LIVE ON
nebraska

Organ and tissue donation and advocacy

- Federally-designated
- Organ Procurement Organization
- Nonprofit
- HIPAA-exempt
- Nebraska Donor Registry

LIVE ON
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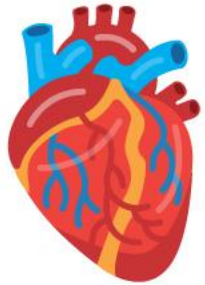
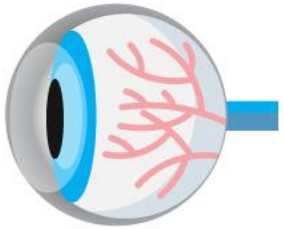
Organ and tissue donation and advocacy

5 TYPES OF DONATION



ORGAN

TISSUE



EYE

BIRTH TISSUE

RESEARCH

REGULATORS

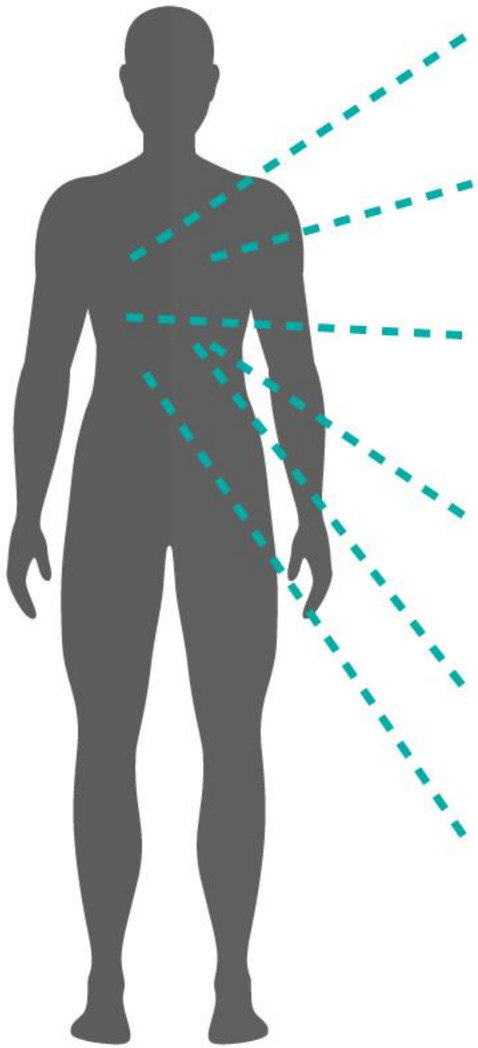
CMS - - - UAGA - - - FDA - - - JOINT COMMISSION

104,000+

PEOPLE IN THE U.S. ARE WAITING FOR A TRANSPLANT

1 ORGAN DONOR CAN

SAVE 8 LIVES



LUNGS
can save two people affected by cystic fibrosis and emphysema

HEART
saves individuals affected by heart failure and cardiomyopathy

LIVER
replaces damaged liver caused by hepatitis and birth defects

PANCREAS
often replaced with kidneys in diabetic patients

KIDNEYS
can save two lives affected by diabetes and high blood pressure

INTESTINES
help restore digestion to those with blocked intestines

ORGAN DONATION PROCESS

- Vented, catastrophic injury/illness
- Referral to Live On Nebraska
- Donor evaluation
- Authorization
- Medical management/allocation
- Recovery/transplant

VENTED PATIENT WITH ANY **ONE** OF THE FOLLOWING:

- A loss of one or more brainstem reflexes (cough, gag, pupillary, corneal, oculocephalic, pain response)
- Family/hospital is considering the withdrawal of life-sustaining measures
  - Discussion of comfort cares
  - Change to DNR status
- Any further neuro decline/change of plan since initial referral

Call early. Call often!

DO NOT discuss donation with the patient's family. Requestor must be from or trained by **Live on Nebraska.**

REGISTERED	NOT REGISTERED
No additional authorization needed unless donor is under 18	**Potential donor families must be informed of their donation options**

DONATION CONVERSATION

Discussions about donation should only happen between a Live On DFA and the patient's family.

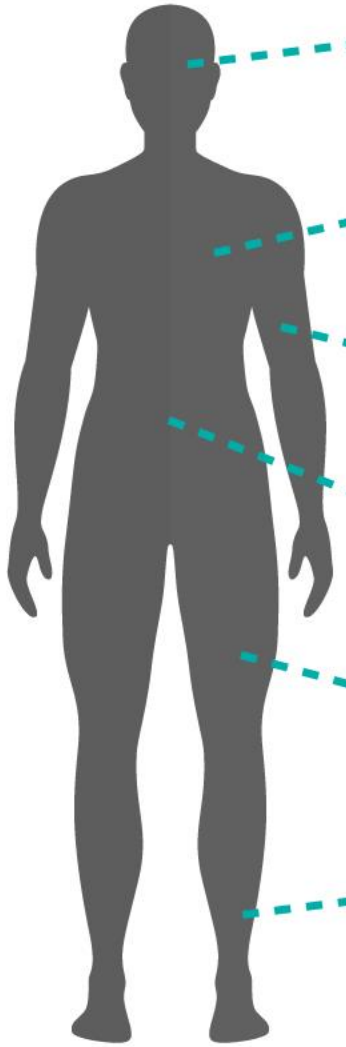
Why?

- Don't want to approach until donation suitability has been determined
- Make sure families have all accurate information before deciding
- Don't want the perception that the hospital is pursuing anything but lifesaving treatment
- CMS regulation

TISSUE
DONATION

1 TISSUE DONOR CAN

HEAL 100 PEOPLE



CORNEAS
help restore sight lost to accidents or disease

HEART VALVES
replace damaged valves caused by age, disease or birth defects

BONE
can prevent amputation and help regain lost mobility

SKIN
helps burn victims and recovering breast cancer patients

VEINS
help restore circulation in the heart and legs

CONNECTIVE TISSUE
repairs sports injuries and aids in cleft palate reconstruction

RESPIRATORY MANAGEMENT AND RT ROLES

BRAIN DEAD DONORS

- The complete and irreversible cessation of the entire brain and brain stem
- Legal and ethical definition of death
- Clinical diagnosis made by hospital physicians
- Results from a lack of blood flow to the brain (optional if apnea test can’t be done)

BRAIN DEATH TESTING

- **Clinical Exam**
  - Test the cranial reflexes in the brain
    - Cough, gag, cold caloric, dolls eyes, corneal, pupil response, response to painful stimuli
- **Apnea Test**
  - Draw ABG to make sure normal ranges (pH and CO2 – if not CO2 retainer)
  - Pre-oxygenate on 100% fio2 for 10min
  - Disconnect patient from vent for 6-8min (can go up to 10min if needed) if patient remains stable.
  - Draw another ABG before re-connecting back to vent
    - Compare co2 results (increase more than 20mmHg baseline or >60mmHg)
  - Needs to be done w/ a complete clinical exam

BRAIN DEATH TESTING

- Brain flow study can be completed if apnea cannot be completed
- Adults require 1 test
- Pediatrics require 2 tests at least 12 hours apart

DCD DONOR

- Involves non-brain-dead patients (at least one brainstem reflex intact)
- Initiated when the decision to discontinue life support is made
- Good candidates have a high likelihood of reaching cardiac death within 60 minutes of extubation
- Age criteria exists

DCD DONOR EVALUATION/RT ROLE

CPAP Trial: 0/0 21% for 10 minutes

- What are we looking for during this trial?
  - RSBI (TV, RR)
  - BP, HR, O2 sats
  - Pt comfort, cuff leak, NIF

Other items to consider during DCD eval include, but not limited to:

- Secretions
- Echo
- Pressers

CPAP EVALUATION

- Huddle with intensivist for authorization to conduct respiratory trial
- Huddle with RT, bedside RN and intensivist prior to trial and discuss objective and steps of trial:
  - **Objective:** simulate patient's respiratory drive to assess likelihood of cardiopulmonary arrest

CPAP EVALUATION

- **Steps of Trial**
  - RT to check for cuff leak prior to starting trial:
    - Suction patient, deflate cuff, check for leak, and re-inflate
  - Place pt on CPAP with PS 0/Peep 0/FiO2 21%
    - Done for up to 10 minutes, pending patient stability
    - Monitor on vent: RR, TV, and Rapid Shallow Breathing Index (RSBI)
    - Monitor vitals: BP, HR, O2 sats
    - At 9 min, have RT check Negative Inspiratory Force (NIFs)
    - Abort if pt becomes hypotensive, tachy/brady, desats (<80%)

VENTILATION MODES

A/C (Assist Control)
Standard mode used to start basic lung recruitment based on IDBW w/ VT 8-10 mL/kg

PRVC (Pressure Regulated Volume Control)
Standard mode used to start basic lung recruitment based on IDBW w/ VT 8-10 mL/kg. Mode utilized when inversing I:E ratios and controlling VT

PC (Pressure Control)
Mode used to increase intrathoracic pressure to allow for better gas exchange from the alveoli to achieve better Po2's. Example patient w/ low lung volumes on CXR or atelectasis

HFOV/ECMO
If in use Live On team will work closely w/ pediatric intensivist

MEDICATIONS

Medications Given Q4

- **Duoneb:** Recommended bronchodilator
- **Hypertonic:** Help with removal of secretions
- **Xopenex:** Utilized if pt has adverse reaction to the Albuterol in both Duoneb and standard Albuterol. Example: Increased HR of 20% or more
- **Albuterol:** Will use if needed but, prefer Duoneb for the ipratropium bromide to help reduce inflammation
- **Lasix:** Utilized to help remove extra fluid from the body, especially in cases of pulmonary edema
- **Albumin:** Pulls excessive fluid back into the vasculature, often times utilized in combination with Lasix or blood/colloid products

LUNG RECRUITMENT STRATEGIES Q4

PC (Pressure Control)

- Helps increase MAWP (Mean Airway Pressure) when our conventional way does not work sufficiently
- Allows us to control the pressures in the lung to achieve better Po2s

PULMONARY HYGIENE THERAPIES Q4

CPT

- Utilize if IPV is not available to help with patient's "pulmonary toilet"
- Helps with secretions, atelectasis and over functionality of the lung

IPV/MetaNebs

- Preferred method for therapy in order to increase MAWP
- Must be mindful if the patient exhaled tidal volumes to make sure we are not overextending the lung

STANDARD I:E VS INVERSE RATIO VENTILATION

DCD (Donation after Cardiac Death) Donors

- Utilize standard I:E's on DCD donors due to patients being neurologically intact
- All ventilation maneuvers in DCDs require approval from managing staff physician

STANDARD I:E VS INVERSE RATIO VENTILATION

BD (Brain Death) Donors

- Start with I:E's 1:1 (consult Live On Nebraska coordinator prior to switching) in order to achieve high Po2's >350
- Inverse ratio ventilation should be considered if goal PaO2s are not being met
- Inverse I:E's can be done by adjusting the inspiratory time on the vent to achieve I:E's 2:1, 3:1 and 4:1 for a period of time depending on how much recruitment is needed
- Can be utilized in BD donors because they have no respiratory effort, unlike DCD donors

ABGs

What are we looking for?

Po2s

- Po2s >350 (ideally > 400)
- Shows the transplant center the functional compacity of the lungs

Acid/base balance

- Monitor acid/base balance for homeostasis in the patient
- Changes on the ventilator will be made if needed
- Medications, such as bicarb, will be given for metabolic disturbances

CHEST X-RAYS

CXR (Chest X-ray) Q4

- CXR are taken to ensure appropriate maneuvers and medications are being utilized to maximize lung donation
  - These pictures are supplied to transplant surgeons in order to show improvement in the lungs
- Under certain circumstances CT scans will be necessary for further evaluation
  - Most times only need one of these when lungs are deemed transplantable

RECRUITMENT

How *not* to lose recruitment gained

Clamp ET tube

- If the patient needs to be disconnected from their ventilator circuit
  - Example: Changing the circuit, changing out malfunctioning ventilator and placing patient on a transport ventilator for a procedure

Test required off the unit

- CT of the chest, lungs, abdomen or Cardiac cath
- The patient must be transported on a ventilator in order to maintain recruitment

RECRUITMENT

How *not* to lose recruitment gained

Day/night shifts

- The Live On Nebraska coordinator will try and meet with RT every shift
- Ask the Live On Nebraska coordinator any questions about lung recruitment

CONTRAINDICATIONS

Pneumothorax, contusions and chest tubes

- The recruitment style on these patients is different due to the injury sustained
- PEEP can be dangerous and less is more
- These types of lungs can be transplanted and are evaluated case by case on the course of action needed to facilitate lung improvement