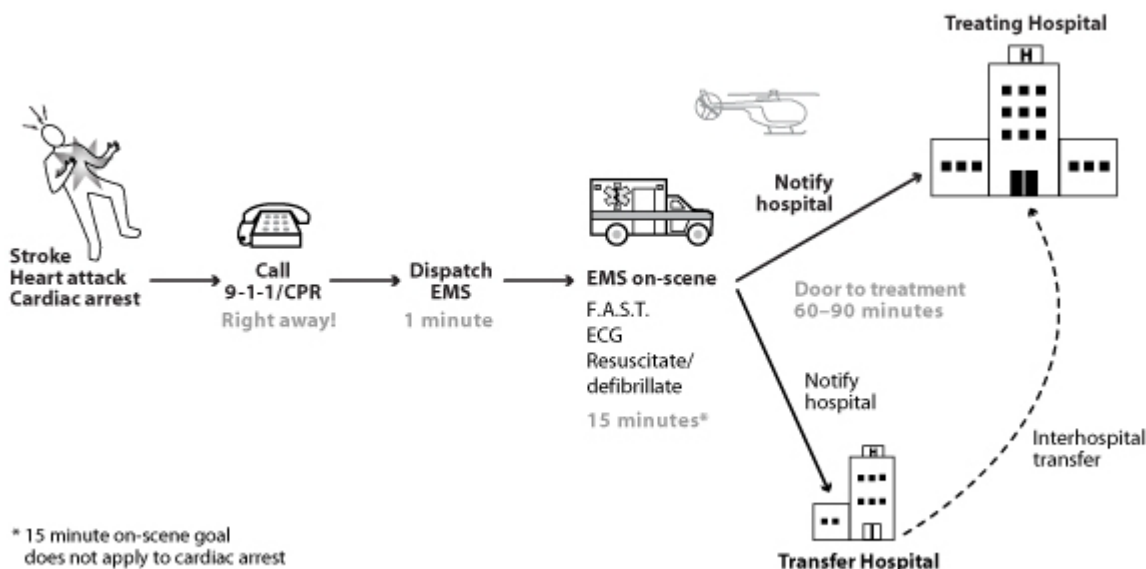


# Washington State Emergency Cardiac and Stroke System

Hospital Name:

## 2026-2027 Application for Level I Cardiac Center Categorization



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Tumwater, WA 98501-5570

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# **The Washington State Emergency Cardiac and Stroke System Guiding Principles**

The Washington State Emergency Medical Services and Trauma Care Steering Committee convened a work group to study emergency cardiac and stroke care in 2006. The work group included emergency medical services providers, emergency physicians, cardiologists, neurologists, nurses, and representatives from the Washington State Hospital Association, American College of Emergency Physicians, and the American Heart Association/American Stroke Association. In response to the study findings, the work group made recommendations for a statewide coordinated emergency cardiac and stroke system similar to the state's Trauma System.

These principles guided the work group in developing recommendations:

- Prevention is the first line of defense against heart disease and stroke.
- Care is provided based on what is in the best interest of the patient.
- All Washington residents have a right to optimal care: timely identification, transport, treatment, and rehabilitation by emergency response and health care professionals trained according to best practice standards.
- Racial, ethnic, geographic, age, and socioeconomic disparities are addressed.
- Market-share is balanced by policies and strategies such as telemedicine that promote broad provider participation.
- Regional differences are recognized, but basic elements exist statewide.
- All components of the system participate in planning and quality improvement.
- Patient outcomes are valued, and data collection, analysis, and quality improvement practices demonstrate the quality that the system claims to provide.
- Cost-savings are achieved where possible

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## **I. General Information**

### **What is the Washington State Emergency Cardiac and Stroke (ECS) System?**

The ECS System is a coordinated systems approach to improving emergency response and treatment for acute coronary syndrome,<sup>1</sup> cardiac arrest, and stroke patients. The goal of the system is improve patient outcomes by reducing time to treatment and getting patients into a dedicated system of comprehensive care. The ECS System is based on the same principles as the Trauma System – get the right patient to the right place in the right amount of time to save lives and reduce disability.

State law passed in March 2010 authorizes the ECS System. The law is based on recommendations of the Emergency Cardiac and Stroke Work Group convened by the Emergency Medical Services and Trauma Care Steering Committee in 2006. The law required the Department of Health to support an emergency cardiac and stroke system by 2011, including cardiac- and stroke-specific protocols and destination procedures for emergency medical services (EMS), and encouraging hospitals to voluntarily participate in the system. To participate, hospitals self-identify their cardiac and stroke resources and capabilities by applying for categorization as a Level I, II, or III Stroke Center, or Level I or II Cardiac Center. These levels are defined by the recommendations of the Emergency Cardiac and Stroke Technical Advisory Committee, as required by the law.

### **Why do we need a system for emergency cardiac and stroke care?**

Too many people become disabled or die from heart attack, cardiac arrest, and stroke because they don't get treatment in time.

- Most strokes (80%) are caused by clots. In 2018, only 11 percent of this type of stroke were given the clot-busting drug t-PA, and less than 5 percent were treated with mechanical thrombectomy, the two best options for treating stroke.
- Primary percutaneous coronary intervention (PCI) is the most effective treatment for most people having a heart attack. PCI includes angioplasty and stenting. In Washington, less than half of all people who have a heart attack get PCI.
- Access to resources for diagnosing and treating heart attacks and strokes varies, especially in rural areas.
- Heart attack and stroke patients are often transported to the nearest hospital only to be transferred to another hospital. This can delay treatment for hours. Cardiac and stroke patients don't have hours.

The ECS System addresses all of these problems by reducing time to life-saving treatments. It gets patients to facilities committed to providing the most timely and optimal evaluation and care. Heart attack and stroke patients treated in time will likely need less rehabilitation, suffer fewer disabling conditions like paralysis and congestive heart failure, and can often go home after their hospitalization.

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<sup>1</sup> Acute coronary syndrome includes ST elevation myocardial infarction (STEMI), non-STEMI, and unstable angina.

## Why should my hospital participate?

- EMS needs to know what cardiac and stroke resources hospitals have so they can get their patients to the right treatment in time. By participating, you will be
  - ♦ Strengthening our emergency medical services system.
  - ♦ Ensuring people get the treatment they need.
  - ♦ Saving lives, reducing disability, and improving quality of life.
- The destination and triage tools EMS uses to determine where to take their patients directs them to transport patients only to participating hospitals. Exceptions to the destination triage guidance are for extremely unstable patients or when there is no other option within specified transport times.
- People in your community will benefit by having a participating hospital close by. They'll know that if they go to your hospital, whether they are brought in by family or ambulance, that you'll do the right thing for them. In some cases, that might mean immediately transferring them. In others, EMS might take them directly to another hospital if it means getting treatment that will save their lives and get them home faster.
- You'll be part of the statewide effort to increase access to quality emergency cardiac and stroke care through an organized system of care. Washington is the only state in the country to have a statewide system for cardiac *and* stroke care.

## How will we know if the ECS System is successful?

The 2010 legislation, codified in [RCW 70.168.150](#), requires participating hospitals to “participate in internal, as well as regional, quality improvement activities.” It also requires “participation in a national, state, or local data collection system that measures cardiac and stroke system performance from patient onset of symptoms to treatment or intervention, and includes, at a minimum, the nationally recognized consensus measures for stroke.”

The legislation did not include authority or funding to establish a state data collection system. We can get at least an indication of the system's success through existing data collection resources and quality improvement initiatives. Many hospitals are participating directly or indirectly in *Get With the Guidelines* for stroke (GWTG-S), the *Clinical Outcomes Assessment Program* (COAP) for heart attack, and the *Washington Cardiac Arrest Registry to Enhance Survival* for cardiac arrest. The Department of Health can use aggregate reports from these sources to evaluate the ECS System.

The law also amended the EMS and Trauma System law to expand the scope of the EMS and Trauma Regional Quality Improvement (QI) programs to allow protected discussion and evaluation of regional cardiac and stroke systems and care delivery. All of the Regional QI programs have incorporated cardiac and stroke evaluation to some degree. Participating hospitals should send their cardiac and stroke coordinators to these regional QI meetings. Contact the Regional administrator listed in the key on the Hospital and Personnel page.

**How long is the categorization period?**

Three years.

**Can we change our categorization level?**

Yes, you can apply to change your level anytime. Request a current application from the department contact listed below.

**What if we no longer want to participate in the system?**

You can withdraw at any time. Send written notice to the department contact listed below.

**What if we no longer meet the categorization criteria?**

Notify the department as soon as your status changes, and send written notice to the department contact.

**Department Contact:**

Matt Nelson, 360-236-2816  
Matt.Nelson@doh.wa.gov  
Department of Health  
Office of Community Health Systems  
Attn: Matt Nelson  
PO Box 47853  
Olympia, WA 98504-7853

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## II. Application Process

### To apply for categorization or re-categorization in the Washington State Emergency Cardiac and Stroke System as a Cardiac Center:

- A. **Certified Cardiac Centers:** If your hospital is certified as a Cardiac Center by a national accrediting organization, complete sections A and B of the application and mail them to the department contact listed below, along with proof of certification from the accrediting organization indicating the certification period. If your hospital is not certified by an outside accrediting organization, please follow the directions at B. Non-Certified Hospitals.
- B. **Non-Certified Hospitals:** Complete all sections of the application electronically, and prepare the required documentation.
- C. Complete one application per hospital. One application for multiple hospitals or campuses in a hospital system is not acceptable. A completed application includes:
- Hospital and Personnel Profile
  - Certification Statement
  - Criteria Checklist
  - Documentation Checklist
  - Required Documentation
1. Print out the completed application on 8 ½ x 11 white paper, double-sided where possible.
  2. Get the required signatures on the Certification Statement.
  3. Print out the required documentation in the order on the documentation checklist.
  4. Place a labeled divider between each section of the application, and each article of documentation.
  5. Make a copy for your own records.
  6. Mail the completed application to:

Department of Health  
Office of Community Health Systems  
Attn: Matt Nelson  
PO Box 47853  
Olympia, WA 98504-7853

Street address (for FedEx, UPS, etc.):  
111 Israel Road SE  
Tumwater, WA 98501-5570

We will review your application for completeness and confirm your categorization or re-categorization in writing, or contact you if we have questions within 60 days. We'll call the contact person listed on the Hospital Profile for questions.

**Questions?** Please call or email Matt Nelson 360-236-2816, [Matt.Nelson@doh.wa.gov](mailto:Matt.Nelson@doh.wa.gov).

**Thank you** for participating in the Emergency Cardiac and Stroke System and being a part of the statewide effort to ensure all Washington citizens have access to quality acute cardiac care.

### III. Application for Level I Cardiac Center Categorization

#### A. Hospital and Personnel Profile

Hospital Name:		
EMS/Trauma Region*:		
Mailing Address:	City:	Zip:
Physical Address:	City:	Zip:
Phone:	County:	
Application Contact and Title:		
Phone:	Email:	

Hospital Administrator/CEO:	
Phone:	Email:
Cardiac Service Director:	
Phone:	Email:
Cardiac Care Coordinator:	
Phone:	Email:
ED Medical Director:	
Phone:	Email:
ED Nursing Director:	
Phone:	Email:

#### \*Ems/Trauma Region Key

Region:	Includes the following counties:	Contact name - email:
Central	King	Rachel Cory – rachelcory@comcast.net
East	Ferry, Stevens, Pend Oreille, Lincoln, Spokane, Adams, Whitman, Asotin, Garfield	Rinita Cook - Rcook@ncecc.org
North	Whatcom, Skagit, San Juan Island, Snohomish	Martina Nicolas - martina@northregionems.com
North Central	Okanogan, Chelan, Douglas, Grant	Rinita Cook – Rcook@ncecc.org
North West	Clallam, Jefferson, Kitsap, Mason	Rene Perret - rene@nwrems.org
South Central	Yakima, Kittitas, Benton, Franklin, Walla Walla, Columbia	Zita Wiltgen - zitawiltgen@screms.org
Southwest	Wahkiakum, Cowlitz, Clark, Skamania, Klickitat, South Pacific	Zita Wiltgen - swems@comcast.net
West	Pierce, Thurston, Lewis, Grays Harbor, North Pacific	Anne Benoist – anne@wrems.com

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**B. Certification Statement**

I, \_\_\_\_\_ (CEO/COO), on behalf of \_\_\_\_\_ (hospital), voluntarily agree to participate in the Washington State Emergency Cardiac and Stroke System as a Level I Cardiac Center. We will work with emergency medical services and other hospitals in our area to streamline triage and transport of cardiac patients and participate in regional quality improvement activities, as available.

I certify that:

- A. The information and documentation provided in this application is true and accurate.
- B. This hospital meets the criteria to be categorized as a Level I Cardiac Center as defined in the criteria checklist and provides these services 24/7.
- C. Our hospital is committed to improving emergency response and treatment of acute coronary syndrome, heart attack, and cardiac arrest.
- D. We will participate in a national, state, or local data collection system that measures cardiac and stroke system performance from patient onset of symptoms to treatment or intervention, as required by RCW 70.168.150.
- E. We will notify the Department of Health immediately if we are unable to provide the level of cardiac service we've committed to in this application.

\_\_\_\_\_  
Chair, Governing Entity (Hospital Board)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Chief Executive Officer

\_\_\_\_\_  
Date

\_\_\_\_\_  
Cardiac Service Director

\_\_\_\_\_  
Date

\_\_\_\_\_  
Cardiac Care Coordinator

\_\_\_\_\_  
Date

\_\_\_\_\_  
Emergency Department Medical Director

\_\_\_\_\_  
Date

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### C. Cardiac Center Level I Criteria Checklist

Click on the box in the “Met” column to indicate your hospital meets the criterion. Documentation or a description of how you’ll meet the criteria is requested only if noted.

Participation Criteria for Level I Cardiac Center	Met	Documentation Requested
<b>Personnel</b>		
Cardiac Service Director, as defined by hospital (must be a cardiologist)	<input type="checkbox"/>	
Cardiac care coordinator as defined by hospital. Responsibilities might include ensuring cardiac protocols/order sets are in place and updated according to current guidelines, training or arranging for training, data collection, QI, coordinating with EMS and other hospitals where applicable, and public education.	<input type="checkbox"/>	List of cardiac coordinator responsibilities
Cardiac team as defined by hospital. The team of staff on duty at the hospital that responds to cardiac emergencies. Each categorized hospital must have a cardiac team that responds to cardiac emergencies. An administrative or QI team at an individual hospital or for multiple hospitals in a healthcare system does not meet this criterion.	<input type="checkbox"/>	Description of the cardiac team (members)
Physicians in the emergency department 24 hours a day, seven days a week who are board-certified in emergency medicine, or who have completed the requirements to sit for the board; or physicians board-certified in a specialty and practicing emergency medicine as their primary practice with special competence in cardiac care	<input type="checkbox"/>	
Emergency department nurses with current ACLS certification or equivalent	<input type="checkbox"/>	
Interventional cardiologist available on-site within 30 minutes of cardiac team activation	<input type="checkbox"/>	
Cardiac catheterization lab staff available within 30 minutes of cardiac team activation	<input type="checkbox"/>	
<b>Cardiac Services</b>		
Diagnostic and interventional cardiac catheterization 24 hours a day, seven days a week	<input type="checkbox"/>	
Fibrinolytic therapy 24 hours a day, seven days a week (even if PCI is the primary reperfusion method)	<input type="checkbox"/>	
Therapeutic targeted temperature management 24 hours a day, seven days a week for appropriate patients post-cardiopulmonary arrest with return of spontaneous circulation	<input type="checkbox"/>	
Cardiac surgery or transfer agreement with cardiac surgery hospital via ground or air at the highest level of care available, preferably critical care.	<input type="checkbox"/>	Current transfer agreement if no cardiac surgery program
Intensive/critical care unit	<input type="checkbox"/>	
<b>Infrastructure</b>		
Cardiac team activation policy and criteria based on EMS pre-arrival notification, and for “walk-ins”. See <a href="#">ACS Activation Guidelines</a> for hospitals in Appendix D for considerations.	<input type="checkbox"/>	Cardiac team activation policy

### C. Cardiac Center Level I Criteria Checklist

Click on the box in the “Met” column to indicate your hospital meets the criterion. Documentation or a description of how you’ll meet the criteria is requested only if noted.

Participation Criteria for Level I Cardiac Center	Met	Documentation Requested
No-divert policy for all patients who meet the "Immediate" or "High Risk" criteria as described in the Washington State Prehospital Cardiac Triage Destination Procedure and a back-up plan for situations when the hospital’s cardiac care resources are temporarily unavailable.	<input type="checkbox"/>	No-divert policy and back-up plan for when services are unavailable
<p>Cardiac protocols that include:</p> <ul style="list-style-type: none"> <li>• <b>Chest pain/discomfort</b> (e.g., uncomfortable pressure, squeezing, fullness), usually in the center of the chest lasting more than a few minutes, or that goes away and comes back.</li> <li>• <b>Other acute coronary syndrome symptoms:</b> <ul style="list-style-type: none"> <li>▪ <b>Pain or discomfort in 1 or both arms</b>, neck, jaws, shoulders, or back.</li> <li>▪ <b>Shortness of breath</b> with or without chest discomfort.</li> <li>▪ <b>Other symptoms</b> may include sweating, nausea/vomiting, lightheadedness.</li> </ul> </li> </ul> <p><b>NOTE:</b> As with men, women's most common heart attack symptom is chest pain or discomfort. But women are somewhat more likely than men to experience some of the other common symptoms, particularly shortness of breath, nausea/vomiting, and back or jaw pain. Please refer to this <a href="#">website</a> for more information.</p> <ul style="list-style-type: none"> <li>• <b>Triage for ED walk-ins</b> presenting with acute coronary syndrome including recognition of signs and symptoms;</li> <li>• Initiation of targeted temperature management for patients post-cardiopulmonary arrest with return of spontaneous circulation, i.e., a protocol for inducing hypothermia and guidelines and equipment necessary to perform;</li> <li>• Use of fibrinolytics, including contraindications (fibrinolytic checklist) and immediate transfer process for situations when the cath lab is temporarily unavailable and fibrinolytics might be used;</li> <li>• Transfer protocols or guidelines for patients in need of specialized care via ground or air at the highest level of care available, preferably critical care.</li> </ul>	<input type="checkbox"/>	Cardiac protocols (order sets, procedures/algorithms, etc.) for each action or process listed. General EMTALA transfer protocols or guidelines that don’t specifically address cardiac transfers are not adequate documentation.
Referral to cardiac rehabilitation program. Referral policy or protocol includes referral criteria (AMI, CABG, PCI, stent, valve replacement, etc.) and how referral is to occur, e.g., prescription given to patient, paper or electronic referral sent to rehab program for follow up with patient.	<input type="checkbox"/>	Referral policy or protocol

### C. Cardiac Center Level I Criteria Checklist

Click on the box in the “Met” column to indicate your hospital meets the criterion. Documentation or a description of how you’ll meet the criteria is requested only if noted.

Participation Criteria for Level I Cardiac Center	Met	Documentation Requested
Coordination with Emergency Medical Services, e.g., working with county EMS Councils, Regional Councils, or Medical Program Directors on cardiac care and transport policy and procedures, system activation, training, data collection and quality improvement.	<input type="checkbox"/>	Description of how you work with EMS in your community, e.g., participation in county and/or regional EMS council meetings, training, quality improvement, and any documentation of these activities if available.
<b>Training and Education</b>		
Current ACLS certification or equivalent for emergency department nurses.	<input type="checkbox"/>	
Assistance with training and clinical education of EMS in coordination with the EMS Medical Program Director, as needed, and if requested, particularly for reading ECG for STEMI patients to enable earlier activation of the team.	<input type="checkbox"/>	
Public education on cardiovascular disease prevention, the signs and symptoms of heart attack, and the importance of learning CPR and calling 911 in cardiac emergencies.	<input type="checkbox"/>	Example from previous year, or planned for current year.
<b>Performance Measurement and Quality Improvement</b>		
Participation in a national, state, or local data collection system that measures cardiac system performance from patient onset of symptoms to treatment or intervention.. See Appendix B for more information on data collection.	<input type="checkbox"/>	<p>Documentation or description of data collection system that measures cardiac system performance from patient onset of symptoms to treatment or intervention. Whichever data collection tool you use, you should be able to collect, measure, and use for quality improvement, the following data elements and indicators:</p> <ul style="list-style-type: none"> <li>▪ Percent of AMI patients who arrived by EMS</li> <li>▪ Percent of AMI patients for which prearrival notification from EMS was received</li> <li>▪ Percent of AMI patients who get any reperfusion (PCI or thrombolytics)</li> <li>▪ Mean and median door-to-balloon time</li> <li>▪ Mean and medium door-to-needle time</li> </ul>

### C. Cardiac Center Level I Criteria Checklist

Click on the box in the “Met” column to indicate your hospital meets the criterion. Documentation or a description of how you’ll meet the criteria is requested only if noted.

Participation Criteria for Level I Cardiac Center	Met	Documentation Requested
		<ul style="list-style-type: none"> <li>▪ Time from first medical contact (EMS or first hospital if transferred in and arrival at first hospital was self-transport) to treatment</li> <li>▪ Time from onset to treatment</li> <li>▪ Outcomes (died in hospital, discharged alive, discharge location)</li> <li>▪ Percent of patients with PCI post-ROSC</li> </ul>
<p>Participation in internal multi-disciplinary quality improvement activities related to cardiac care. Internal quality improvement (QI) means customary QI activities to improve quality of care based on process and outcome data from internal or external cardiac QI programs or registries the hospital participates in.</p>	<input type="checkbox"/>	<p>Provide a description of your cardiac QI activities. This should include:</p> <ul style="list-style-type: none"> <li>▪ The type and source of data used to guide the process (e.g., internal or external patient data registries).</li> <li>▪ Participants in the internal QI process (multi-disciplinary)</li> <li>▪ The process, e.g., monthly meetings with case reviews, data presentations, PDSA’s, root cause analysis, etc.</li> <li>▪ An example of a cardiac case reviewed during the previous categorization period. Please include a summary of the case, the issue identified, discussion and conclusion, action plan developed to address deficiencies or improve processes, evaluation of the action plan and issue resolution (loop closure). The example may be a system issue, a physician or nursing practice issue or an unfavorable patient outcome. Please mark as confidential, and</li> </ul>

### **C. Cardiac Center Level I Criteria Checklist**

Click on the box in the “Met” column to indicate your hospital meets the criterion. Documentation or a description of how you’ll meet the criteria is requested only if noted.

<b>Participation Criteria for Level I Cardiac Center</b>	<b>Met</b>	<b>Documentation Requested</b>
		remove all patient and practitioner identifiers.
Participation in regional quality improvement activities. The ECS law amended RCW 70.168.090(2) to allow existing regional EMS and trauma quality assurance (QA) programs to evaluate cardiac and stroke care delivery in addition to trauma care delivery.	<input type="checkbox"/>	Description of participation in regional cardiac QI activities.

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#### **D. Documentation Checklist**

Please attach documentation in the order specified. Place a divider, such as a piece of colored paper or tabbed divider, between each piece of documentation.

- List of cardiac coordinator responsibilities.
- Description of the cardiac team.
- Cardiac team activation policy and criteria based on EMS pre-arrival notification.
- Evidence of coordination with Emergency Medical Services providers, including:
  - Working with county EMS councils, Regional councils, or Medical Program Director on cardiac care and transport policy and procedures
  - System activation
  - Training
  - Data collection
  - Quality Improvement
- No divert policy for all patients who meet the "Immediate" or "High Risk" criteria as described in the Washington State Prehospital Cardiac Triage Destination Procedure and a back-up plan for situations when the hospital's cardiac care resources are temporarily unavailable.
- Chest discomfort protocol.
- Other acute coronary syndrome symptoms.
- Triage protocol for ED walk-ins presenting with symptoms of acute coronary syndrome, including atypical symptoms.
- Targeted temperature management protocol for appropriate post-cardiopulmonary arrest patients with return of spontaneous circulation.
- Fibrinolytic checklist to assess for contraindications and immediate transfer process for situations when the cath lab is temporarily unavailable and fibrinolytics might be used.
- Transfer protocols or guidelines for patients in need of specialized care via ground or air at the highest level of care available, preferably critical care.
- Referral policy or protocol for cardiac rehabilitation, including referral criteria (AMI, CABG, PCI, stent, valve replacement, etc.) and how referral is to occur, e.g., prescription given to patient, paper or electronic referral sent to rehab program for follow up with patient, etc.
- Documentation or description of data collection system.

- Example of public education on cardiovascular disease prevention, the signs and symptoms of a heart attack, and the importance of learning CPR and calling 911 in emergencies.
- Method to measure performance on door-to-balloon time.
- Internal multi-disciplinary quality improvement activities or plan. Include who's involved, how care is evaluated (e.g., case reviews, data review), what's done about problems identified, and how often the activities occur.

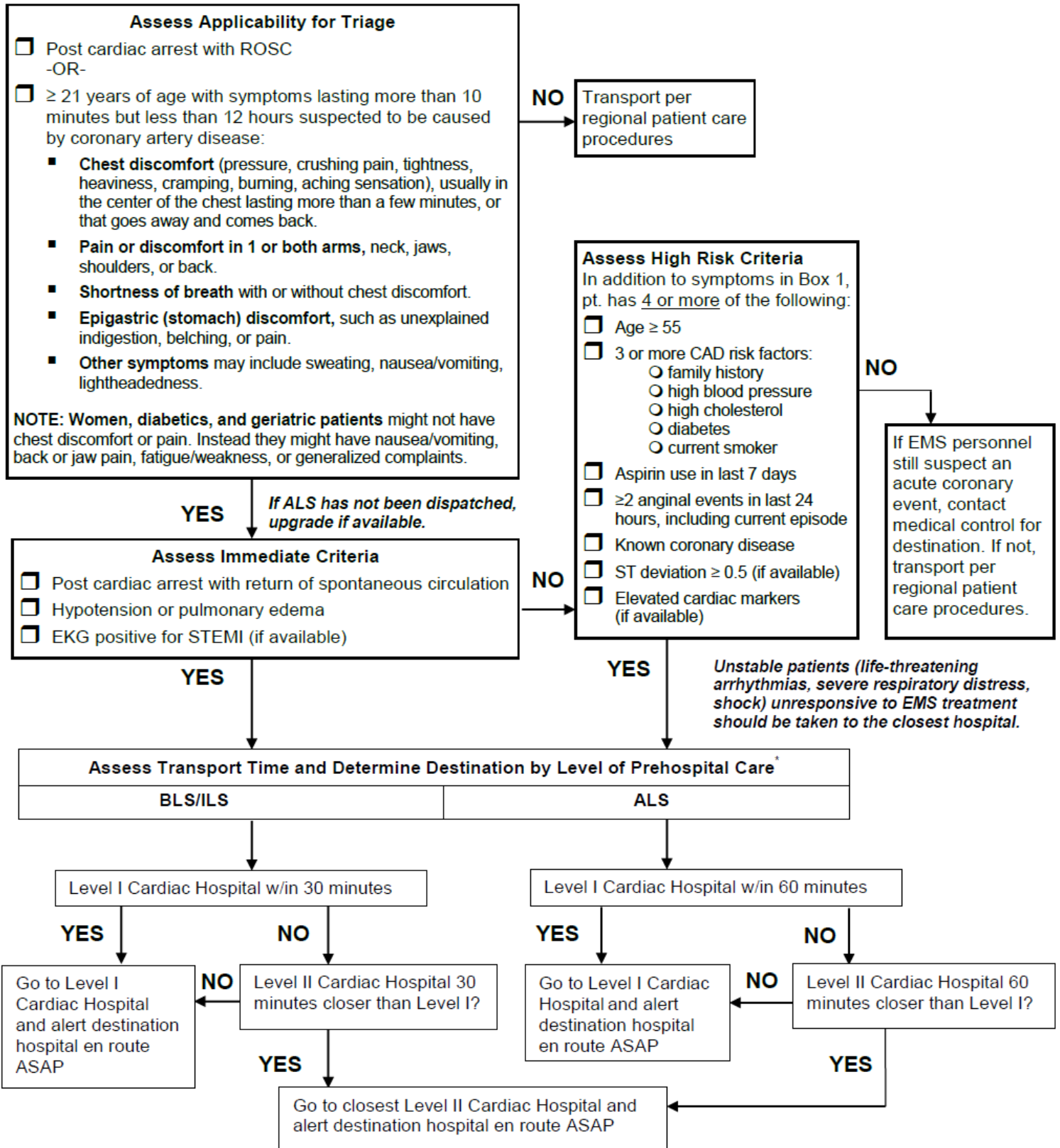
## **IV. Appendices**

- A. State of Washington Prehospital Cardiac Triage Destination Procedure
- B. Data Collection and Quality Improvement Requirements
- C. Resources
- D. Acute Coronary Syndrome Activation Guidelines

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## State of Washington Prehospital Cardiac Triage Destination Procedure



\* Slight modifications to the transport times may be made in county operating procedures. See page 2. Consider ALS and air transport for all transports greater than 30 minutes. If there are two or more Level I facilities to choose from within the transport timeframe, patient preference, insurance coverage, physician practice patterns, and local rotation agreements may be considered in determining destination. This also applies if there are two or more Level II facilities to choose from.

# State of Washington Prehospital Cardiac Triage Destination Procedure

## Why triage cardiac patients?

The faster a patient having a heart attack or who's been resuscitated gets treatment, the less likely he or she will die or be permanently disabled. Patients with unstable angina and non-ST elevation acute coronary syndromes (UA/NSTE) are included in the triage procedure because they often need immediate specialized cardiac care. This triage procedure is intended to be part of a coordinated regional system of care that includes dispatch, EMS, and both Level I and Level II Cardiac Hospitals.

## How do I use the Cardiac Triage Destination Procedure?

- A. Assess applicability for triage** – If a patient is post cardiac arrest with ROSC, or is over 21 and has any of the symptoms listed, the triage tool is applicable to the patient. Go to the “Assess Immediate Criteria” box. **NOTE:** Women, diabetics, and geriatric patients often have symptoms other than chest pain/discomfort so review all symptoms with the patient.
- B. Assess immediate criteria** – If the patient meets any one of these criteria, he or she is very likely experiencing a heart attack or other heart emergency needing immediate specialized cardiac care. Go to “Assess Transport Time and Determine Destination” box. If the patient does not meet immediate criteria, or you can't do an ECG, go to the “Assess High Risk Criteria” box.
- C. Assess high risk criteria** – If, in addition to meeting criteria in box 1, the patient meets four or more of these high risk criteria, he or she is considered high risk for a heart attack or other heart emergency needing immediate specialized cardiac care. These criteria are based on the TIMI risk assessment for unstable angina/non-STEMI. If the patient does not meet the high risk criteria in this box, but you believe the patient is having an acute coronary event based on presentation and history, consult with medical control to determine appropriate destination. High risk criteria definitions:
- 3 or more CAD (coronary artery disease) risk factors:
    - Age  $\geq$  55: epidemiological data for WA show that incidence of heart attack increases at this age
    - Family history: father or brother with heart disease before 55, or mother or sister before 65
    - High blood pressure:  $\geq$ 140/90, or patient/family report, or patient on blood pressure medication
    - High cholesterol: patient/family report or patient on cholesterol medication
    - Diabetes: patient/family report
    - Current smoker: patient/family report.
  - Aspirin use in last 7 days: any aspirin use in last 7 days.
  - $\geq$ 2 anginal events in last 24 hours: 2 or more episodes of symptoms described in box 1 of the triage tool, including the current event.
  - Known coronary disease: history of angina, heart attack, cardiac arrest, congestive heart failure, balloon angioplasty, stent, or bypass surgery.
  - ST deviation  $\geq$  0.5 mm (if available): ST depression  $\geq$  0.5 mm is significant; transient ST elevation  $\geq$  0.5 mm for  $<$  20 minutes is treated as ST-segment depression and is high risk; ST elevation  $>$ 1 mm for more than 20 minutes places these patients in the STEMI treatment category.
  - Elevated cardiac markers (if available): CK-MB or Troponin I in the “high probability” range of the device used. Only definitely positive results should be used in triage decisions.
- D. Determine destination** – The general guideline is to take a patient meeting the triage criteria directly to a Level I Cardiac Hospital within reasonable transport times. For BLS, this is generally within 30 minutes transport time, and for ALS, generally 60 minutes transport time. See below for further guidance. Regional patient care procedures and county operating procedures may provide additional guidance.
- E. Inform the hospital en route so staff can activate the cath lab and call in staff if necessary.**

## What if a Level I Cardiac Hospital is just a little farther down the road than a Level II?

You can make slight changes to the 30/60 minute timeframe. The benefits of opening an artery faster at a Level I can outweigh the extra transport time. To determine whether to transport beyond the 30 or 60 minutes, figure the difference in transport time between the Level I Cardiac Hospital and the Level II Cardiac Hospital. For BLS, if the difference is more than 30 minutes, go to the Level II Cardiac Hospital. For ALS, if the difference is more than 60 minutes, go to the level II Cardiac Hospital.

BLS examples:    A) minutes to Level I minus minutes to Level II = 29: go to Level I  
                      B) Minutes to Level I minus minutes to Level II = 35: go to Level II

ALS examples:    A) minutes to Level I minus minutes to Level II = 45: go to Level I  
                      B) Minutes to Level I minus minutes to Level II = 68: go to Level II

**NOTE:** We recommend ALS use a fibrinolytic checklist to determine if a patient is ineligible for fibrinolysis. If ineligible, transport to closest Level I hospital even if it's greater than 60 minutes or rendezvous with air transport.

## What if there are two or more Level I or II facilities to choose from?

If there are two or more of the same level facilities to choose from within the transport times, patient preference, insurance coverage, physician practice patterns, and local rotation agreements may be considered in destination decision.

## Appendix B. Data Collection and Reporting Requirements

The [Emergency Cardiac and Stroke System \(ECS\) law](#) requires participating hospitals to “participate in a national, state or local data collection system that measures cardiac and stroke system performance from patient onset of symptoms to treatment or intervention.” These data cover time intervals and processes along the continuum of care for the acute event: onset of symptoms→dispatch→EMS→transfer hospital→treating hospital→intervention→outcome. By checking how well the system works along the entire continuum of care, we’ll find where the delays or obstacles are and target improvements where they’re needed.

Reporting to the Department of Health is not required. As noted in the introductory section of this application, the department was not funded for centralized data collection and analysis. We will get aggregate reports from Get With the Guidelines for Stroke, COAP, and Pacific Northwest CARES to get a state level view of ECS System performance.

To measure how well the ECS System achieves the goals of reducing time to treatment and improving heart attack and cardiac arrest outcomes without adding significant burden to hospitals, the ECS Technical Advisory Committee recommended data elements and measures that are generally consistent with national measures and registries. Data collection systems/registries used by hospitals and regional systems should, at a minimum, be able to collect, analyze, and trend:

- ◆ Time from onset of symptoms to 911 call (from EMS)
- ◆ EMS Time on-scene (arrival at patient side to departure from scene; from EMS)
- ◆ Mode of arrival/Percent of AMI patients who arrive by EMS, walk-in/self-transport, or transfer-in from another hospital
- ◆ Pre-arrival notification/Percent of AMI patients for whom prearrival notification from EMS was received
- ◆ Reperfusion/Percent of AMI patients who get any reperfusion (PCI or lytics)
- ◆ Hypothermia/Percent of resuscitated cardiac arrest patients who are appropriate for and get therapeutic hypothermia
- ◆ Mean door to balloon time
- ◆ Median door to balloon time
- ◆ Time from first medical contact (first medical contact means EMS, or first hospital if transferred in and arrival at first hospital was self-transport) to treatment/Percent first medical contact to balloon (PCI) in less than 90 minutes
- ◆ Time in transfer hospital or “door-in-door-out” time/Percent with door-in-door-out time less than 30 minutes
- ◆ Total time from onset of symptoms to treatment/Percent time from onset of symptoms less than 120 minutes
- ◆ CMS core measures (some overlap with recommended measures)
- ◆ Outcomes (in-hospital mortality; discharge disposition, e.g., alive, dead, home, nursing home, rehab. Suggested: left ventricular ejection fraction for AMI and cardiac arrest at discharge and 60 days; neurological outcome for cardiac arrest\*)

- ◆ Percent of patients with PCI post-ROSC

Data collection and analysis is meant to be used by EMS and hospitals and their regional partners for internal and regional process and quality improvement, and national and state benchmarking.

The data collection tools or registries that measure onset of symptoms to treatment include:

#### National

NCDR's ACTION Registry®-Get With the Guidelines™ - This QI program and patient management tool is the most comprehensive off-the-shelf data collection system available. In addition to core measures, GWTG measures time from onset, mode of arrival, advance notification from EMS, transfer status, discharge status. This option is the most comprehensive, it's used nationally, and it comes closest to meeting the requirements in the law. There is a limited version that might be appropriate for Level II Cardiac Centers.

#### State

Clinical Outcomes Assessment Program (COAP) through the Foundation for Healthcare Quality. With the addition of AR-G in 2012 to COAP's array of registries, hospitals can now meet the data collection requirements through COAP.

#### Local

Local data collection systems should, at a minimum, be able to collect, analyze, and trend the same data and measures listed above. Examples of local data collection systems include:

- An internal registry, information system, electronic health record, or spreadsheet, for a regional cardiac system of care. For example, a Level I Cardiac Center collects data in a database or spreadsheet on onset of symptoms to treatment and outcomes for their own patients as well as those transferred in by a Level II Cardiac Center. The Level II Center provides the necessary process data (e.g., time of symptom onset, time of arrival at and departure from hospital, etc.) to the Level I Center.
- *(For Level II only)* Participation in a regional cardiac system of care, where a Level I Cardiac Center participates in one of the national or state registries.
- *(For Level II only)* Internal hospital process to track recommended measures relevant to the level of care and services provided, i.e., this wouldn't include door-to-balloon time since a Level II doesn't perform PCI. This could be an internal registry, information system, electronic health record, or spreadsheet where heart attack and cardiac arrest patient data is collected and used to evaluate process and outcomes for quality improvement purposes, internally and regionally.

Other data collection systems not listed here may also meet the reporting requirement. To determine whether a data collection system meets the requirement or for any other questions about cardiac data collection systems, please contact Matt Nelson, 360-236-2816, [Matt.Nelson@doh.wa.gov](mailto:Matt.Nelson@doh.wa.gov).

**\*Cardiac Arrest Measures**

In order to measure performance on cardiac arrest, we encourage hospitals to participate in the Pacific Northwest Cardiac Arrest Registry to Enhance Survival (PNW CARES) if requested by their county EMS medical program director. CARES is primarily an EMS registry, but there are four to six data elements needed from hospitals that care for resuscitated patients brought in by EMS. For information on Pacific Northwest CARES, contact Jenny Shin at 206-263-8586, [jenny.shin@kingcounty.gov](mailto:jenny.shin@kingcounty.gov).

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## Appendix C. Resources

[Emergency Cardiac and Stroke System](#)

[American Heart Association](#)

[Minneapolis Cardiac Level One Program](#)

[North Carolina RACE](#) (Reperfusion of AMI in Carolina Emergency Departments)

[National Heart Lung Blood Institute](#) (includes Act in Time public education materials)

[National Guidelines Clearinghouse](#)

[National Cardiovascular Data Registry](#) (Info on Get With the Guidelines™ and CathPCI Registry®)

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## Appendix D. Acute Coronary Syndrome Activation Guidelines

**Purpose:** To ensure hospital preparedness when receiving ACS patients while limiting unnecessary use of hospital resources.

1. **Cardiac Activation:** To be used for STEMI, CPA-ROSC from presumed ischemic heart disease, and patients with hypotension or pulmonary edema, i.e., patients who meet the Immediate Field Criteria on the [Prehospital Cardiac Triage Destination Procedure](#).

All necessary components of the hospital-based emergency response to ACS should be initiated as soon as notified by EMS of an impending transport of these major ACS patients.

These components should include the following, according to the receiving hospital's scope of capability:

- a. Identify primary nurse and physician who will meet the patient upon arrival.
  - b. Identify most appropriate available bed in ER/cath lab to receive patient.
  - c. Open cath lab. If not immediately available consider redirecting patient transport to another Level I Cardiac Center if capable of a more timely cath lab evaluation.
  - d. Recruit cardiologist to respond to ER or cath lab.
  - e. Prepare for initiation of therapeutic hypothermia for appropriate CPA-ROSC patients.
  - f. Recruit additional team members as resources allow and are required to provide immediate care according to the level of categorization of the hospital. These may include but are not limited to the following:
    - Respiratory Therapist
    - Pharmacist
    - Radiology Technician
    - EKG Technician
    - Intensivist
2. **Cardiac Alert** (UA/NSTEMI) and patients who have a prehospital high risk score of FOUR or greater on the [Prehospital Cardiac Triage Destination Procedure](#).

These patients should receive an immediate evaluation by the in-house elements of the cardiac team to further evaluate the possibility of a time-critical ACS being responsible for the patient's symptoms.

The components of this initial response need not include activation of the cath lab or recruitment of a cardiologist. Response should include the following within the scope of capability of the receiving hospital:

- a. Identify primary nurse and physician who will meet the patient upon arrival.
- b. Identify most appropriate available bed in ER to receive patient.
- c. Recruit additional team members such as resources allow and are required to provide for the rapid evaluation and immediate care of the patient. These may include but are not limited to the following:
  - Radiology Technician
  - EKG Technician
  - Lab Technician
- d. Prepare to initiate ACS 'rapid rule out' pathway.

The intent of this guideline is to ensure a comprehensive response to obvious critical ACS patients while avoiding excessive recruitment of resources for patients who need further, but *immediate*, evaluation to determine the likelihood that their symptoms are from ACS. Once that determination is made, additional personnel and interventional capabilities should be recruited as appropriate to the patient's needs.