

 <p>HAWAII HEALTH SYSTEMS C O R P O R A T I O N <i>"Touching Lives Everyday"</i></p> <p>Policies and Procedures</p>	<p>Quality Through Compliance</p>	<p>Policy No.:</p> <p style="text-align: center;">PAT 0005</p>
		<p>Revision No.:</p> <p style="text-align: center;">N/A</p>
<p>Subject:</p> <p><i>Determination and Documentation of Brain Death</i></p>	<p>Issued by:</p> <p>Corporate Compliance Committee</p>	<p>Effective Date:</p> <p style="text-align: center;">April 12, 2001</p>
	<p>Approved by:</p> <p>HHSC Board of Directors By: Carolyn Nii Its: Secretary/Treasurer</p>	<p>Supersedes Policy:</p> <p style="text-align: center;">N/A</p>
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I. PURPOSE: The purpose of this policy is to develop criteria for establishing brain death in patients at any Hawaii Health Systems Corporation (HHSC) facility.

II. POLICY: Brain death means the irreversible cessation of all brain functions, including the brain stem, as determined by acceptable medical standards.

III. PROCEDURE:

A. Clinical Criteria

1. Following are the criteria for the diagnosis of brain death. The clinical examination must demonstrate:
 - a. No response to intensely painful stimuli;
 - b. No spontaneous respiration; and
 - c. Absence of the following brain stem reflexes:
 - Pupillary light reflex
 - Corneal reflex
 - Oculocephalic (dolls eyes) reflex
 - Oculovestibular reflex
 - Oropharyngeal reflex (gag and cough)

NOTE: Some spinal reflexes may be intact in the presence of brain death.

2. The etiology of coma must be established.
3. The findings described above may be documented on two separate examinations, as indicated. These examinations should be 6 to 12 hours apart. This time interval may be reduced in the presence of massive brain injury. These examinations should be 24 hours apart for anoxic brain damage and 24 to 48 hours apart if the patient is less than five (5) years of age. Document findings on Attachment 1.
4. These findings should be present in the absence of hypothermia as the effects of hypothermia can mimic brain death.

5. Brain death may not be declared in the presence of central nervous system depressants unless other irreversible conditions exist. These other conditions may include massive brain injury or the cessation of intracranial circulation as demonstrated by appropriate testing.
6. The cautions listed in Section B must be considered.

B. Cautions

1. Criteria for the reliable recognition of death are not available in the presence of hypothermia (core temperature below 32.2 degrees Centigrade).
2. If drugs or metabolic intoxicants are present and there is no other cause of potentially irreversible brain injury, death may not be declared until the intoxicant is metabolized or intracranial circulation is tested and found to have ceased.
3. If shock is present, caution should be exercised in applying neurologic criteria to the determination of death because reduction in cerebral circulation can render the clinical examination and laboratory tests unreliable.
4. Peripheral nervous system activity and spinal reflexes may persist after brain death. The presence of decerebrate, or decorticate posturing, or seizures are inconsistent with the diagnosis of brain death.
5. In children younger than five years, particular caution should be used in applying neurologic criteria to determine brain death as they have increased resistance to damage and may recover substantial functions even after exhibiting unresponsiveness for longer time periods compared with adults.
6. The electroencephalogram (EEG) is very helpful test in the diagnosis of brain death. It is not a necessary criterion to record a flat or isoelectric EEG for the diagnosis of brain death.
7. Complete cessation of circulation to the normothermic adult brain for more than ten (10) minutes is incompatible with survival of brain tissue. Documentation of this circulatory failure is therefore evidence of death of the entire brain. Such documentation by means of radionuclide scanning, transcranial doppler studies, or cerebral angiography is confirmatory of the clinical diagnosis of brain death. It is not a necessary criterion to document circulatory failure.

C. Documentation - For the purpose of Organ Retrieval

1. The declaration of the date and time of brain death must be made in the medical records by physicians not members of the organ retrieval or transplant teams, and in full compliance with Hawaii Revised Statutes Section 327C-1.
2. The pronouncing physician will complete the death certificate with the date and time of death. The time of death is when the clinical criteria supporting the diagnosis of brain death were first documented (that is, the time of the first examination where the criteria mentioned in Section A are fulfilled).

3. The death certificate will be inserted in the medical record.
4. If organs will be removed, this should be documented.
5. Document the administration and results of tests and other confirmatory data related to brain death.

D. Documentation - All Other Cases

1. Declaration of the date and time of brain death must be made in the medical records by physicians not members of the organ retrieval or transplant teams, and in full compliance with Hawaii Revised Statutes Section 327C-1.
2. Cessation of life support system including respirator is appropriate after brain death is documented.
3. Death certificate must be filled out with date and time of death. The time of death is when the clinical criteria supporting the diagnosis of brain death were first documented (that is, the time of the first examination where the criteria mentioned in Section A are fulfilled).
4. Document the administration and results of tests and other confirmatory data related to brain death.

E. Methods Of Performing Confirmatory Tests For Death

1. Respiration. Testing for apnea may be done as follows: Ventilate the patient with pure oxygen for ten (10) minutes before withdrawal of the ventilator. When the ventilator is withdrawn, 100% oxygen at a flow rate of 8 to 12 liters/min. should be administered passively through a cannula inserted in the endotracheal tube. Hypercarbia adequately stimulates respiratory effort when the PCO₂ is greater than 60 mmHg. A ten (10) minute period of apnea is usually sufficient to attain this level of hypocarbia. Testing of arterial blood gasses can be used to confirm this level. Spontaneous breathing efforts indicate that portions of the brain stem are functioning. Following this test, reconnect the ventilator. If pulse or blood pressure becomes unstable, or the patient appears cyanotic during apnea testing, immediately reconnect the ventilator. Physician must be present for apnea test.
2. On examining a patient for brain death, the patient should be fully exposed to detect any and all movements.
3. To test the pupillary light reflex, shine a bright light into each eye and observe the pupil closely. Observation of the pupil may be aided with the lens of an otoscope or a +15 lens of an ophthalmoscope.
4. The corneal reflex may be tested by touching each cornea gently with a strand of cotton. A positive response involves movement of the eyelid.
5. Cough and gag reflexes may be tested in a patient with an endotracheal tube by observing the patient during endotracheal suctioning and at the time the oxygen

cannula is inserted during the apnea test.

6. Oculocephalic maneuvers (dolls eyes test) are performed by rotating the head to the extremes of right and left while the head is tilted forward 30 degrees. Any external eye movement (extraocular muscle movement) is inconsistent with the diagnosis of brain death.
7. Oculovestibular reflexes (the caloric response) is tested by irrigating the ear canal with 50 cc of ice water and observing for movement of the eyes for one minute. The test should be performed with the head tilted at 30 degrees.
8. Tests for response to painful stimulation may be performed by applying pressure over the supraorbital nerve (at the medial end of the eyebrow). Other tests may include forcefully pressing down (for example with your thumb nail) on the base of the nail of the patient's small finger and small toe, and/or vigorously and forcefully rubbing the skin over the sternum or applying a deep pinch to the region of the heel cord. Positive responses to any of these confirmatory tests are inconsistent with the diagnosis of brain death.

Attachment: 1. Determination of Brain Death Documentation Form



HAWAII HEALTH SYSTEMS

C O R P O R A T I O N

"Touching Lives Everyday"

Attachment 1

DETERMINATION OF BRAIN DEATH

Date of exam _____

*Time of completion exam _____

Initial Exam

Second Exam

- | | | | |
|----|--|-------|-------|
| 1. | There is no hypothermia (<90 F or 32.2C) | _____ | _____ |
| 2. | There are no potentially reversible toxic-metabolic conditions. If possible anesthetizing levels of toxins or drugs exist, absence of cerebral blood flow has been documented (see cautions) | _____ | _____ |
| 3. | There is no response to painful stimuli. | _____ | _____ |
| 4. | The pupils are fixed. There is absence of corneal, Oculocephalic, Oculovestibular, (cold caloric) and oropharyngeal reflexes. Some spine reflexes may be present. | _____ | _____ |
| 5. | There is no spontaneous respiration in response to apnea testing. | _____ | _____ |
| 6. | The cautions listed in HHSC's Policy No. PAT 0005, Determination and Documentation of Brain Death, have been considered. | _____ | _____ |

ATTESTATION STATEMENT: Having considered the above findings, and the patient has sustained irreversible cessation of all brain functions including the brain stem, we hereby certify death of:

PATIENT NAME: _____ DATE: _____ TIME OF DEATH: _____

PHYSICIAN: _____ PHYSICIAN: _____
(Printed) (Printed)

SIGNATURE: _____ SIGNATURE: _____

*Time of death on death certificate for organ donors.