INTRODUCTION TO PROTOCOLS
09/13/2022

These protocols were written in joint effort by the Medical Control Board of Lane County (The Board). The Board is a volunteer board consisting of Supervising Physicians and Emergency Medical Services (EMS) Professionals from Eugene Springfield Fire, Lane Fire Authority, South Lane Fire/Rescue, Western Lane Fire and EMS Authority as well as those in surrounding jurisdictions within the Lane County Ambulance Service Areas.

The Board meets monthly with the objective of coordinating the delivery of emergency medical care. Where evidence is available, the Board has diligently evaluated the material and drafted protocols that will assist EMS Personnel in providing excellent patient care. Where evidence is lacking, the Board has relied on best practices, expert advice, and consensus to guide the development of the protocol or procedure. These protocols are reviewed on a regular basis and updated when necessary to reflect advances in the art and science pertaining to the care of the acutely ill and injured.

Pre-hospital EMS is performed in a stressful environment with time-critical decisions. No specific patient care matrix can be developed that will cover every type of injury, illness, and complicating circumstance that EMS Professionals will encounter while providing on-scene care. It is the Board's expectation that providers will use these protocols in conjunction with their training and experience to do what is best for each patient. From time to time, it is expected that circumstances will arise that are not covered within these protocols. In such instances, providers should function within their scope of practice and use all available resources, including Physician Consultation from On-Line Medical Control (OLMC) at the receiving facility, to provide the best possible patient care. Any protocol deviations should be documented and sent to your EMS agency's EMS Office and the supervising physician for review.

The Board attempts to achieve, by consensus, a high level of cooperation in developing, purchasing, maintaining, and standardizing EMS equipment and protocols. Individual agencies and their supervising physician can act independently of the Board; however, the coordination of medical equipment and practices within the county is an obvious community benefit. Agency-specific protocols may be appended to these protocols when signed by their respective supervising physician.

Thanks to everyone who has assisted in protocol development and review. Anything that is complex and includes detail is prone to errors. Please review these protocols carefully and route any potential errors, unclear directions, or suggestions for improvement to your agency's EMS office.

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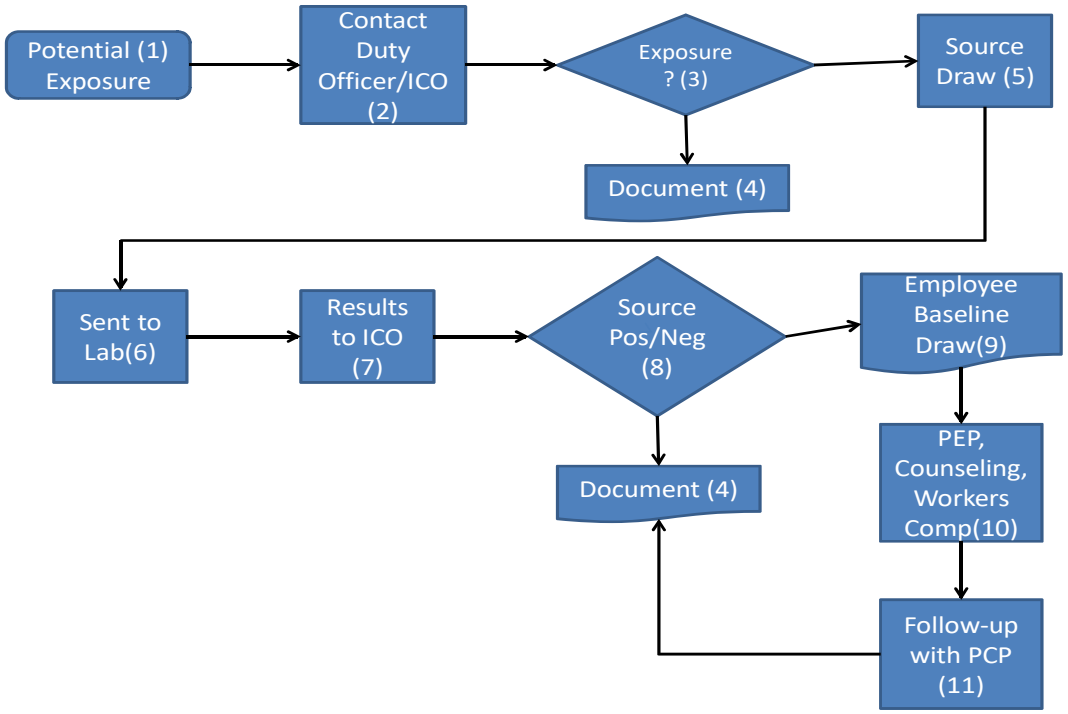
BLOODBORNE PATHOGEN EXPOSURE 09/13/2022	
INDICATIONS	This protocol is intended to be used when there is a bloodborne pathogen exposure to a First Responder or an EMS worker. According to the Ryan White Act, First Responders and EMS personnel have a right to a sample of the patient's blood for testing if there has been an exposure. If patients do not consent; it may be necessary to contact law enforcement to get a court order for source patient testing. **If the source patient is not being transported and there are not personnel on-scene qualified to obtain a blood draw, agencies may contact Cascade Mobile Health to do the draw at (541) 228-3111. Personnel will need to be able to provide a call-back number to Mobile Health Dispatch.
EMR/EMT	Provide basic first aid to the worker • Wash or irrigate the area that was affected. • Bandage the wound. • Get the Occupation Exposure Packet from the Duty officer or Battalion Chief? • Explain to the patient that there has been an exposure and have the patient sign the consent for blood specimen collection.
A-EMT, EMT-I, PARAMEDIC	• If patient is not being transported, obtain blood draw from source patient – **See Blood Specimen Collection protocol**

BBP EXPOSURE FLOW CHART
09/13/2022



This flowchart is not intended to replace individual agency bloodborne pathogens policies. It is intended to provide guidance to agencies and personnel that may need additional information during an exposure event.

1. Provide First Aid to employee. Relieve the employee of duties when possible. An exposure or incident form should be completed addressing circumstances surrounding potential exposure per agency policy. If able, determine if patient has high-risk lifestyle, i.e. IV drug use, known HIV positive, etc.

2. The potential exposure shall be reported immediately to the employee's supervisor or as directed by agency policy. Contact the agency Infection Control Officer (ICO).

3. The ICO shall determine if the incident is an exposure. Elements necessary for transmission include the presence of infectious agent (consider dosage and virulence) means of transmission and host resistance (consider PPE used, skin integrity, recipient health etc). Other considerations include the depth (deep or superficial) of percutaneous injury, visible fresh blood, prolonged mucous membrane or skin contact (compromised skin integrity). If no exposure, proceed to step 4 of the flowchart, process terminated. If determined an exposure proceed to step 5 of the flowchart with the assistance of the ICO.

4. Document incident per agency policy. Documentation shall be placed in employee's confidential health record. Provide counseling as necessary.

BBP EXPOSURE FLOW CHART
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5. Patient Transported: If the source patient is transported to the hospital contact the emergency room charge nurse and advise of need for source blood draw.

   ***PeaceHealth*:** charge nurse shall follow the Employee Body Fluid Exposure protocol. Provide employee's name, date of birth and first six digits of social security number for tracking. Request the lab contact the agency ICO with results ASAP within 24 hours. Request the results are faxed to Cascade Health.

   ***McKenzie Willamette*:** advise the charge nurse of the exposure. Once the patient is accepted as a patient and the hospital has consent, the lab will draw the source patient. Request the lab contact the agency ICO with results ASAP within 24 hours. McKenzie is also able to send results to Cascade Health.

6. Patient Not Transported: Draw the source patient using the Lane County EMS protocols. Cascade Mobile Health (541-228-3111) can provide lab draw services if needed.

   Deliver the source blood specimen to the PeaceHealth Lab located at the RiverBend Annex. If needed, Cascade Mobile Health (541-228-3111) can deliver the source blood specimen.

7. The lab or hospital employee health should contact the Infection Control Officer with results ASAP within 24 hours post exposure.

8. ***Negative Results*:** Proceed to step 4. Process terminated

   ***Positive Results*:** Contact employee and provide information on continuance of process. If HIV positive, begin Post Exposure Prophylaxis (PEP). PEP available M-F 8-5 Cascade Health Clinic 541-228-3000 or after hours at Peacehealth or McKenzie Willamette Emergency Department. For other positive results employee shall report to Cascade Health the next business day.

9. Employee shall report to Cascade Health the next business day. Baseline blood testing of an exposed employee is a series of initial, 6-wks, 3-mo and 6-mo draws.

10. Employee will be provided PEP as directed by occupational health. Post-exposure counseling shall be provided by a qualified counselor to evaluate the potential risks, process and outcomes. Dr Kovacevic, Board Certified Occupational /Environmental medicine, can provide counseling. Cascade Health will provide initial treatment using an educational and treatment script developed by Dr Kovacevic (541-228-3093). Worker's Compensation documentation shall be processed.

11. Employee should follow-up with primary care physician.

12. Proceed to step 4 of the flowchart. Process terminated.

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All agencies must ensure annual bloodborne pathogen training is accomplished.

Further guidance from the Oregon OSHA BloodBorne Pathogens guidance: http://www.orosha.org/subjects/bloodborne_pathogens.html

Contact numbers:

Eugene Springfield Fire Infection Control Officer:

JoAnna Kamppi: 541-682-7104 office
503-559-3944 cell

Dan Chase: 541-682-7130 office
541-214-9463 cell

Cascade Health

Occupational Health Nurse: 541-228-3096
Occupational Health Manager: 541-228-3094
Cascade Health Fax: 541-228-3185
Mobile Health (Formerly MedExpress) 24hr Dispatch: 541-228-3111
Mobile Health Assistant Manager: 541-228-3009

PeaceHealth

RiverBend: Emergency Department: 541-222-6929 (ask for the Charge Nurse)
House Supervisor: 541-222-2060
University: Emergency Department: 541-686-6929 (ask for the Charge Nurse)
Employee Health: 541-222-2535
Risk Management: 541-222-2485
Lab: 541-341-8010
(123 International Way, lobby open 8-5, call box inside double doors after hrs to contact lab)
EMS Liaison: 541-222-1794

McKenzie Willamette

Charge Nurse: 541-726-4444 (ask for the Charge Nurse)
Lab: 541-726-4429 (2nd floor above the ER)

CONFIRMED DEATH 09/13/2022	
INDICATIONS	This procedure is used once a patient is pronounced dead.
PROCEDURE	1. Notify dispatch that the patient is deceased. Dispatch will notify the appropriate law enforcement agency. 2. Determine/evaluate if this appears to be the natural death of someone under the care of a local physician versus a case falling under medical examiner jurisdiction (see below). If any doubt exists, treat this as a medical examiner case and avoid altering the scene until police investigation is complete. 3. In medical examiner cases the body will not be removed from scene until law enforcement personnel arrive. 4. Fire/EMS personnel may be committed to the scene for care of the family. 5. If a patient is under hospice care, contact hospice agency regarding disposition of the body. 6. Document pertinent information in a PCR.
DEATHS REQUIRING INVESTIGATION BY THE MEDICAL EXAMINER	1. All physical interventions performed during the resuscitation should be left in place, i.e. ETT, IV, IO, etc. 2. Violent or unnatural death (accident, suicide, homicide, or undetermined manner of traumatic death) 3. Unattended death (not under the care of a physician during the period immediately prior to death) 4. Unanticipated death within 24 hours of discharge from the hospital 5. Substance abuse related deaths 6. Law enforcement custody deaths 7. Deaths related to employment 8. Communicable diseases
RESOURCES FOR REFERRAL OR BEREAVEMENT	1. PeaceHealth Pastoral Care- 541-222-6929 (This is the RBH ED Ward Clerk, ask for pastoral care contact number) 2. Chaplain – contact dispatch

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DEATH IN THE FIELD 09/13/2022	
PURPOSE	Used to determine death in the field without initiating resuscitative efforts or to end resuscitation efforts after initiated.
END OF LIFE ORDERS	These orders may also be useful in consultation with MD, in the decision about whether to continue resuscitation: 1. **DO NOT RESUSCITATE ORDERS (DNR)**: Also known as a "No Code" order, is a legal document with a physician signature. 2. **LIVING WILL/ADVANCED DIRECTIVE** is a document signed by the patient. This may indicate the patient's wish not to be resuscitated with heroic lifesaving measures. If the patient does not meet death in field criteria listed under (Withholding Resuscitative Efforts), start BLS and call Medical Control to consult regarding discontinuation of resuscitation. 3. **PHYSICIAN ORDER FOR LIFE SUSTAINING TREATMENT (POLST)** The POLST registry is voluntary and most often is used to limit care. It may also indicate that the patient wants everything medically appropriate done for them. These forms may be kept by patients or electronically stored by OHSU. Usually there is some indication on-scene that there is POLST documentation. • **Call 1-888-476-5787 (888-4-POLSTS).** OHSU Emergency Communication Center will provide the POLST orders to EMS. They will ask for the name and date of birth • Must be signed by the patient or surrogate and a MD/DO/PA/NP/ND
WITHOLDING RESUSCITATION	Withholding resuscitation efforts should be considered by EMS professionals in the following conditions regardless of whether bystander CPR has been initiated prior to EMS arrival. MD contact is not necessary when the patient is pulseless and apneic and the patient: 1. Has appropriate documentation of Do Not Attempt Resuscitation/ DNR or a POLST Form.

DEATH IN THE FIELD 09/13/2022	
	2. Is in a mass casualty incident or multiple patient scene where the resources of the system are required for the stabilization of living patients. 3. Has evidence of prolonged downtime, i.e. rigor mortis, dependent lividity (venous pooling in dependent body parts), 4. Has drowned with confirmed submersion time >30 minutes in water temperatures warmer than 43° F or >90 minutes in water temperatures 43°F or less. Submersion time is defined as beginning on arrival of emergency services personnel. 5. Has evidence of major trauma, or entrapment. • *If the amount of body trauma does not appear to account for death, apply the monitor/AED and analyze. If the patient is in a shockable rhythm,* ***follow the Cardiac Pulseless Arrest Protocol****.* 6. If by-standers on scene profess that signed orders do exist, and there is evidence of terminal disease, the EMS Personnel may follow the by-standers direction.
TERMINATION OF RESUSCITATION	For the victim of cardiac arrest that does not meet the criteria listed above under Withholding Resuscitation, **follow the Cardiac Pulseless Arrest Protocol**. Resuscitation efforts may be terminated in the field by the paramedic under the following circumstances. • All appropriate interventions have been performed under the Cardiac Pulseless Arrest Protocol, • Patient is normothermic, • Resuscitation has been ongoing by EMS responders for a minimum 30 minutes, • All treatable reversible causes have been addressed.
THE PATIENT WITH DNR OR EXPECTED DEATH EXPIRES DURING TRANSPORT TO THE HOSPITAL	Occasionally a patient with a DNR or expected death, i.e. a patient on hospice, or a patient diagnosed with a terminal illness will expire in route to the hospital. If there are not written end of life orders presented, or the orders are informal with the family or patient: 1. Start BLS resuscitation

DEATH IN THE FIELD 09/13/2022	
	2. Contact the ED physician of the destination hospital and explain patient's end of life wishes. If the request for termination of resuscitation is granted: • Record the time of death and the fronting address of where the patient died. • Continue to the receive hospital or divert to Riverbend hospital where Lane County morgue services are available. Once at the hospital, staff should contact the Medical Examiner and accept the body into the ED or the morgue directly.
SPECIAL CONSIDERATIONS	Consideration for continuing resuscitation beyond 30 minutes should be given to: • All patients who are hypothermic. This includes cold water drownings, particularly in pediatrics. Consider transport of these patient with ongoing resuscitation efforts. • All patients who are continuing to respond to treatment.

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HEALTHCARE PROFESSIONALS ON SCENE
09/13/2022

This protocol is adapted from the American College of Emergency Physicians (ACEP) Out-of-Hospital Medical Direction and the Intervener Physician Revised January 2016

ACEP believes that the direction of out-of-hospital care at the scene of a medical emergency should be the responsibility of the individual in attendance who is most appropriately trained and knowledgeable in providing out-of-hospital emergency care and transport. This is typically a certified EMS provider acting as part of the responding EMS agency.
During routine operations, the out-of-hospital provider is responsible for management of the patient and acts as an agent of the EMS medical director.

This document should guide but not usurp local EMS Agency Policy specifically addressing these issues. This protocol does not apply when the intervener is an EMS Supervising Physician within the given EMS system.

Notwithstanding the special situations noted below, the out-of-hospital provider:

- shall act only within the provider's scope of practice.
- has a duty to re-establish medical direction with the on-line physician if the out-of-hospital provider believes that the emergency care rendered by the scene physician is inconsistent with standard of care.
- reverts to off-line medical direction (i.e., existing EMS protocols) or on-line medical direction for the continued management of the patient
  - at any time when the scene physician is no longer in attendance.
  - if the treatment at the emergency scene differs from existing EMS protocols and is contradictory to quality patient care.

However, in some cases, a physician on scene may assume responsibility for patient care and provide medical direction.

If the private physician is present (as may occur in a physician's office) and assumes responsibility for the patient's care:

The out-of-hospital provider should defer to the orders of the private physician. On-line medical direction, if that capability exists, should be contacted for record keeping purposes and possible collaboration with the treating physician.

If an intervener physician is present and on-line medical direction is NOT available:

The out-of-hospital provider at an emergency scene should relinquish responsibility for patient management when the intervener physician has:

1. been properly identified
2. agreed to assume responsibility
3. agreed to document the intervention in a manner acceptable to the local emergency medical services system (EMSS)
4. agreed to accompany the patient to the hospital, with the potential exception of a mass casualty incident or disaster.

HEALTHCARE PROFESSIONALS ON SCENE
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When **ALL** these conditions exist, the out-of-hospital provider should defer to the wishes of the physician on the scene. Despite the presence of this physician on scene, the out-of-hospital provider shall only act to the limit of their scope of practice.

If an intervener physician is present and on-line medical direction IS available:
The on-line physician is ultimately responsible. It is the on-line physician's option to manage the case entirely, work with the intervener physician, or allow the intervener physician to assume responsibility. In the event:

1. of disagreement between the intervener physician and the on-line physician, the out-of-hospital provider should take orders from the on-line physician and place the intervener physician in contact with the on-line physician.

2. the intervener physician assumes responsibility, all orders to the out-of-hospital provider should be repeated over the radio for purposes of recording. The intervener physician should document the intervention in a manner acceptable to the local EMSS.

3. the out-of-hospital provider or on-line medical direction believes that the emergency care rendered by the intervener physician is inconsistent with EMS protocols and quality patient care, on-line medical direction should be reestablished. The decision of the intervener physician to accompany the patient to the hospital should be made in consultation with the on-line physician.

If a disaster or mass casualty situation exists*:*
An EMS physician shall provide medical oversight within the established command and control system.

Documentation involving physician direction at the scene should include:

- The physician's name on the patient care report.
- Any unusual/conflicting conditions at the scene.

A detailed agency incident report shall be completed and turned in to the EMS Office and the Supervising Physician.

HOSPICE CARE AND TRANSPORT
07/18/2018

Hospice patient transfers present a unique set of circumstances for EMS providers. Patients receiving end of life care are at various stages of terminal illness. EMS providers need to remember that DNR DOES NOT mean do not treat. The following procedures shall be followed to ensure hospice patients receive the care they need without incurring unnecessary interventions, transport, or use of EMS, law enforcement, or hospital resources.

EMS providers need to consider the following:

- Status of POLST/DNR
- Nature of Patient Transfer and Continuity of Care
- Potential For Interventions
- Potential For Imminent Death

ON SCENE PROCEDURES

1. Attempt to locate any relevant POLST/DNR paperwork immediately.
2. Make immediate contact with hospice nurse to establish need for transport. Ask family members for the number for **their** hospice nurse.
3. Evaluate patient for need for immediate transport. Involve the hospice nurse in this decision. Many hospice patients do not wish to be transported even if they are experiencing concerning symptoms (i.e. chest pain, shortness of breath, loss of consciousness, etc.)
4. If the patient **does not** need immediate transport, utilize hospice nurse.
   a. Let the hospice nurse discuss options with family members by phone or directly.
   b. The family and hospice nurse shall decide appropriate course of treatment/destination.
   c. On scene, the hospice nurse is the highest ranking provider until a transport decision is made. If patient is transported by ambulance, EMS providers shall assume patient care.
5. If the patient does need immediate transport, EMS providers shall utilize appropriate comfort measure treatments as appropriate to skill level and scope of practice.
   a. Suction, CPAP, oxygen, medications, etc.
   b. EMS providers may assist patient with their own prescribed medication(s) as long as medication is within scope of practice and local protocols. Contact

HOSPICE CARE AND TRANSPORT
07/18/2018

OLMC as needed.

c. EMT-I/Paramedics are authorized to treat hospice patients for pain **without transport** as long as the hospice nurse is in attendance or immediately en route (see **ACUTE PAIN MANAGEMENT**)

6. EMS providers shall not get into the middle of arguments with family and patient about treatment. EMS providers shall defer to hospice nurse. If the patient has decision-making ability, then the patient shall determine care, not the family. The person with decision-making capacity ultimately determines the transport decision. If the patient wants to be transported, EMS shall transport.
7. In the event of an unattended death of a known hospice patient, attempt to make contact with the hospice nurse before contacting law enforcement. Law enforcement may still need to be contacted. If uncertain, EMS providers shall contact CLCC/dispatch for further instructions (see **CONFIRMED DEATH** and **DEATH IN THE FIELD**).

HOSPICE TRANSFER PROCEDURES

1. When transporting a hospice patient being discharged from a hospital, EMS providers shall ensure that proper POLST/DNR paperwork is in hand, as well as establish nature of hospice arrangements/care, prior to transport.
2. EMS may transport a patient with hospice nurse/physician approval regardless of patient condition (i.e. bleeding, abnormal vital signs, etc.).
3. A hospice nurse/provider must be at destination or immediately en route if patient is left in the care of family.
4. If patient condition worsens during transport, or if cardiac arrest occurs, EMS providers shall proceed to treat hospice patient per "**ON SCENE PROCEDURES**" as outline above.
   a. Continue transport to destination unless otherwise directed by the hospice nurse/provider.
   b. If hospice nurse or provider is unable to be reached, contact OLMC of sending facility for further instructions. Transport may continue to destination or may be diverted back to sending facility.

INTER-HOSPITAL TRANSFERS
09/13/2022

PURPOSE	This protocol and algorithm clarify the level of service required to complete all inter-facility transports.
DEFINITIONS	**Stretcher Car –** Does not require an EMT attendant with the patient. **BLS Ambulance –** Requires a single EMT attendant to remain with the patient, may be for safety reasons. **ILS Ambulance –** Requires a single EMT Intermediate attendant to remain with the patient. **ALS Ambulance –** Requires a single paramedic attendant to remain with the patient. **ALS with an additional Paramedic –** Requires two paramedic attendants to remain with the patient. **Critical Care Transport –** Requires additional personnel with specialty or critical care training to accompany the patient to the receiving hospital. Critical Care personnel may include: 1. ICU or Critical Care Nurse, 2. ED Nurse, Paramedic with Critical Care Training. 3. Specialty Personnel may include: Labor and Delivery Nurse for obstetric patients or Respiratory Therapist (RT) on intubated medically stable patients.
GUIDELINES	A. The medic should request a full report on the patient to include medications, and the parameters for their use, as well as orientation to any hospital equipment to be used on the transfer. B. If the medic is uncomfortable with a transfer situation (e.g. unfamiliar with medications and equipment), or if the care needed exceeds the scope of practice of the transferring medic, the medic should inform the physician of the concern and request that they change the request for a higher level of transport for the patient. C. If the patient is critically ill or unstable and a critical care transport team is not an option, the medic should request additional personnel with specialty or critical care training to accompany the patient to the receiving hospital. 1. Critical Care personnel may include: ICU or Critical Care Nurse, ED Nurse, Paramedic with Critical Care Training (CCEMTP).

INTER-HOSPITAL TRANSFERS 09/13/2022	
	2. Specialty Personnel may include: Labor and Delivery Nurse for obstetric patients or Respiratory Therapist (RT) on intubated medically stable patients. D. If the patient is experiencing a time sensitive condition that needs rapid intervention from a higher-level care facility and critical care is delayed by more than 30 minutes the patient can be transported by ALS with an additional paramedic in the patient compartment. The benefits vs. risk to the patient must be taken into consideration. These patients may present with: 1. Emergent Large Vessel Occlusion (ELVO) 2. S-T Elevation Myocardial Infarction (STEMI), 3. Active chest pain with ongoing dynamic ECG changes, 4. OB patient that is unstable/acute high risk/in labor/ where delivery may be eminent. E. When receiving an aeromedical transfer patient at the airport, the paramedic may request the transfer personnel accompany the patient all the way to the hospital. If the transferring personnel refuse, the Paramedic should contact their supervisor and the on-duty ED physician at the receiving hospital for further direction. F. When weather conditions or other factors prohibit safe transport of the patient to the receiving facility, the transfer will be postponed until other safe transport can be arranged.
SPECIFIC INFORMATION	A. Transfer patients should have the following information with them and the paramedic must ensure that this paperwork arrives with the patient at the destination facility: 1. Transfer orders which indicate receiving hospital and MD. 2. Medication and care orders (in writing) for use during transfer. 3. Patient care report from hospital to include vital signs, medications and treatments given. 4. Relevant diagnostic information (Lab, X-ray and CT or MRI) when needed.

INTER-HOSPITAL TRANSFERS
09/13/2022

B. All patients that require cardiac monitoring during transport will be monitored bedside to bedside.

C. Patients being transferred on medication that is being self-administered via a pump may continue to be administered by the patient enroute. Personnel should be prepared to treat the potential side effects, which may include stopping the infusion.

D. Patients that have an antibiotic infusion running may be transported at the ILS, ALS or Critical Care level. If the patient develops any signs of an allergic reaction to the antibiotic being infused, the infusion should be stopped, and treatment initiated per the Allergic Reaction Protocol.

Type of Patient/Intervention/Treatment required	Stretcher Car	Basic Life Support (BLS)	Intermediate Life Support (ILS)	Advanced Life Support (ALS)	ALS with additional Paramedic	Critical Care Transport (CCT)
Patient to remain reclined not less than 45 degrees		X				
Stable patients		X				
Patient may maintain own oxygen		X				
Transports can be handled by a private vendor		X				
OB Patient not in labor/delivery not immenent		X				
Patient may be transported supine or reclined <45 degrees in an ambulance			X			
Oxygen - May administer with a nasal cannula, or non-rebreather mask			X			
May defibrilate with AED			X			
Maintain Saline Lock			X			
Tracheostomy with suction required. No ventilation support			X			
IV: May start/maintain saline drip				X		
Bolus meds within agency standing orders/protocol for EMT Intermediate				X		
Patient with PCA Pump				X		
Cardiac Monitoring				X		
Defibrillate manually				X		
Bolus meds within agency standing orders/protocol for Paramedic					X	
Monitor unstable cardiac rhythms					X	
Read and Interpret 12-lead					X	
Manually defibrillate					X	
Cardioversion					X	
External Pacing (Stable patient only)					X	
OB Patient Stable/ Acute/Low Risk/In Labor/Delivery not immenent					X	
STEMI Patients						X
ELVO Stroke Alert Patients						X
Active chest pain with ongoing dynamic ECG changes						X
Trauma Activation criteria						X
OB Patient transfers, Unstable/Acute high risk/In labor/delivery may be imminent						X
Unstable or Critical Patients						X
Acute onset resp distress patients on CPAP and BiPAP						X
Intubated patient OR Advanced Airway Management						X
Patient on ventilator						X
Bolus meds outside of Lane County MCB standing orders/protocol						X
Maintain drips of meds outside of Lane County MCB standing orders/protocol						X

L-VAD
02/04/2020

A left ventricular assist device (LVAD) is an implantable mechanical pump that helps pump blood from the lower left chamber of a heart (left ventricle) to the ascending aorta and thus the rest of the body. It is a device that is implanted in an advanced heart failure patient who meets specific criteria. It is the best treatment for heart failure, but not a cure for it. Oftentimes, these patients are on a heart transplant list and the LVAD is a bridge to transplant. Other times, patients don't qualify for transplant for various reasons, and the LVAD will be in the patient until s/he dies. Patients with LVAD are dependent on these pumps for survival.

These devices are implanted through open heart surgery. A driveline exits the pump and houses the electrical wires. It is tunneled through the abdomen and comes out at a sterile exit site. Do NOT remove this dressing. This driveline plugs into an external controller that enables patients to look at VAD numbers, alarms, power level etc. The controller and pump are powered by batteries during the daytime or a wall unit at night. Adequate power to the controller is vital to ensure the pump continues to operate. Loss of power to the patient can stop the pump and kill the patient. These pumps are all pre-load (volume) dependent and afterload (blood pressure sensitive). Lack of hydration or low blood volume can lead to low flows on the pump. High/low blood pressure can prevent adequate flow of blood through the pump.

There are three devices on the market: HeartMate 2, HeartMate 3, and Heartware.

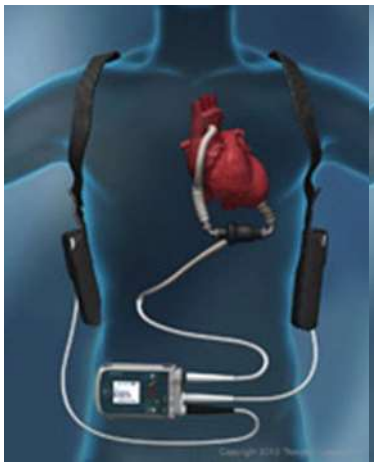
There are three LVAD centers:
OHSU (Portland): 1-503-494-9000
Providence St. Vincent (Portland): 971-678-4042
Kaiser (Clackamas): 503-449-4672

<u>Components</u>

- **Pump**
- **Controller**
- **Driveline**
- **Batteries and Battery Clips (for HeartMate only)**
- **Wall unit for power**
- **Battery charger**

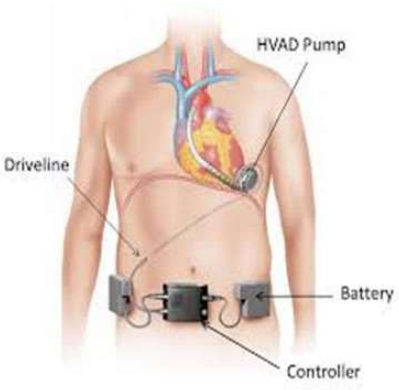
*****ALWAYS ENSURE PATIENT TRANSPORTS WITH THEIR BACK UP BAG AND ADEQUATE EXTRA BATTERIES. ENSURE COMPONENTS ARE SECURE BEFORE TRANSPORT TO AVOID DRIVELINE PULLS*****

L-VAD
02/04/2020



HeartMate 2

HeartMate 3

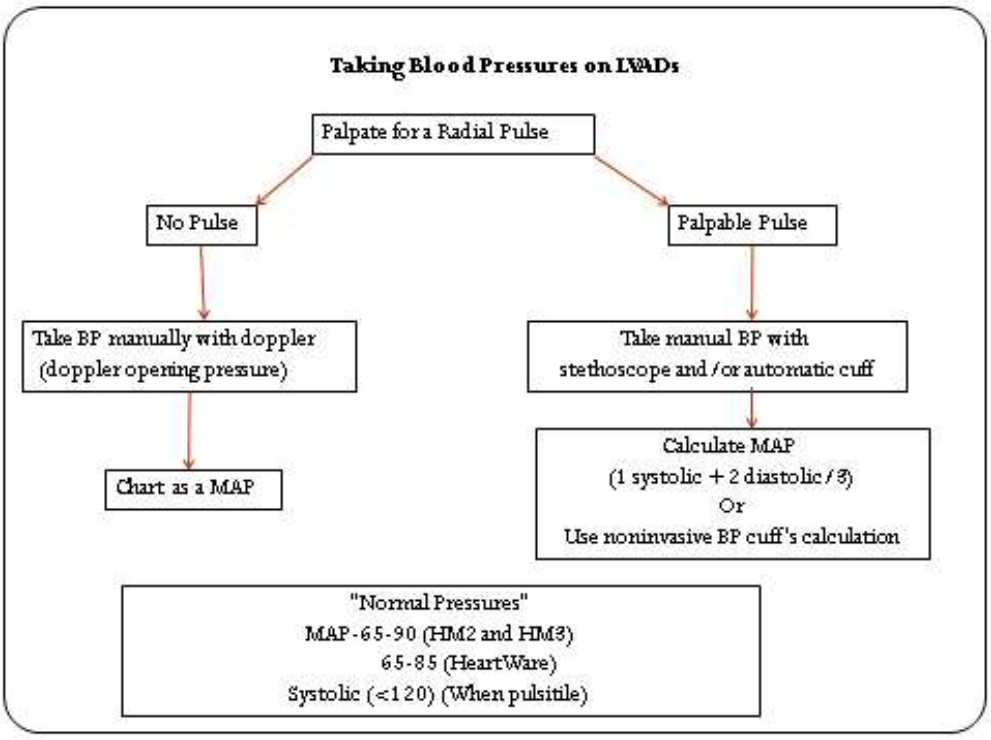


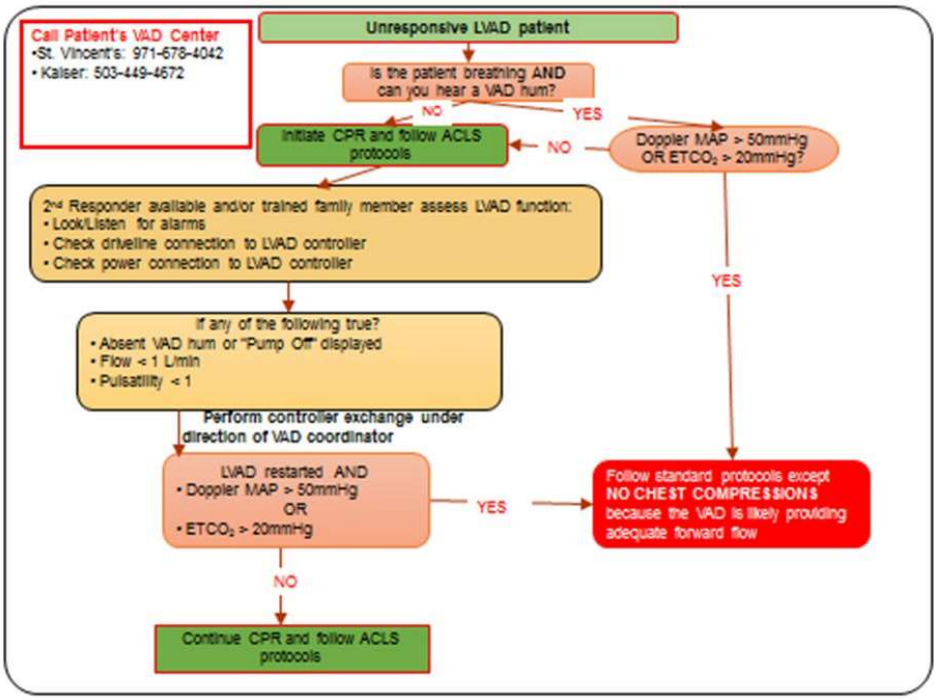
HeartWare

NOTES AND PRECAUTIONS	1. Blood pressure may be difficult to obtain on these patients. If a pulse is palpable, you may use a regular automated cuff. If no pulse is palpable, you can only obtain blood pressure via Doppler. The mean arterial pressure goal is 60-90. Pulse pressure may be narrow. 2. Common presenting non-pump related complications including bleeding (Gastrointestinal bleeding is the most common), infection, and stroke. 3. All ACLS drugs and defibrillation may be administered. Patient's LVAD does not need to be unplugged to defibrillate or pace the patient. Leave everything attached. Most patients do have Implanted Cardiac Defibrillators (ICD) and pacemakers. 4. If the patient is in sustained VT or VF, shock the patient would be indicated. The patient in this rhythm may still be alert/oriented due to the LVAD. However, prolonged VT and VF will deteriorate the right ventricle and increase ischemia, which effects long term LVAD prognosis. 5. The LVAD does not affect the patient's EKG. 6. Any mode of transportation is permissible, these patients can fly. 7. Be sure to bring all the patient's equipment with them on transport. 8. Ensure the patient has adequate back up power with them. • Ensure 2 batteries are always connected to patient, • NEVER disconnect both batteries at the same time. 9. For any device related alarms and complications, utilize the LVAD coordinator to talk EMS through any LVAD emergency

L-VAD 02/04/2020	
	procedures such as a controller exchange. 10. Please call the patient's LVAD center if the patient/family has not already reached out to the on-call LVAD coordinator.
SPECIFIC INFORMATION NEEDED	1. Listen to concerns from the patient and family members who have received device specific training. Allow them to manage the device. Bring the trained caregiver with the patient during transport if possible. Speak with the patient's LVAD coordinator to rule out any issues with the pump and help determine treatment plan. 2. Past Medical History. These patients generally have other co-morbid factors which may be the cause for acute medical care. Don't overlook these factors. 3. Device Information. • It is important to bring all components and information about the device, as well as the trained caregiver responsible, with the patient to the hospital. • Ensure the patient brings their back up bag, which includes a spare controller and at least 2 fully charged batteries. For patients outside of Portland, encourage patient/family to bring all batteries.
PHYSICAL FINDINGS	1. Altered cardiac physiology. • Due to the VAD, this complicates patient assessment while limiting the effectiveness of normal tools. 2. Talk to the patient to assess mentation and general status. 3. Check blood glucose. 4. Most LVADs are continuous flow devices; HeartMate 3 has pulsatility every 2 seconds, so you may pick up on an artificial pulse of 30bpm. Most patients may NOT have a palpable pulse. Accordingly, • SpO_2 may not be accurate. If they don't appear short of breath, no need to treat low $Sp0_2$ readings. • If the patient has a palpable pulse, you can obtain a standard blood pressure cuff reading. If the patient doesn't have a palpable pulse, blood pressure can only be assessed by Doppler. 5. Check all VAD connections to ensure adequate power and connection to the controller. 6. For HeartMate 3 patients, ensure the external modular portion of the driveline is connected (no yellow line visible). 7. Listen for "hum" for HeartMate 2 and HeartWare patients, or

L-VAD **02/04/2020**	
	"pulsation" for Heartmate 3 patients, in epigastric region to verify device is on and functioning properly. 8. Common complications include: bleeding (most notably GI bleeding), stroke, infection, and pump thrombosis. 9. Apply $ETCO_2$ for monitoring of cardiorespiratory status. • $ETCO_2$ < 20 verifies poor perfusion, perform CPR. • $ETCO_2$ > 20 verifies pump is perfusing adequately, do not perform CPR.
TREATMENT	1. These patients still have heart failure, be hesitant about pushing IV fluids unless showing clear signs of hypovolemia or hypotension are present. 2. Provide respiratory and ventilator assistance per standard. 3. Provide CPR ONLY if one or a more of these conditions are met: MAP < 50, $EtCO_2$<20, pump has stopped working and replacing the controller did not restart it. See flowsheet for more information. 4. Arrhythmias: • Many of these patients have chronic runs of VT and intermittent VF. • Majority of VAD patients have Implanted Cardiac Defibrillators (ICD) /Pacemakers. They may have maxed out the shocks from the ICD before you arrive, so shock if indicated by rhythm. • Always treat sustained VF with appropriate ACLS protocols, even if the patient is awake and alert. Prolonged lack of treatment can increase ischemia and worsen right ventricular function for the patient, which shortens lifespan and increases complications. • You may administer any anti-arrhythmic per protocol • No need to disconnect any VAD component before defibrillation or pacing. You will not harm the device. • Consider Interventional Analgesia before defibrillation.
PRECAUTIONS	Always transport **ALL** components of the device with the patient. Ensure the driveline and controller are secure before moving a patient. Driveline pulls can lead to driveline exit site infection, the #1 cause of morbidity and mortality in this patient population.


Taking Blood Pressures on LVADs
Palpate for a Radial Pulse
No Pulse
Palpable Pulse
Take BP manually with doppler (doppler opening pressure)
Take manual BP with stethoscope and / or automatic cuff
Chart as a MAP
Calculate MAP
(1 systolic + 2 diastolic / 3)
Or
Use noninvasive BP cuff's calculation
"Normal Pressures"
MAP - 65-90 (HM2 and HM3)
65-85 (HeartWare)
Systolic (<120) (When pulsitile)


Call Patient's VAD Center
•St. Vincent's: 971-678-4042
• Kaiser: 503-449-4672
Unresponsive LVAD patient
Is the patient breathing AND can you hear a VAD hum?
NO
YES
Initiate CPR and follow ACLS protocols
NO
Doppler MAP > 50mmHg OR ETCO2 > 20mmHg?
2nd Responder available and/or trained family member assess LVAD function:
• Look/Listen for alarms
• Check driveline connection to LVAD controller
• Check power connection to LVAD controller
YES
If any of the following true?
• Absent VAD hum or "Pump Off" displayed
• Flow < 1 L/min
• Pulsatility < 1
Perform controller exchange under direction of VAD coordinator
LVAD restarted AND
• Doppler MAP > 50mmHg
OR
• ETCO2 > 20mmHg
YES
Follow standard protocols except NO CHEST COMPRESSIONS because the VAD is likely providing adequate forward flow
NO
Continue CPR and follow ACLS protocols

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PATIENT REFUSAL NON-TRANSPORT
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EMS Personnel may treat and/or transport under the doctrine of implied consent a person who requires immediate care to save a life or prevent further injury. Minors may be treated and transported without parental consent if a good faith effort has been made to contact the parents or guardians regarding care and transport to a hospital, and the patient, in the opinion of EMS Personnel, needs transport to a hospital. When in doubt, contact OLMC.

Determine if there is an Identified Patient

All instances of an identified patient, with or without impaired decision making capacity, must be documented on a Pre-hospital Care Report.

IDENTIFIED PATIENT	There is a patient identified if the person meets ANY of the following criteria: 1. Significant mechanism of injury. 2. Signs or symptoms of traumatic injury. 3. Acute, or recent change in medical condition. 4. Behavior problems that place the patient or others at risk. 5. Person is less than 15 years of age and meets one of the other criteria referenced. 6. Person is the 911 caller. 7. In the EMS provider's judgment, the patient requires medical assessment and treatment.
IDENTIFIED PATIENT- REFUSING MEDICAL CARE & TRANSPORT	1. Determine if the patient appears to have impaired decision-making capacity. 2. Consider conditions that may be complicating the patient's ability to make decisions: a. Head injury b. Drug or alcohol intoxication c. Toxic exposure d. Psychiatric problems e. Language barriers (consider translator) f. Serious medical conditions 3. Have the patient demonstrate the baseline activities of daily living without complication.

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IDENTIFIED PATIENT WITH DECISION MAKING CAPACITY	1. Have the patient demonstrate the baseline activities of daily living without complication. 2. Explain the risks and possible consequences of refusing care and/or transport. 3. If a serious medical need exists, or any medication has been administered besides Dextrose 50%, contact OLMC for physician assistance. (Request patient speak to physician if necessary.) 4. Enlist family, friends, or law enforcement to help convince patient to be transported. 5. If a patient continues to refuse, complete the Patient Refusal Information Sheet and have the patient sign it. Document in detail the risks and possible consequences of refusing care and information on treatment needed that was advised to the patient.
IDENTIFIED PATIENT WITH IMPAIRED DECISION MAKING CAPACITY	1. Treat and transport any person who is incapacitated and has a medical need. 2. Occasionally, well intentioned friends or bystanders may try and refuse on the patient's behalf. Only the patient can refuse care for themselves. 3. With any medical need, make all reasonable efforts to assure that the patient receives medical care. Attempt to contact family, friends, or law enforcement to help. 4. If necessary, consult with OLMC and request a physician speak directly with the patient or guardian. 5. Consider chemical sedation or physical restraint per protocol.

Eugene Springfield Fire Viral Illness/Flu/CoVid-19 Patient Transport Determination Guide

STEP 1: Pre-arrival Assessment: These calls may be dispatched with high index of suspicion for flu like symptoms. It is also possible that the patient may have been tested for CoVid-19, is positive or is awaiting test results and has been advised by their doctor's office to call 911.

STEP 2: On arrival conduct the following patient assessment:

- Does the patient have a fever > 100.3°F/subjective fever/symptoms of a viral syndrome illness? (cough, nasal and chest congestion, sore throat, body aches)
- Is the patient > 50 years old?
- Does the Patient have any of the following vital signs?
  i. Respiratory rate < 8 or > 20
  ii. O_2 Saturation < 95%
  iii. Heart Rate > 100 bpm
  iv. Systolic BP of < 100
  v. GCS < 15
- Are there signs of dehydration? (unable to keep fluids down?)

If NO to all the above conditions: proceed to step 3

If YES: follow COVID protocol and consider transport

Step 3: Determine if the patient meets any of the following criteria

- Does the patient present with:
  i. Sepsis criteria;
  ii. Chest Pain, other than mild with coughing;
  iii. Shortness of breath with activity;
  iv. Syncope;
  v. Skin Signs i.e., Diaphoretic, Cyanotic;
  vi. Respiratory Distress;
- Using Medic Discretion, the patient needs to be transported

If NO to all the above conditions: proceed to step 4

If YES: follow COVID protocol and consider transport

STEP 4: Consider Supportive and Legal factors

- Does the patient have a competent support system that can provide for basic needs?
- Is the patient competent?
- Does the patient consent to not being transported?

If YES to all the above questions, leave the patient on scene, proceed to step 5

If NO: follow COVID protocol and consider transport

STEP 5: If the Pt does not meet any inclusionary criteria above, leave at home and do the following:

- Advise the patient that if their condition gets worse to call 911
- Coordinate follow-up care with the local public health authority, primary care provider, or other mechanism
- Leave Information on self-care

RESOURCES:

The Lane County Public Health CoVid resource Hotline (541) 682-1380 (Mon-Sat 0800-1700) may be helpful if:

- The patient needs food or medication support or has questions for a nurse.

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PATIENT TREATMENT RIGHTS
09/13/2022

These protocols are intended for use with a conscious, consenting adult patient, or an unconscious (implied consent) patient.

If a conscious patient who is rational refuses assessment and treatment, comply with the patient's request and document the refusal.

If a patient's family, physician, or care facility staff refuses treatment for a patient, attempt to establish communication between these parties. If the issue is not resolved, use your judgment to act in the best interest of the patient. OLMC may be a resource that can help.

A durable power of attorney is not sufficient for withholding resuscitation if the current event appears to be a reversible situation such as choking on food.

If a conscious patient is irrational, a danger to others, or may harm him/herself refuses assessment and treatment, contact law enforcement and request assistance. OLMC may also be a resource in this and other difficult patient situations.

HOSPITAL CHOICE:

A patient has the right to be transported to the closest appropriate hospital in Central Lane County that, in the judgement of the paramedic, is capable of treating the patient's condition.

In the event that the desired hospital is on divert, the patient's choice of hospital may be over-ridden. The patient will be taken to the nearest appropriate hospital.

Age of Consent/Treatment of Minors:

If the patient is a minor the EMS Personnel should assume responsibility for the patient as if an implied contract exists. If a responsible adult parent or guardian is present who knows the child, is refusing transport, and is willing to take responsibility, and the EMS Personnel believes it is reasonable to leave the child, then act reasonably and fully document the situation.

For most purposes, Oregon law defines a minor as a child under 18 years of age. However, for medical purposes ORS 109.640 states that a minor 15 years of age or older may give consent for diagnosis, treatment and hospital care. In accordance with this statute, our policy is that a competent minor 15 years of age or older may consent to or refuse pre-hospital care and transport.

If a child under age 15 years has no responsible adult present, then it becomes

PATIENT TREATMENT RIGHTS
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prudent to transport the child to the hospital for follow up and safekeeping. However, if the individual under age 15 years is clearly not ill or injured and does not want transport, it is acceptable to arrange a custodial situation with a responsible adult until a parent is available.

When in doubt in any of the above situations, contact OLMC and fully document all of your actions.

Customer Service

The Medical Control Board recognizes that Lane County has a very competent and professional pre-hospital EMS and medical transport system. However, there may be times when customers may have issues or are dissatisfied with the service that is rendered to them. There also may be questions that arise regarding practices or care that is received by pre-hospital providers. It is recommended that customers that have issues, are dissatisfied, or have questions contact the provider directly. If there is no resolution with the provider, customers may contact the EMS Section of the Oregon Health Authority for further resolution.