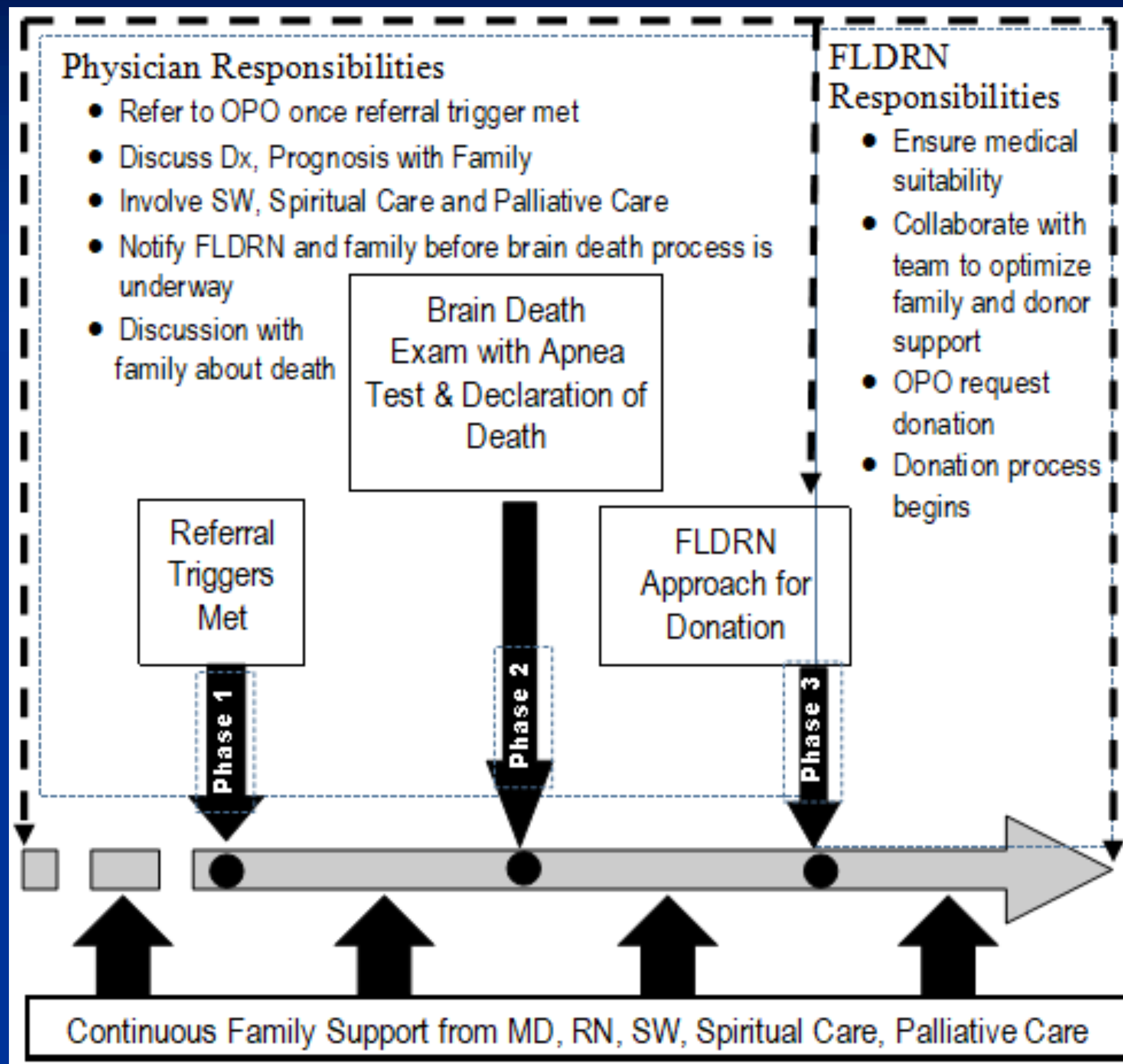
FAQ Brain Death

Rev. Feb 2021

Brain Death Determination Process



FAQ Brain Death #1

Q: When is my patient referred to the organ procurement organization (Finger Lakes Donor Recovery Network)

A: Patients meeting the trigger criteria MUST be referred to OPO within 2 hours of meeting the criteria.

Any MD, RN, NP/PA, House staff, or administrative designee MAY make referral.

Attending permission IS NOT REQUIRED but the OPO is required to inform the attending MD on record that the patient has been referred.

Clinical Trigger Criteria

Intubated patients with grave prognosis and ANY of the following:

- GCS 5 or less
- Patient being evaluated for brain death
- Patient being considered for withdrawal of life-sustaining therapies

FAQ Brain Death #2

Q: When should I consider brain death evaluation?

A: Patients fulfilling all the criteria below are appropriate for brain death evaluation

Prerequisites	YES	NO
Coma irreversible and cause known	✓	
Neuroimaging compatible with coma	✓	
CNS depressant effect absent or subtherapeutic level	✓	
Neuromuscular blockade absent AND no toxin/toxic drug level	✓	
Absent Severe Acid-base, Electrolyte/Metabolic Abnormality	✓	
Core body Temp > 36°C AND SBP > 100mmHg (or MAP >65mmHg)	✓	
No spontaneous respiration	✓	

FAQ Brain Death #3

Q: Do I need to call a Neurologist/Neurosurgeon for brain death determination?

A: No. Brain death evaluation may be done by Trained/Competent Attending Physician, defined in UH Policy D-02 as attendings who have finished residency or fellowship training in the following specialties: Adult and Pediatric Critical Care Medicine, Adult and Pediatric Emergency Medicine, Neurology, Neurosurgery, General or Trauma Surgery.

Three cardinal findings in Brain Death

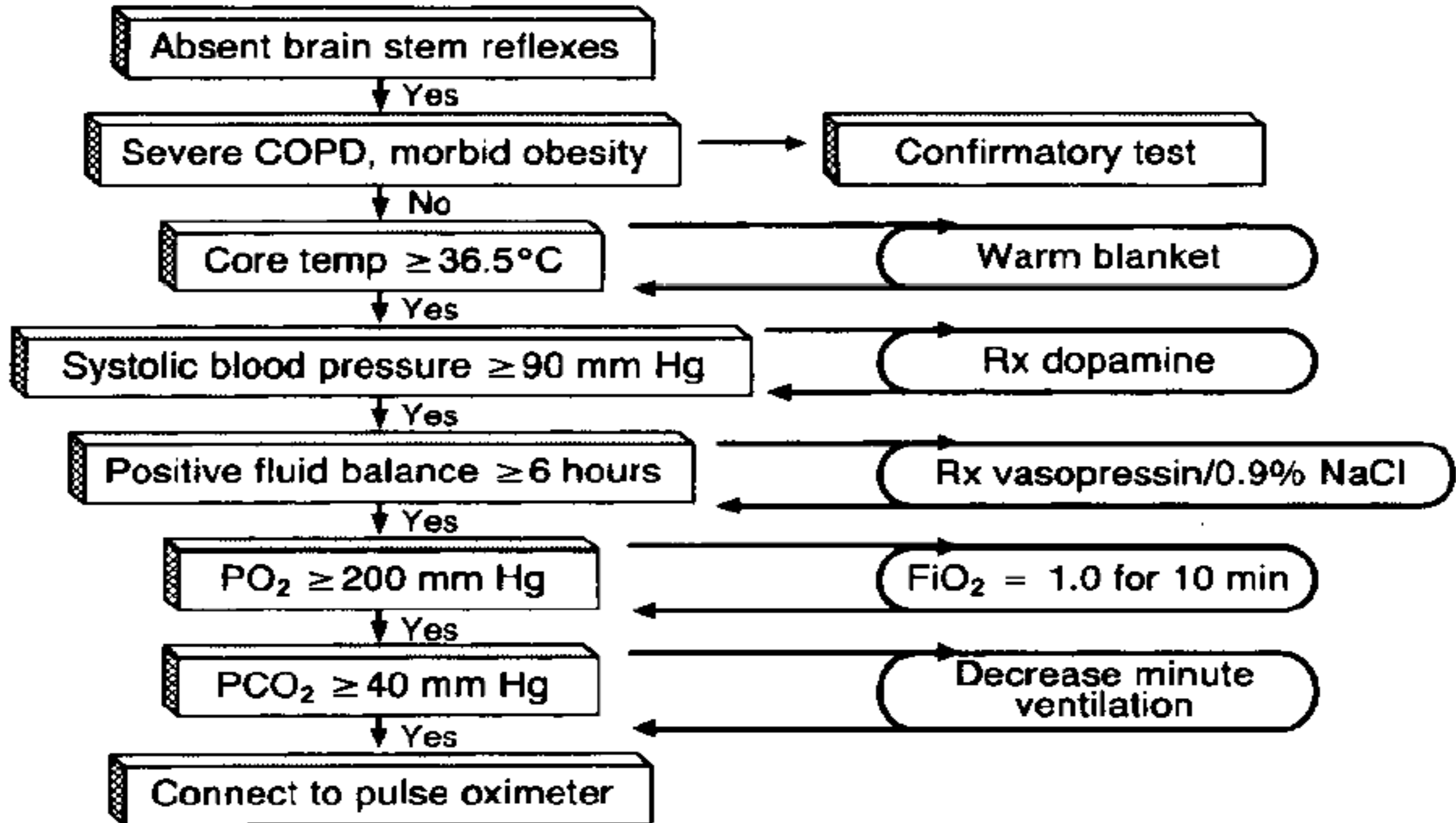
First: Coma or unresponsiveness

Second: Absence of brainstem reflexes

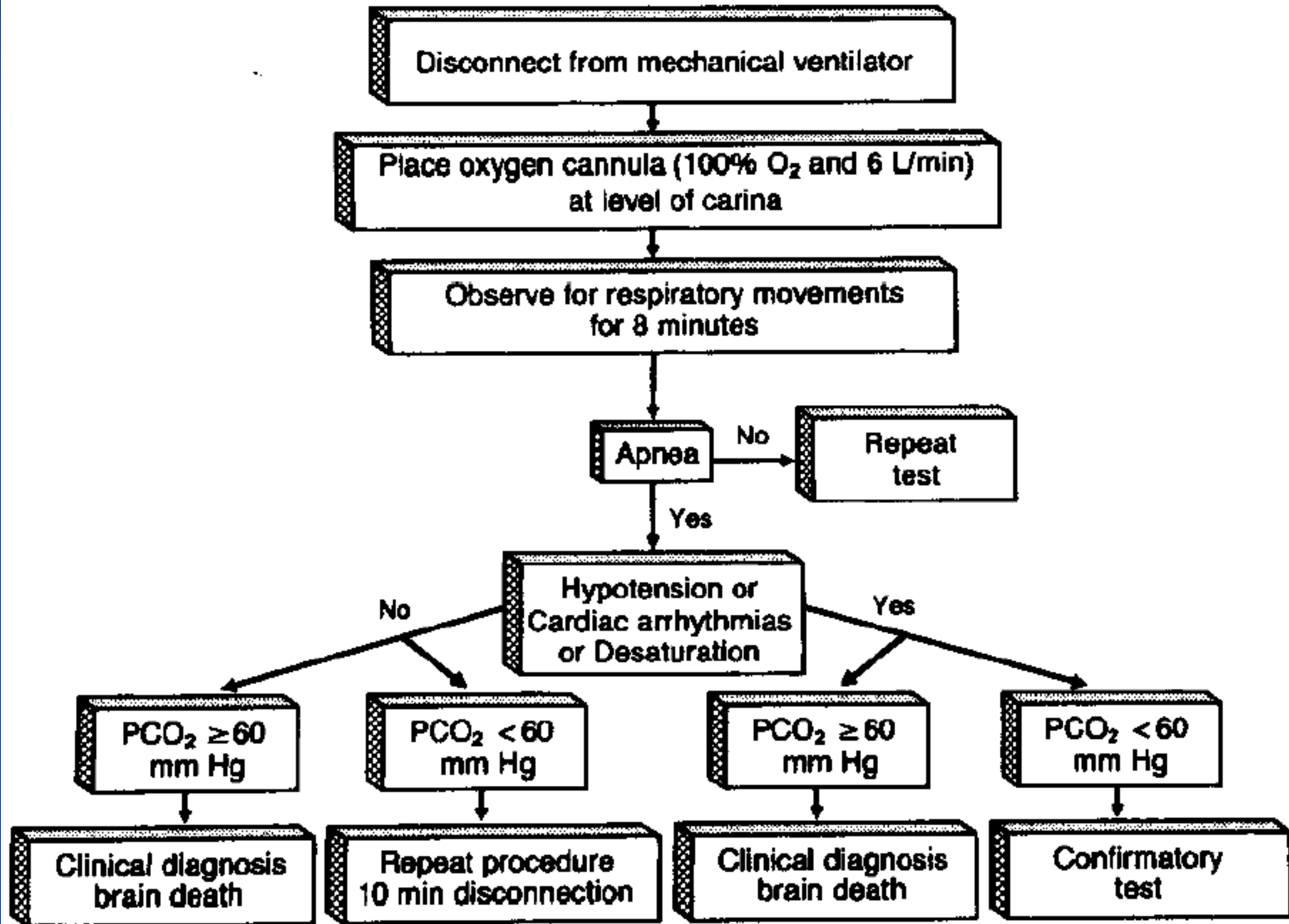
- Pupillary reflex
- Oculocephalic reflex (Doll's eye)
- Oculovestibular reflex (Cold Caloric testing)
- Corneal reflex
- Gag reflex
- Cough reflex

Third: Apnea

Prerequisites for Apnea test in Brain Death Testing



Procedure for Apnea test



FAQ Brain Death #4

Q: When should I order confirmatory testing for brain death determination?

A: Brain death is a clinical diagnosis. As such, confirmatory testing is NOT necessary. However if the clinical diagnosis cannot be made with certainty on clinical grounds, confirmatory testing is highly recommended to document brain death

Conditions that may interfere with clinical diagnosis of Brain Death

- Severe facial injury preventing adequate brain stem reflex evaluation
- Cervical spine trauma preventing apnea testing
- Toxic levels of CNS depressant drugs
- Presence of toxins known to depress CNS function or neuromuscular blocking agents
- Severe acid-base, electrolyte or metabolic abnormality
- Medical condition resulting in chronic CO2 retention (COPD, obesity) preventing apnea testing
- Hemodynamic instability preventing initiation or completion of apnea testing

Confirmatory testing

- **Catheter 4-vessel Cerebral angiography**
  - Contrast need to be injected at high pressure in both anterior and posterior circulation
  - Negative flow: no intracerebral filling at level of vessel entry into the skull
- **EEG**
  - Minimum of 8 scalp electrode, impedance between 100-10000 Ohms, at least 10 cm distance between electrode, sensitivity at least 2 microvolt,
  - Negative EEG signal: No reactivity to intense stimulation
- **Nuclear SPECT: Cerebral scintigraphy (Tc 99m)**
  - Negative flow: absence of intracranial filling (hollow-skull sign)

These tests have **not been fully** validated for brain death testing

- **SSEP**
  - Bilateral absence of N20-P22 response with median nerve stimulation.
  - Can not be done in patients with cervical spine injury.

- **TCD**
  - Bilateral insonation required
  - Negative flow: lack of diastolic or reverberating flow and small systolic peaks in early systole (complete absence of flow not acceptable)

FAQ Brain Death #5

Q: Can my resident/Fellow/NP/PA do the brain death exam?

A: No. Under Hospital policy D-02, the determination of brain death MUST be made by … attending physicians…

Brain Death Testing Tips

1. Plan ahead. **Identify second Attending Physician** who will do confirmatory brain death evaluation 6 hours after the first one. Ideally the second Attending physician is informed ahead of time to assure availability.
2. First exam is ideally done in the morning between 7-11 AM so the second exam may be done between 1-5 PM, when Attending physician is available in-house.
3. Check that **patient meets all the clinical prerequisites** for brain death testing and obtain laboratory testing as necessary prior to planned brain death testing.
4. If patient has confounding factors that can interfere with clinical diagnosis of brain death, **consider confirmatory testing early** to avoid having to call in hospital personnel in the middle of the night.

FAQ Brain Death #6

Q: What should I do if my patient does not meet the criteria for brain death?

A: Offer palliative and spiritual care. **Once the family or next of kin has made the decision** to withdraw life-sustaining therapies, introduce Finger Lakes Donor Recovery Network staff to the family for discussion on end of life options INCLUDING ORGAN DONATION via Donation after Cardiac Death (DCD).

Thank you for your Time!