Regional EMS & Trauma Care Plans are developed on a biennium and maintained by the regional councils. Regional plans must include criteria identified in RCW 70.168.100 and WAC 246-976-960. The department establishes a written contract with the regional council and provides funding to support activities prescribed by regulations including the regional plan. The regional plan is revised every two years and reviewed and approved by the EMS & Trauma Care Steering Committee and the department.

There has been inconsistencies in how min/max analysis is conducted amongst regions. The weighting and priority of criteria varies. There may be a tendency to propose changes based on what currently exists rather than assessing needs through a local planning effort.

The inconsistent or lack of methodology for assessing needs or determining distribution of resources related to EMS services currently being deployed by any EMS & Trauma Care council creates difficulty in evaluating the necessity for change because of the lack of relevant and quality baseline data in the plan from which to compare the proposal.

**Issue:** How can we improve the EMS & Trauma Care Regional Planning Process? How can the min/max change process be improved to better manage the distribution of resources? How can the regional planning process be improved to make proactive decisions related to distribution of resources? How can we improve the value and quality of the regional plans?

#### VI - Interfacility transports

1. Describe current interfacility transport standards, medical oversight, and regulatory framework.

Each designated trauma service must comply with interfacility transport standard as described in WAC 246-976-700(8-11). These standards ensure each trauma service has transfer-in and transfer-out guidelines consistent with the facility's designation level and trauma scope of service. The guidelines must identify the type, severity and complexity of injuries the facility can safely accept, admit, and provide with definitive care for. They must also identify the type,

severity and complexity of injuries that exceed the resources and capabilities of the trauma service and require transfer to higher levels of care. In addition, trauma services must have an air medical transport plan that addresses the receipt or transfer of trauma patients with a heli-stop, landing zone, or airport located close enough to permit the facility to receive or transfer trauma patients by fixed-wing or rotary-wing aircraft.

Written interfacility transfer agreements with all trauma services that receive trauma patients must also be in place. The agreements must have a process to identify medical control during the interfacility transfer, and address the responsibilities of the trauma service, the receiving hospital, and the verified prehospital transport agency. All trauma patients must be transported by a trauma verified prehospital transport agency.

To assist in the interfacility transfer process, the department has developed an interfacility transfer guideline which provides recommendations for decision-making to transfer, transfer criteria, transport team configuration, transport method, and medical control. The interfacility transfer guideline is included in the documents.

The challenge we are experiencing is that the training requirements for EMS providers related to specialized equipment, medications and procedures that may be encountered during an interfacility transport are insufficient. Most transports of patients that require critical care and monitoring are done by private – for – profit ground ambulance services or air ambulance services that routinely deploy nurses, respiratory therapists, or other medical specialists. However, many of these services also use paramedic staffing models. The regulations for air and ground ambulance services differ related to specialty care transports. Provisions for staffing, education, and equipment for air ambulance services who provide specialty care transport are identified in WAC 246-976-390. There are no equivalent provisions for ground services performing this level of service.

Although there are nationally recognized critical care transport courses for paramedics that provide training that prepare providers to manage specialized equipment, medications, and procedures encountered in the inter-facility environment, our regulations are limited due to EMS providers scope of practice and cannot specifically or sufficiently address inter-facility transports in the context of training or equipment requirements for EMS services and providers.

**Issue:** What are best practices for training, equipment, and medical direction for the various levels of care to support EMS care and transport of patients with specialized needs in an interfacility environment?

## Section 6 – Documents list

- 1.1 - Injury Epidemiology Report\_State\_Regions 2013-2017
- 1.1 - Washington STAT Report 2014 - Final Draft
- 1.2 - Minutes from stakeholder group that applied BIS
- 1.2 - Recommendations emanating from BIS process
- 2.1 - Emergency Care System statute - RCW 70.168
- 2.2 - 3-21-2012 MINUTES FINAL
- 2.2 - Committee org chart
- 2.2 - CVs for state directors
- 2.2 - Org chart - office of community health systems
- 2.2 - Pilot report -Subspecialist in WaTrac
- 2.2 - System performance report
- 2.3 - DOH Rules Process Flow Chart (example)
- 2.3 - EMST Regional Councils (example)
- 2.3 - PostdischargeMortalitySC (example)
- 2.3 - SC Minutes 1.16.2019 (example)
- 2.3 - SC Minutes 3.20.2013 (example)
- 2.3 - SC Minutes 3.21.2018 (example)
- 2.3 - SC Minutes 5.16.2018 (example)
- 2.3 - Skamania Co. Min Max Change Request 9-18 (example)
- 2.3 - Steering committee and TAC members with affiliations (includes coalitions)
- 2.4 - Job description of state EMS and trauma director
- 2.4 - Org Chart - Department
- 2.4 - Org Chart - Division
- 2.5 - Strategic Plan through 2021
- 2.6 - Cardiac and Stroke Categorization
- 2.7 - Legislation that documents financial commitment
- 2.7 - Notice of Awards - SFY 2019
- 2.7 - OCHS budget and financial report
- 3.1 - Injury Prevention Sample of Materials
- 3.1 - IVP Partners and Prevention Activities
- 3.1 - WA State Injury Guide
- 3.2 - 2010 AirMedicalServicePlan DOH 530129
- 3.2 - 2017 EMS Resource
- 3.2 - Air Ambulance Strategic Plan Draft v8 07.24.2018
- 3.2 - Annual report of NREMT scores 2017
- 3.2 - Annual Training Program Report
- 3.2 - Central-Region-Strategic-Plan-2017-2019
- 3.2 - East-Region-Strategic-Plan-2017-2019
- 3.2 - EMS Assessment Flyer

- 3.2 - EMS pediatric guidelines -Revised 030112
- 3.2 - EMS REGIONAL COUNTY MAP
- 3.2 - Example OTEP Plan
- 3.2 - HB 1721 Patient Guideline July 2016 Final
- 3.2 - MIH\_Survey\_Report\_2017.03.24\_FINAL
- 3.2 - North-Central-Region-Strategic-Plan-2017-2019
- 3.2 - North-Region-Strategic-Plan-2017-2019
- 3.2 - Northwest-Region-Strategic-Plan-2017-2019
- 3.2 - Pediatric EMS guidelines
- 3.2 - Prehospital Cardiac Triage Tool 04.2011
- 3.2 - Prehospital Stroke Triage Tool 01.2017
- 3.2 - Prehospital Trauma Triage Tool 08.2012
- 3.2 - RCW 18.71.212 - MPD Certification
- 3.2 - RCW 18.71.215 Medical program directors
- 3.2 - RCW 18.71.220 Rendering Emergency Care
- 3.2 - RCW 70.168.100 - Regional emergency medical services and trauma care councils
- 3.2 - RCW 70.168.110 - Planning service regions
- 3.2 - RCW 70.168.150 Emergency cardiac and stroke care system
- 3.2 - rural protocols example - Ferry Co Protocols
- 3.2 - South Central Region EMS Trauma Care System Plan FY17-19 (Revised Jan 2018)
- 3.2 - Southwest Region EMS Trauma Care System Plan FY17-19 (Revised 2018.01)
- 3.2 - urban-suburban protocols example - King Co Protocols - ALS
- 3.2 - urban-suburban protocols example - King Co Protocols - BLS
- 3.2 - urban-suburban protocols example - Pierce Co Protocols
- 3.2 - WA\_EquipmentReport\_063014
- 3.2 - WAC 246\_976\_163 OTEP
- 3.2 - WAC 246\_976\_920 Medical Program Director
- 3.2 - WAC 246-976-022 EMS training program requirements
- 3.2 - WAC 246-976-023 - Initial EMS training course requirements and course approval
- 3.2 - WAC 246-976-031 - Senior EMS Instructor
- 3.2 - WAC 246-976-141 - To obtain initial EMS provider certification
- 3.2 - WAC 246-976-142 To obtain reciprocal out of state EMS certification
- 3.2 - WAC 246-976-143 To obtain EMS certification by challenging the educational requirements
- 3.2 - WAC 246-976-161 General education requirements for EMS provider recertification
- 3.2 - WAC 246-976-162 The CME method of recertification
- 3.2 - WAC 246-976-171 Recertification, reversion, reissuance, and reinstatement of certification
- 3.2 - WAC 246-976-300 Ground and ambulance aid service equipment
- 3.2 - WAC 246-976-320 Air ambulance services
- 3.2 - WAC 246-976-390 Trauma verification of prehospital EMS services
- 3.2 - WAC 246-976-960 - Regional emergency medical services and trauma care councils
- 3.2 - West-Region-Strategic-Plan-2017-2019
- 3.3 - 2018 Designation Application

- 3.3 - EMS and Trauma Regional Map
- 3.3 - Hospital Contract Template
- 3.3 - Inland Northwest Trauma Conference
- 3.3 - Patient volume data
- 3.3 - Tacoma Trauma Conference
- 3.3 - Trauma Designation Process Map
- 3.3 - trauma designation process WAC 246-976-580
- 3.3 - Trauma Designation Services List
- 3.3 - trauma service standards WAC 246-976-700\_New
- 3.3 - UW Harborview Trauma Conference
- 3.4 - Intrafacility Transport Guideline
- 3.4 - Sample Interfacility Transfer Agreement HMC and Evergreen
- 3.4 - WAC 246-976-700 Trauma Service Standards
- 3.5 - Rehab Bed Count 2016
- 3.5 - Rehab CARF Status
- 3.5 - Rehab Data Fields
- 3.5 - Rehab Participating Specialist List
- 3.5 - Rehab Services Map\_September\_2018
- 3.5 - trauma rehab standards WAC 246-976-800
- 3.6 - 2014 ACEP report
- 3.6 - Annex 11 Medical Surge FINAL
- 3.6 - Coordinated State Local Response Org Chart
- 3.6 - DRAFT\_EPRWkgrp\_MtngNotes\_2018.04.24
- 3.6 - ESF 8 Appendix 2 Medical Surge Response FINAL
- 3.7 - Outcomes TAC members with affiliations (see 2.3)
- 3.7 - Regional and state trauma QI filters 9-6-17
- 3.7 - Regional quality assurance program WAC 246-976-910
- 3.7 - WTR Bibliography
- 3.8 - Example Report Volume and Transfers Steering
- 3.8 - Small Numbers Policy
- 3.8 - trauma chart report first 15 years
- 3.8 - Trauma Registry Data Dictionary 2018
- 3.8 - Trauma Registry Inclusion Criteria
- 3.8 - trauma registry rules WAC 246-976-420
- 3.8 - trauma registry rules WAC 246-976-430
- 3.9 - Procedure fo research data access
- 3.9 - WTR Data Requests - 2018
- 5.1 - Capacity PPT slide 9-29-17 licensed beds
- 5.1 - SNF report 11-15-17
- 5.1 - Trauma designated service level history
- 5.1 - Trauma System Min Max