

The Role of the Pre-Hospital Care Provider in Donation

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Objectives

1. Differentiate between Organ and Tissue Donation
2. Give examples of the different tissue that can be donated and their uses
3. Translate how pre- hospital documentation can effect donation outcome

New England Donor Services

- Affiliation between NEOB & LCDS January 2017
- NEOB was founded in 1968
- LCDS began in a hospital in 1971 until 2002
 - 6 counties in CT
 - 3 counties in Western MA
- Together we serve ~200 hospitals & 13 million people
- Our Mission is to Save and Enhance lives through organ & tissue donation
- Accredited by AOPO & AATB

Means of Death Declaration Determines Donation Potential, NEDS Response and Donation Process

Death by Neurological Criteria	Death by Planned Extubation & Cardiac Criteria	Death by Cardiac Criteria
NEDS staff on-site at hospital and provide family support and options	NEDS staff on-site at hospital; provides family support; collaboration with hospital/physician	Hospital reports death to NEDS; NEDS checks donor registry and contacts family by telephone

Organ Donation

- Organs that can be donated
 - Heart
 - Lung
 - Kidneys
 - Pancreas
 - Liver
 - Intestines
- Vascular Composite Allografts (VCAs)
 - Face
 - Hands
 - Arms

Mechanism of Injury

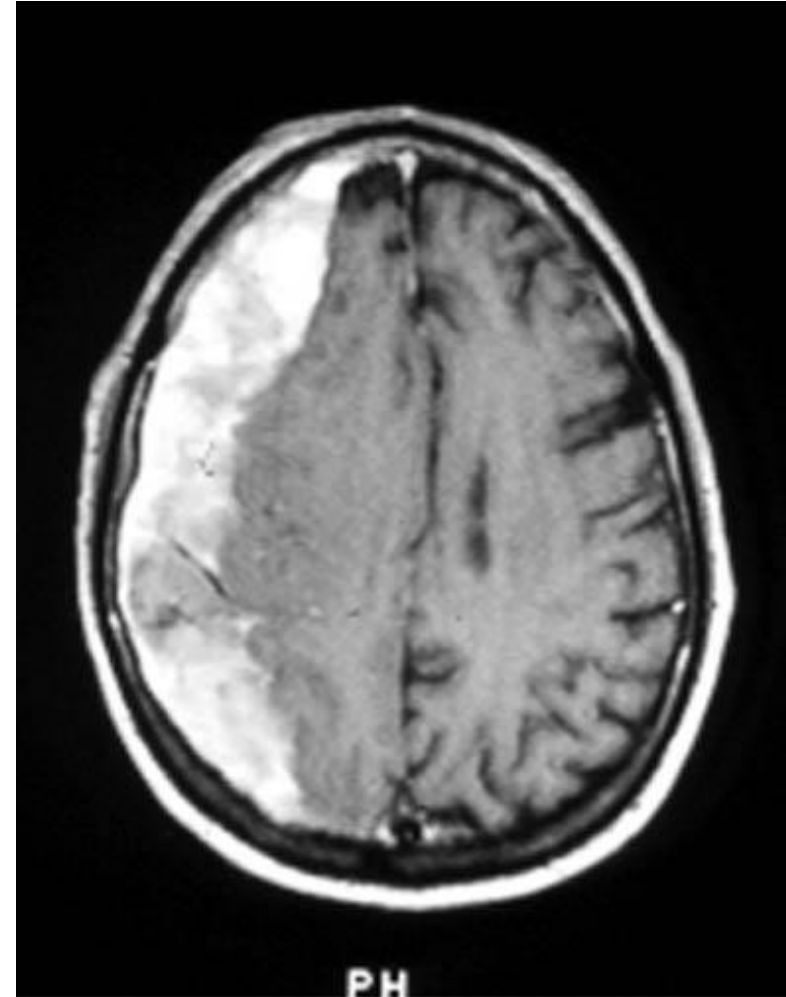
- Intracranial Hemorrhage
- Trauma
- Subdural Hematoma
- Aneurysm
- Anoxia/Ischemia
- Tumor



The head strikes a hard object creating a concussion-type injury

The Injured Brain

- Damaged Tissue
 - Causes cell death
 - Brain cells are not replaced/regenerated
- Swelling
 - Can increase intracranial pressure
 - Can cause herniation of brainstem
 - Can stop blood flow to the brain



Pre-Herniation Symptoms

- Increased heart rate with no other identifiable cause (note: may reach above 200)
- Increased blood pressure (frequently resistant to antihypertensive meds)
- Increased body temp (potentially as high as 108)

Symptoms During Herniation

- Sudden fall in Blood Pressure
- Arrhythmias may be Common
- Falling Body Temperature
- UOP Reaching 1000 cc/hr



Brain Death Testing

- Clinical Diagnosis
 - Unresponsive to pain
 - Absent Brain stem reflexes
 - Apnea Testing
 - Normal pH **7.35-7.45**
 - Normal $p\text{CO}_2$ **35 - 45**
 - Normal PaO_2 **80-100**
- Confirmatory Testing
 - Cerebral Angiogram
 - Nuclear Medicine Testing

Be Aware Of Pitfalls

- Spinal Reflexes may be Present
- Anesthesia
- Toxic Drug Levels
- Sleep Apnea or severe COPD with chronic retention of CO₂



Donation After Cardiac Death (DCD)

- Non-Survivable Brain Injury
 - Trauma, ICH, CVA, Anoxic Injury
 - Does not meet criteria for Brain Death
 - Ventilator dependent (EET or Trach)
- Family has made Decision to Withdraw Care
 - Must be done prior to discussion of donation

Tissue Donation



Tissue Donation

- Tissues that can be donated
 - Corneas
 - Heart-for-Valves
 - Bone
 - Tendon
 - Skin
 - Vessels

Heart-for-Valves

- Indications for Use
 - Pediatric Congenital Anomalies
 - Women of child-bearing years
 - Aortic & Pulmonary Valve Replacement
 - Conduit grafts/patch grafts



**Patch
Graft**

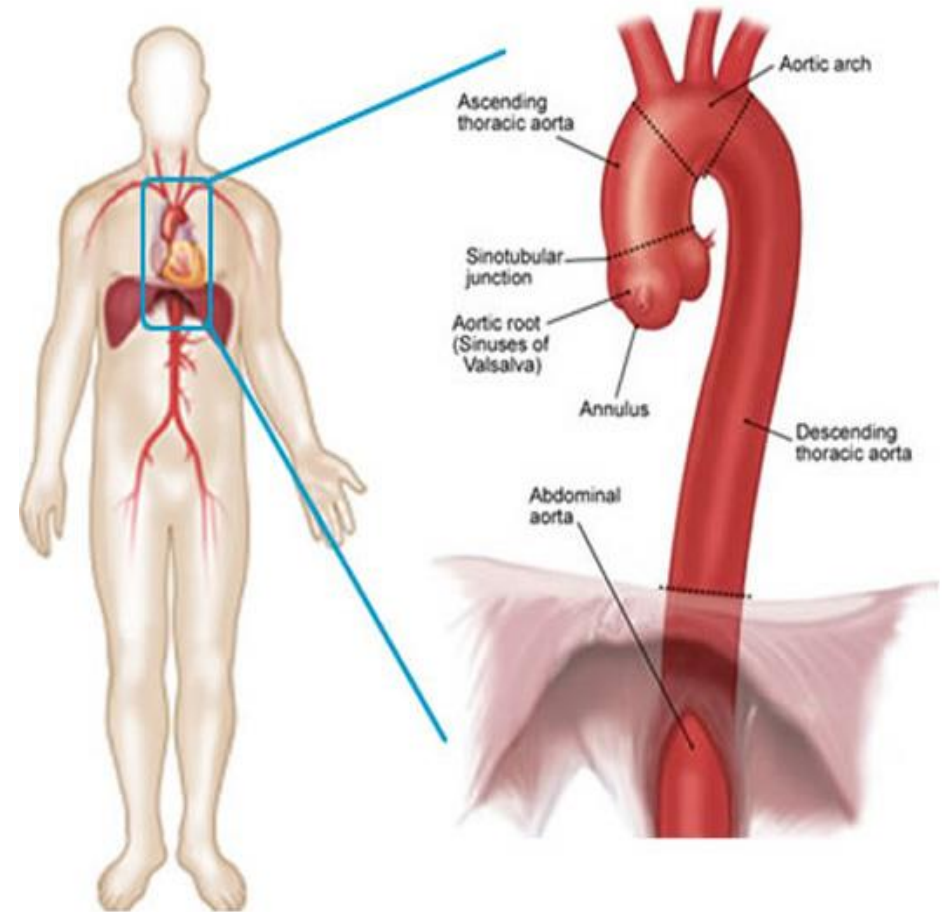
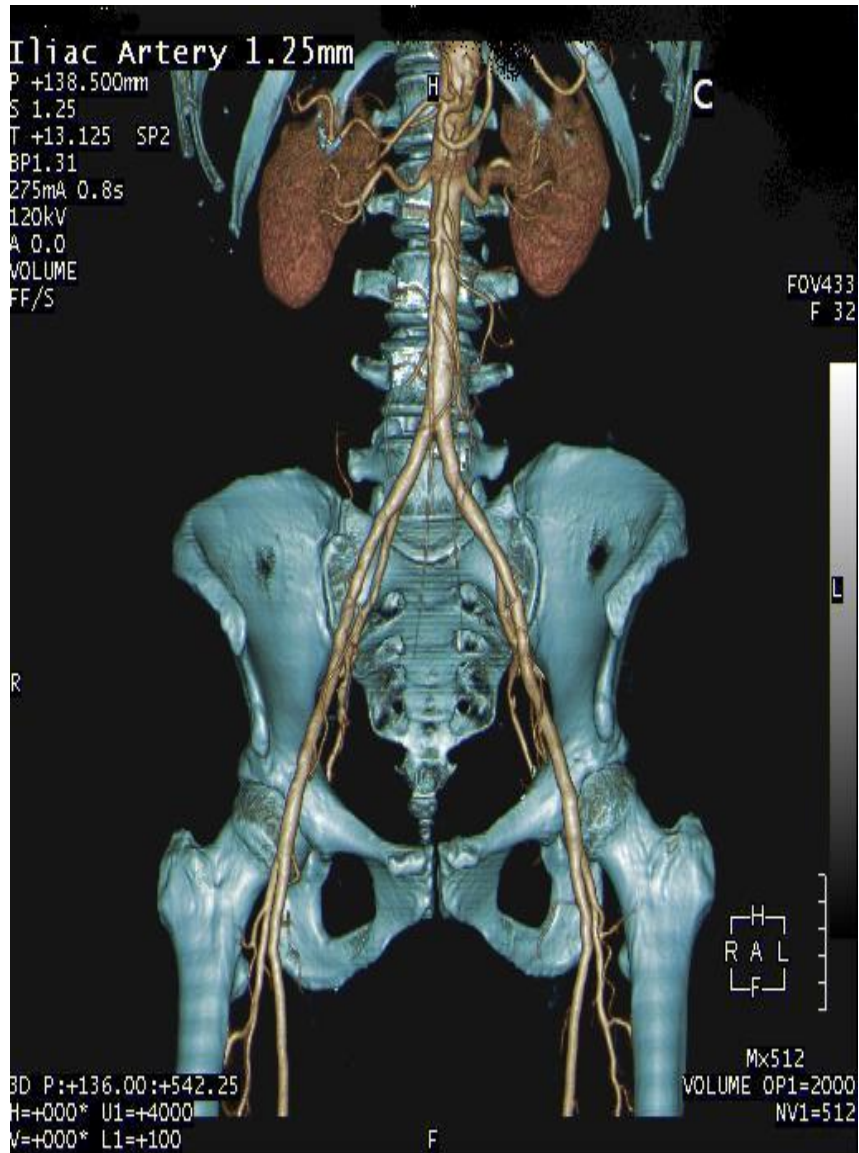


Pulmonary Grafts

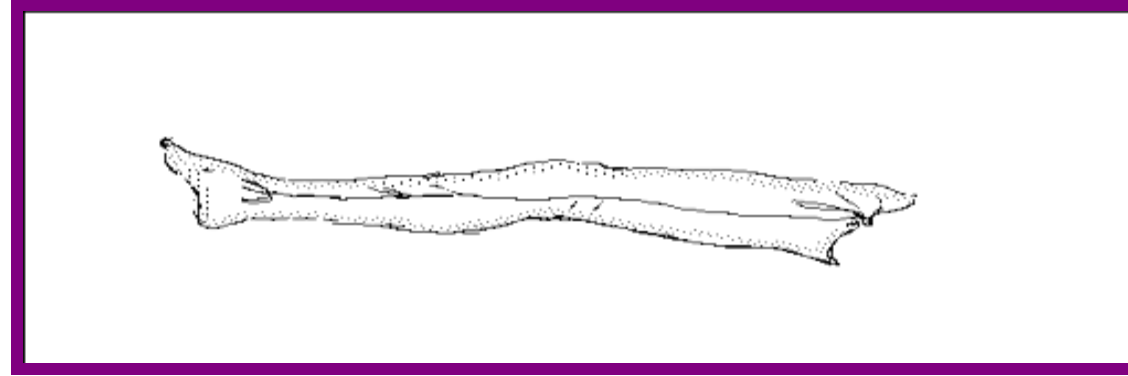


Aortic Valve

AI & DTA



Saphenous Veins

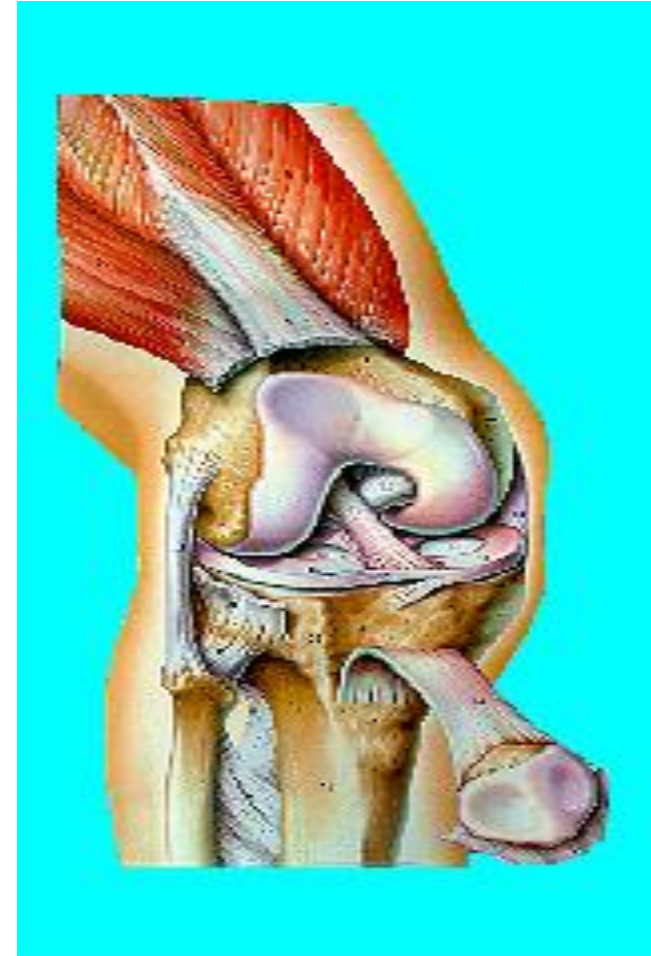


- Cryopreserved long segments
- CABG/ Peripheral vascular
- procedures
- Patients with no autologous vein
- Below knee bypass
- Infected sites



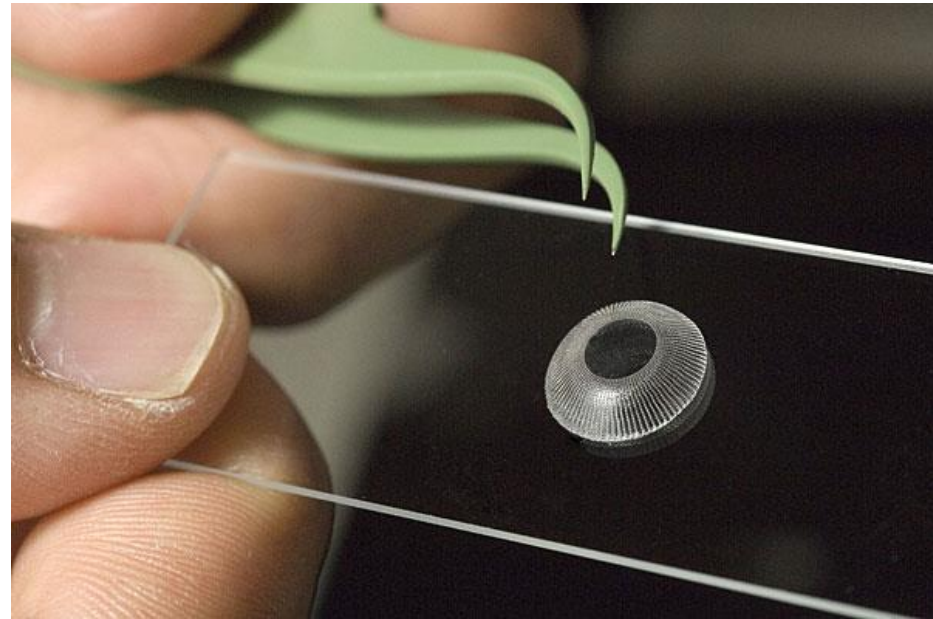
Tendons

- Therapeutic Use in Sports Injury Repair/Transplant
 - Achilles Tendon with Calcaneus
 - Anterior & Posterior Tibialis Tendons
 - Semitendonosis/Gracilis Tendons
 - Peroneus Longus



Corneal Donation

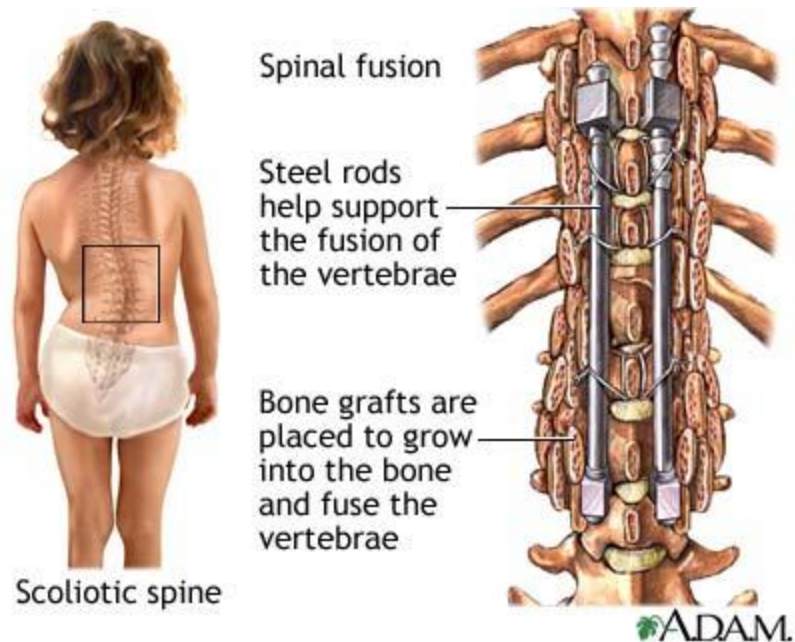
- Resembles a contact lens when recovered
- Least stringent recovery requirements



Bone Donation

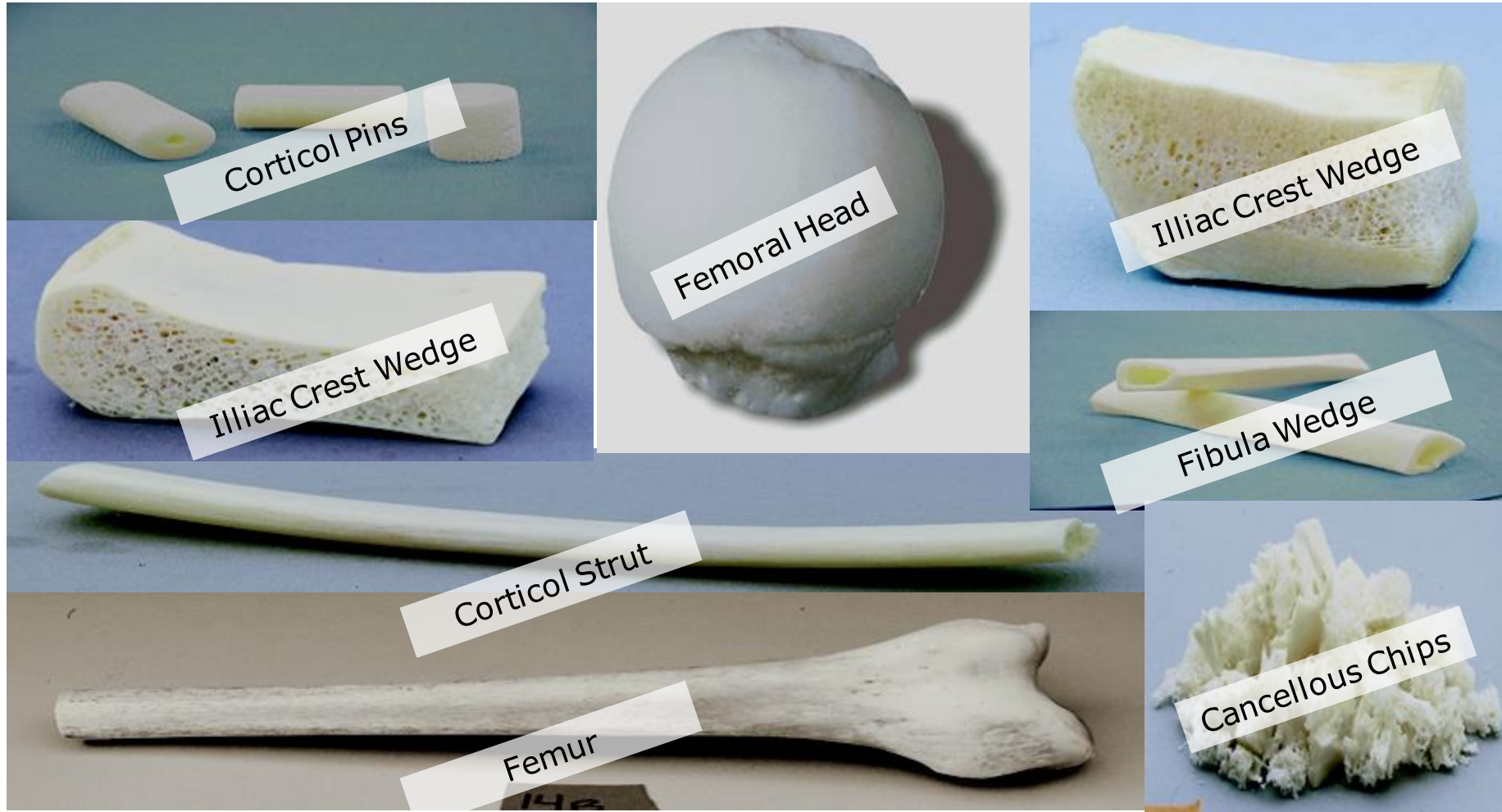
- Recovery of long bones of the legs and upper arms
- Hemi-pelvis
 - Vivigen (12-60 years)
- Whole knee (15- 85 years)
- Preferred recovery is done in an OR

Bone in Transplantation



- Most Frequently Transplanted Tissue
 - Spinal fusion
 - Osteosarcoma
 - Trauma repair
 - Reconstructive surgeries
 - Dental

Common Bone Sections for Transplant



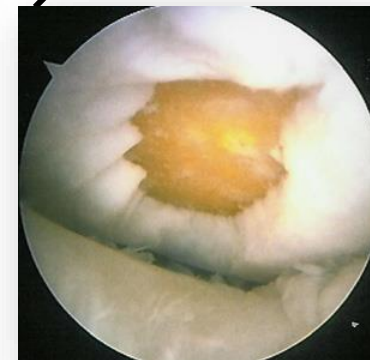
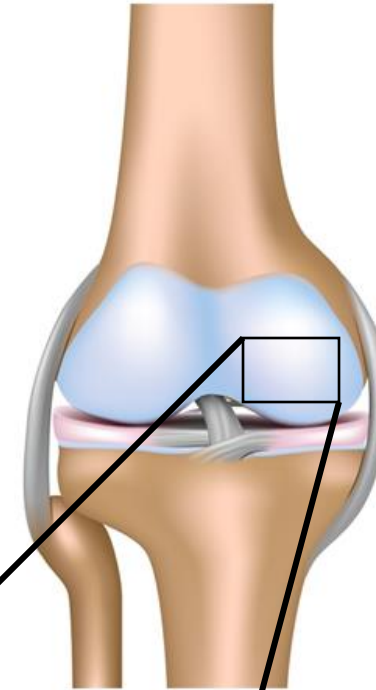
“Fresh” Graft Program

– ***A Defined Need***

- Repair of cartilage defects
- Primary opportunity is with knee repair
- Replace damaged areas
- Eliminate pain; improve mobility

– ***Allograft: An Effective Solution***

- Allografts gained reputation for solid outcomes
- Providing cartilage “Fresh” provides viable Chondrocytes for transplant
- Ultimately, driving solid demand for these types of implants



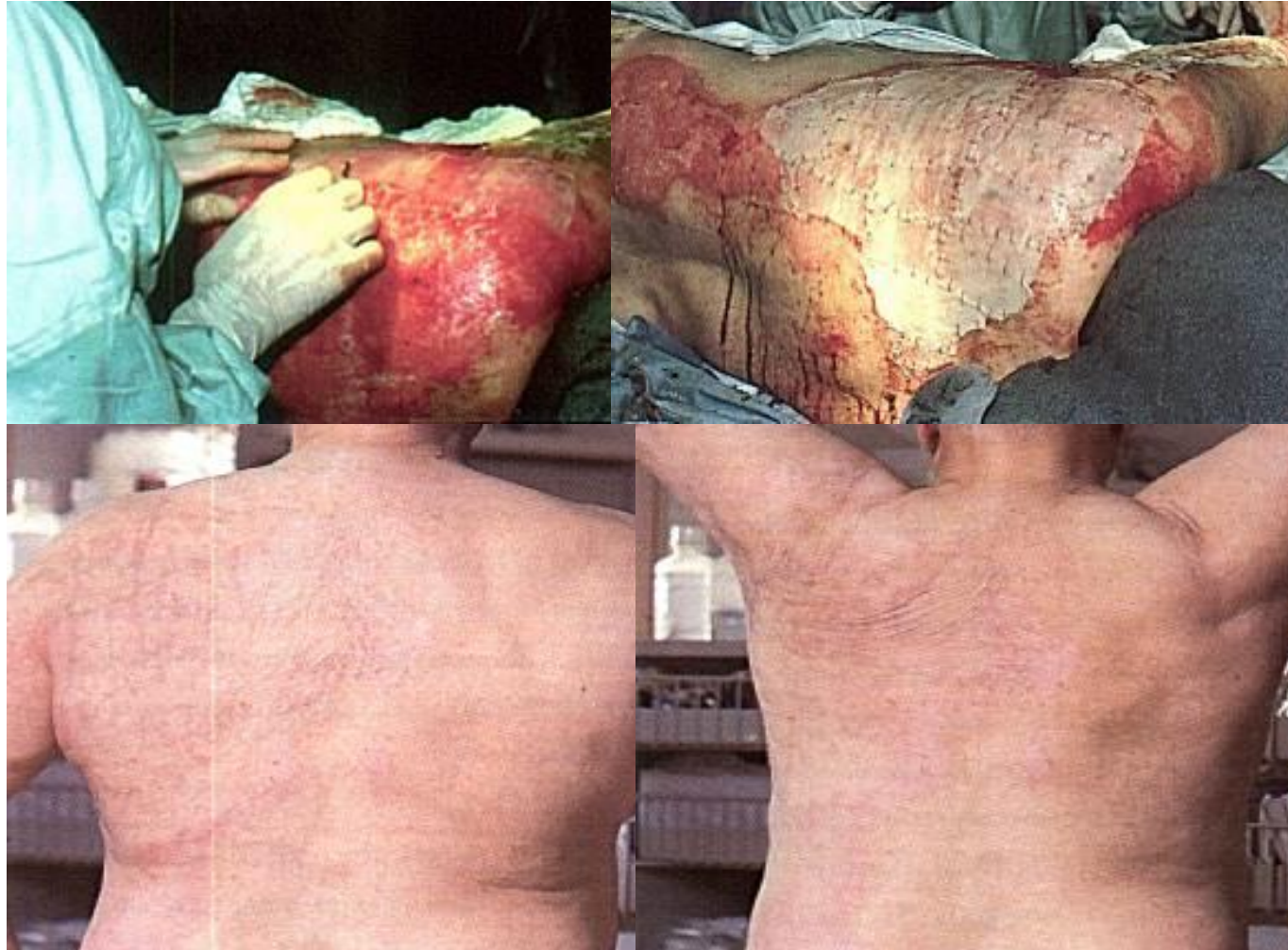
Skin Donation

- Skin is recovered from the back, buttocks, stomach and thighs
- Preferred recovery site is in an OR, but can be recovered elsewhere in some circumstances.

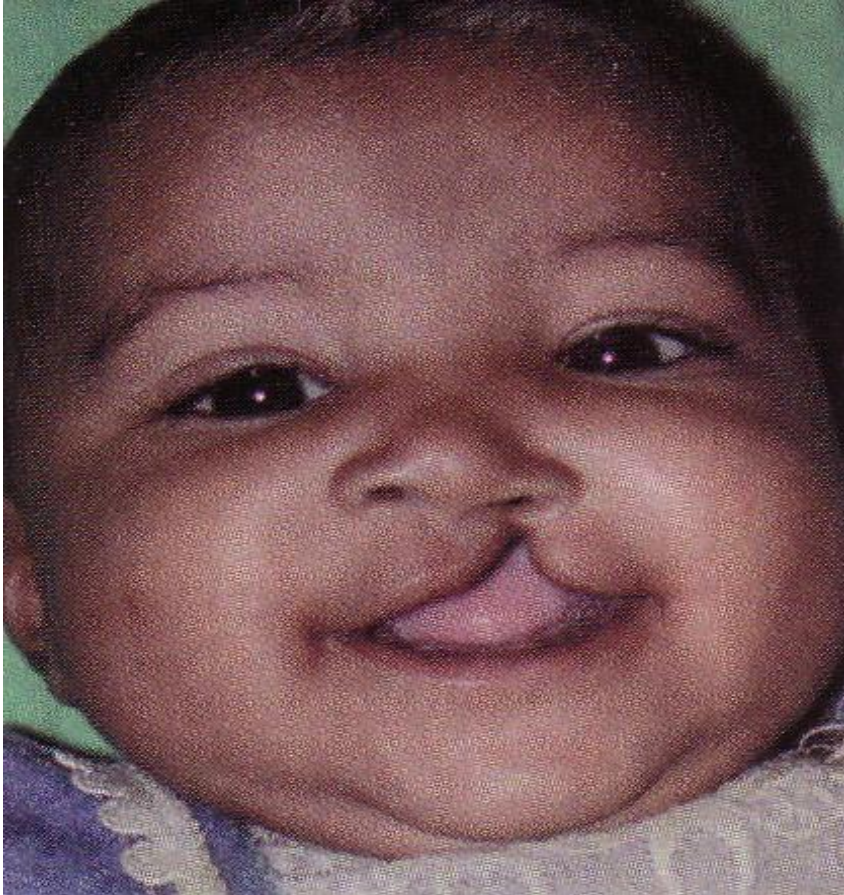
Advances in Skin Transplantation

- Mastectomy reconstruction
- Rotator cuff
- Cleft palate
- Skin for burn
- Wound care
- Large area grafts

Full Thickness Burn and Transplant



Cleft Lip And Palate Repair “Cosmetic Surgery”



Assessing Plasma Dilution

Plasma Dilution Assessment		
Weight	<input type="text" value="87"/>	<input type="text" value="lb"/> <input type="button" value="v"/>
Donor's Total Plasma Volume	<input type="text" value="1484.85"/>	Donor's Total Blood Volume <input type="text" value="2838.38"/>
<input type="radio"/> Estimated	<input type="radio"/> Reported	<input type="radio"/> Measured
Where are the samples being held?		<input type="text"/> <input type="button" value="v"/>
Contact Name	<input type="text"/>	Contact Tel# <input type="text"/>
Sample(s) available for Serology	<input type="text"/>	

Blood Products



Whole Blood
Packed RBCs

Total Volume Infused (Prior 48 HR)

Common Colloid Solutions



FFP
Platelets
Albumin
Hespan
Dextran

Total Volume Infused (Prior 48 HR)

Common Crystalloid Solutions



<u>Solution</u>	<u>A.K.A.</u>
<u>D5W</u>	5% <u>Dextrose</u>
<u>Half-Normal Saline</u>	0.45% NaCl
<u>Normal Saline</u>	0.9% NaCl
<u>Ringer's Lactate</u>	Lactated Ringer
<u>D5NS</u>	5% Dextrose, Normal Saline

Total Volume Infused (Prior 1 HR)

Qualifying The Sample

- Total Volume Colloid Infused (**prior 48hr**)

+

- Total Volume Crystalloid Infused (**prior 1hr**)

(=) _____ml

This Can Not Exceed TPV

- Total Volume Blood Products Transfused (**Prior 48**)

+

- Total Volume Colloid Infused (**prior 48hr**)

+

- Total Volume Crystalloid Infused (**prior 1hr**)

(=) _____ml

This Can Not Exceed TBV

EMS Impact Qualifying the Sample?!?!

- Documentation

- Undocumented Fluid Amounts Infused Via Any IV Line Automatically Assume 1000cc Infused Per FDA Guidelines (Worst Case Scenario)
- Undocumented Missed IV Attempts/ Needle Sticks Unaccounted For Automatically Assume 1000cc Infused Per FDA Guidelines (Worst Case Scenario)

81Kg Pt Can Receive No More Than 3240cc To Qualify



EMS' Role In Donation

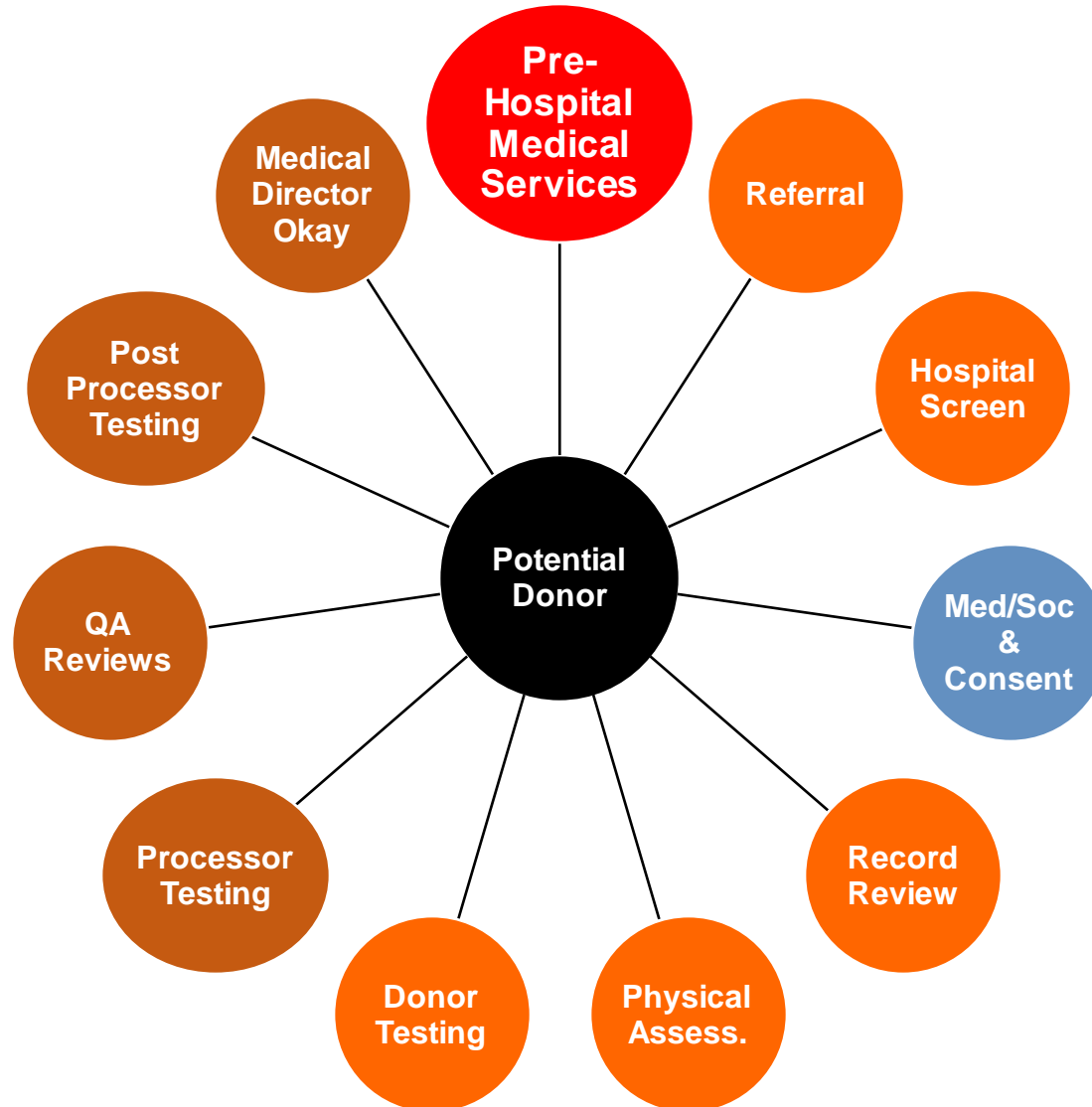
DOCUMENTATION – DOCUMENTATION

- EMS Run Report
 - Copy Should Be Left In Patients Chart
 - Accurate Documentation Of All Needle Sticks
 - Successful and Un-Successful IV Attempts
 - Anatomical Placement Location
 - Accurate Documentation Of Fluids Received
 - Documentation Of Fluid Type
 - Last Known Alive

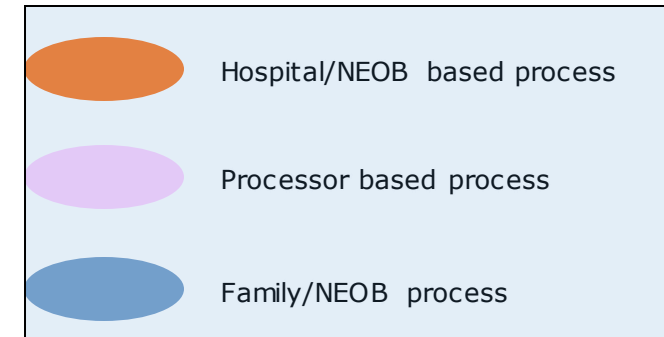
Ischemic time

- Tissue recovery has to start within 24 hours of death if refrigerated within 12 hours
- If no refrigeration, has to start within 15 hours
- Time starts at pronounced TOD if witnessed arrest or rhythm obtained by EMS or ED
- If not, clock starts with LKA

Ensuring Donor and Recipient Safety



Protecting the intended recipients is a multi-faceted process and the process begins with the initial referral and screen.



Reaching Out to a Family Regarding Tissue Donation

- **What does the phone call consist of when NEDS offers a family tissue donation?**
 - **Introduction**
 - **Condolences**
 - **Explanation of the tissues and how they benefit recipients**
 - **Grieving resources are offered regardless of the family's donation decision**
 - **Confidential paperwork is done over the phone**
 - **An explanation of the process and timeline is given to the family**

Termination of Resuscitation #2

Termination of resuscitation is an important aspect of the medical care of the cardiac arrest patient. When resuscitative efforts have failed to be successful, compassionately transferring attention to the patient's surviving loved ones and ensuring proper final care of the deceased are essential. Please recall from the 2011 Maine EMS Protocol Update that those final steps in care for the deceased include the following:

- 1) Notification of the family – May have already occurred. However, if the patient passes away without family or friends present, contingencies for family notification must be made.
- 2) Disposition of Patient Remains – There are multiple options for disposition of patient remains which include local funeral homes, the local ED, the local hospital's morgue, the Medical Examiner's office, etc. It is essential that your service partners with local hospitals, local police, and local funeral homes to facilitate this process. Please refer to the Maine EMS 2011 EMS Protocol FAQ sheet.
- 3) Notification of the patient's PCP (if the patient has one) and the Medical Examiner.
- 4) Signing the patient's death certificate – Only a physician with a relationship to the patient (PCP or treating physician – includes an emergency physician resuscitating the patient) or the Medical Examiner can sign the death certificate.
- 5) Notify the New England Donor Services at 1-800-446-6362 with the following information; patient's name, date of birth, location of arrest, your contact phone number, and time of death.

NEW ENGLAND
Donor Services

800.446.6362



ABSOLUTE RULE-OUTS

1. Obvious signs of decomposition
2. Last known alive \geq 18 hours
3. Evidence of IV drug abuse
4. Known HIV or Hepatitis

NEW ENGLAND
Donor Services

800.446.6362



REFERRAL INFORMATION

- | | |
|---|--|
| 1. Name & DOB of Patient | 2. Is the deceased patient a
N. Resident of this state? |
| 3. Date & Time Last Known Alive
or Resuscitated Date | 4. Which State Dept. Issued a
Death Certificate? |
| 5. Cause of Death/Evidence of
Drugs or Alcohol | 6. How Connected? Associated? |
| 7. Any known medical history/
Regular medical care | 8. Where is body being kept? (MTC/
Funeral Home) |
| 9. How contact information
relatives, health care? | |

Death Situations for Emergency Responders #1

PREPARED JOINTLY BY: Attorney General, Office of Chief Medical Examiner, and Maine State Police.

GENERAL AIM: Preservation of scene, including body as found, for investigative purposes within practical limits consistent with the role and responsibilities of emergency medical care givers.

Death Situation Guidelines

- I. Preserve life:** While forensic guidelines emphasize that the scene should not be disturbed, the first and most important course of action is to follow all usual procedures to ensure the preservation of life.
- II. Once Death is confirmed:** *If the decedent is clearly dead, the body should not be moved or disturbed unless there is a danger that the body may be lost or further damaged.*
 - A.** Maine statutes do not require a pronouncement of death.
 - B.** The scene should be secured and left undisturbed.
 - 1. If the police are present, they should take charge in order to determine whether the case falls under the jurisdiction of the Office of Chief Medical Examiner (OCME) or whether the death certificate may be certified by the patient's private attending physician.
 - 2. If there is no police officer present, EMS should call the local police or call the OCME directly to report the case so that a determination may be made as to the need for further investigation into the cause and manner of death. OCME emergency line to report deaths: 1-800-870-8744.
 - 3. If it is determined not to be a Medical Examiner case, try to accommodate the family's request or contact OLMC for guidance.
 - 4. Notify the New England Donor Services 1-800-446-6362.
 - C.** Tubes and medical devices should be left in place. Certain reusable equipment may be removed to resupply the ambulance; however, written documentation of any such action must be given to investigators.
 - D.** Any clothing or property should be left undisturbed.
- III. What is a Medical Examiner (ME) case?:**
 - A.** Any suspected HOMICIDE.
 - B.** Any suspected SUICIDE.
 - C.** Any death involving any ACCIDENT or INJURY.
 - D.** Any death of a CHILD.
 - E.** Any death in CUSTODY.
 - F.** Deaths caused by SUSPECTED GROSS NEGLIGENCE during a Medical Procedure.
 - G.** SUDDEN DEATH from an UNKNOWN cause or any death where there is no private attending physician.
 - H.** UNIDENTIFIED persons.
 - I.** OCCUPATIONAL deaths (work-related).
 - J.** Unnatural deaths in a Mental, or DHS-Residential Care Facility.
 - K.** Any death that might ENDANGER or THREATEN the public health.

(continued)

Questions?

