

Appendix e-1 - Brain Death Survey

Questions are listed in order of appearance

1. Please enter your email address (free text):
2. Please enter your country (free text):
3. Please enter the name of your institution (free text):
4. What is your role at the institution?
 - Neuro-intensivist
 - Intensive care doctor (but not a neurologist)
 - Neurologist (but not an intensive care doctor)
 - Neurosurgeon
 - Anesthesiologist
 - Physician (but none of the above specialties listed)
 - Non-physician healthcare worker
 - Administrator in hospital, government, or related worker in healthcare
5. Is the concept of "brain death" established in your country?
 - Yes
 - No
 - Don't know
6. Do you believe that brain death equates to cardiopulmonary death?
 - Yes
 - No
 - Uncertain
7. Has anyone been declared brain dead in your hospital?
 - Yes
 - No
 - Uncertain

If 'Yes' is selected, then skip to question 10

8. If no person has been declared brain dead in your hospital, why not? (please check all that apply)
 - No patients have been eligible for brain death declaration to date
 - No intensive care unit or advanced technology for critically ill patients
 - No physician expertise in brain death declaration
 - Withdrawal of support occurs before patients are eligible for brain death declaration
 - This concept is not established in our county
 - Other (please specify in next question)

If any option but 'other' is selected, then skip to question 10

9. You have selected 'Other' to the question: "If no person has been declared brain dead in your hospital, why not?". Please write why in the box provided below (free text):

10. Is there a legal provision for the declaration of brain death in your country?

- Yes, there is one law for the entire country
- Yes, but the law is different in various regions of the country
- No
- Uncertain

11. Is there a formal established protocol for the declaration of brain death in your hospital?

- Yes
- No
- Uncertain

If 'Yes' is not selected, then skip to question 40

12. What do you believe is the most common underlying cause of neurologic injury leading to brain death in your country?

- Ischemic stroke
- Hemorrhagic stroke
- Traumatic brain injury
- Cardiac arrest
- Infections of the central nervous system
- Uncertain

13. What specific parameters must be tested on clinical examination of patients for brain death declaration (please check all that apply)?

- absence of purposeful response to voice or tactile stimuli
- pupils in mid-position or dilated (4mm to 9mm) at rest
- absence of pupillary constriction to light
- absence of oculoccephalic reflex (or "cephalo-ocular" reflex)
- absence of oculovestibular reflex (or "vestibulo-ocular" reflex)
- absence of corneal reflex
- absence of facial grimacing to noxious stimuli
- absence of gag reflex
- absence of cough reflex
- absence of spinal reflexes (deep tendon reflexes, Babinski's sign, lower extremity triple flexion)
- Uncertain

14. Is an apnea test required for the declaration of brain death?

- Yes
- Not mandatory, but may be used as an optional additional test
- No, not mentioned in legal requirements or hospital protocol

If 'No, not mentioned in legal requirements or hospital protocol' is selected, then skip to question 25

15. What is the minimum duration of apnea testing?

- less than 5 minutes
- 5 to 7 minutes
- 8 to 10 minutes
- 11 to 13 minutes
- more than 13 minutes
- There is no minimum duration defined
- Uncertain

16. Is an arterial line required for apnea testing?

- Yes
- No or not defined in protocol
- Uncertain

17. Are there specific blood gas requirement thresholds that are required to declare a person brain dead?

- Yes
- No
- Uncertain

If 'Yes' is not selected, then skip to question 21

18. Absence of respiratory effort at an absolute minimum ending PaCO₂ (assuming patient does not retain CO₂ at baseline)?

- 41-50 mmHg
- 51-60 mmHg
- 61-70 mmHg
- >70 mmHg
- not defined

19. pH?

- <7.24
- 7.25-7.29
- 7.30-7.34
- not defined

20. Increase in PaCO₂ from baseline?

- 6-10 mmHg

- 11-15 mmHg
- 16-20 mmHg
- 21-25 mmHg
- >25 mmHg
- not defined

21. If apnea test cannot be performed due to clinical condition of the patient, are other tests (such as EEG, neuroimaging, or brain perfusion testing) required?

- Yes
- No
- Not defined
- Uncertain

22. How many times is the apnea test required to be performed?

- 1
- 2
- 3
- >3
- Uncertain

23. Is there a modified apnea test protocol for patients with high levels of Fractional inspired content of oxygen (FiO₂) and/or Positive End Expiratory Pressure (PEEP)?

- Yes
- No
- Uncertain

If 'Yes' is not selected, then skip to question 25

24. What is the level of Continuous Positive Airway Pressure (CPAP)/PEEP at which the modified apnea test is performed?

- <5 cmH₂O
- 6-10 cmH₂O
- 11-15 cmH₂O
- >15 cmH₂O
- patient's level of PEEP on the ventilator
- not defined
- Uncertain

25. What are the mandatory minimum qualifications of the healthcare providers who declare brain death at your hospital? (choose as many answers as appropriate)

- Attending physician/consultant in any medical or surgical field
- Attending physician/consultant in neurology or neurosurgery
- Attending physician/consultant in intensive care medicine

- Doctor in training in any medical or surgical field
- Doctor in training in neurology or neurosurgery
- Doctor in training in intensive care medicine
- Nurse
- Healthcare worker (non-physician, non-nurse)
- No qualifications are formally required
- Uncertain

26. How many physicians are required for the declaration of brain death?

- 0
- 1
- 2
- 3
- >3
- Uncertain

27. Are healthcare providers other than physicians necessary for brain death declaration?

- Yes
- No

If 'No' is selected, then skip to question 30

28. What type of other healthcare providers are necessary for the declaration of brain death?

- nurse
- respiratory therapist
- religious representative
- attorney or judge

29. How many healthcare providers (other than physicians) are needed to declare brain death?

- 0
- 1
- 2
- 3
- >3
- Uncertain

30. Is there a specific minimum time of observation required from neurologic deterioration until brain death declaration can proceed?

- Yes, in all patients
- Yes, only in patients after cardiac arrest
- No
- Uncertain

If 'No' or 'Uncertain' is selected, then skip to question 32

31. What is the minimum time of observation required from neurologic deterioration until brain death declaration can proceed?

- 0-5 hours
- 6-10 hours
- 11-15 hours
- 16-20 hours
- 21-25 hours
- >25 hours
- not defined

32. Are any confirmatory tests (other than blood gases) needed for declaration of brain death?

- Yes
- No

33. What confirmatory tests can or must be used?

	Yes and required	Yes but optional	No
Electroencephalogram (EEG)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brain Perfusion Scan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Transcranial doppler (TCD)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Catheter cerebral angiogram	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CT angiogram of head	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MRI brain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

34. If the clinical breath death exam is consistent with brain death but ancillary test obtained returns an equivocal result, can the patient be declared brain dead?

- Yes
- No
- Uncertain

35. Are there specific requirements for exclusion of sedative medications or substances as the cause of apparent brain death?

- Yes
- No
- Uncertain

36. Are there specific requirements for exclusion of profound and potentially reversible metabolic derangements as the cause of apparent brain death?

- Yes
- No
- Uncertain

37. Are there different brain death criteria for children?

- Yes
- No

If 'No' is selected, then skip to question 40

38. In what ways do the pediatric brain death criteria differ from the adult brain death criteria? (please check all that apply)

- number of healthcare providers needed to declare brain death
- qualifications of healthcare providers needed to declare brain death
- minimum observation time before brain death can be declared
- number of clinical examinations that must be performed
- different confirmatory tests required for the declaration of brain death
- Other

If any option but 'other' is selected, then skip to question 40

39. You have selected 'Other' to the question: "In what ways do the pediatric brain death criteria differ from the adult brain death criteria?". Please write how they differ in the box provided

40. Does your country/region have an organized organ transplant network?

- Yes
- No

41. Is there a requirement to contact the local organ procurement organization prior to declaration of brain death?

- Yes
- No
- not applicable as no provision for brain death