Grady Health System

Departmental/Patient Care	Page 1 of 6
Grady Memorial Hospital Brain Death Policy	Origination Date: 6/18/2014
	Revision Date: **2/2/2015**

I. POLICY STATEMENT:

Mission statement: To standardize the process of brain death declaration at Grady Memorial Hospital. The policy statement covers the Medical and Surgical Services of Emory, Morehouse and Grady within the Grady Health System. The policy is hospital wide for any surgical or medical patient over 15 years of age who meets the criteria for brain death.

II. PURPOSE:

The diagnosis of brain death is made according to criteria that are determined at the level of individual hospitals. Federal and state legislation defer to physicians regarding criteria and determination of brain death. Therefore, the purpose of this policy is to provide an evidence-based protocol for the process of brain death declaration.

III. PROCEDURES:

1. All declarations of brain death at Grady Memorial Hospital must be documented on the 'Brain Death Determination" form (please refer to "Definitions")
2. A urine toxicology screen and serum electrolytes are REQUIRED for every patient who is undergoing brain death exam. The results should be recorded in the chart at the time of declaration. The declarant must confirm that they believe there is no significant metabolic abnormality that is contributing to the findings on neurologic exam.
3. There must be clinical or neuro-imaging evidence of an acute CNS catastrophe that is compatible with the clinical diagnosis of brain death.
4. Establishing the cause and irreversibility of coma requires the physician to wait an appropriate period of time sufficiently long to exclude the possibility of recovery. A brain death determination should never be made within the first 24 hours following cardiac arrest if hypoxic ischemic encephalopathy is the primary cause of brain injury.
5. The physician must determine that there are no confounding factors that would interfere with clinical brain death testing such as use of sedation, metabolic derangements and hypothermia after cardiac arrest. If any potential confounding factors are present, Neuro Critical Care (pager #50550) should be consulted to determine need for and appropriate confirmatory testing.
6. The patient's authorized decision maker, if reasonably available, must be notified in advance that a clinical brain death exam is being performed but their consent is NOT required for performing the exam.

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7. Each item of the "'Brain Death Determination/Confirmation using Clinical Examination" form MUST be completed by the physician signing the form.
8. Note that only ONE clinical brain death examination and ONE apnea test must be documented by a qualified physician (please refer to "Definitions") in order to declare brain death.
9. Any physician participating in procedures for the removal or transplantation of organs is disqualified from the determination or confirmation of brain death.
10. For the apnea test:
    a. The physician performing the exam, a Respiratory Therapist and nurse must be present for the apnea test.
    b. Patient must have a minimum core temperature of ≥ 36 degrees Celsius.
    c. Pre-oxygenate the patient for 10 minutes on 100% FiO2 with goal PaO2 > 200 mmHg.
    d. Draw a baseline ABG - the ABG must demonstrate normocarbia in order to proceed. This ABG specimen must be sent to the lab (ie it cannot be an I-STAT) and must be within 2 hours of apnea test.
    e. Disconnect the patient from the ventilator while administering high-flow oxygen and maintain for 10 minutes or until the patient's physiologic status no longer tolerates apnea.
    f. Draw an ABG at 10 minutes. To expedite results, this ABG can be run on an I-STAT.
    g. If the pCO2 is ≥ 60 mmHg or increases ≥ 20 mmHg from baseline with no respiratory effort, the test is consistent with brain death.
    h. The apnea test can be continued until the ABG meets criteria or the patient becomes hemodynamically unstable.
    i. An apnea test should be attempted prior to proceeding with a confirmatory test, unless as specifically suggested through Neuro Critical Care consultation.
11. If ONE clinical brain death examination and ONE apnea test are successfully performed, a confirmatory test is NOT required.
12. If the ONE clinical brain death examination with apnea test cannot be completed due to the patient's hemodynamic instability, then a confirmatory test must be completed.
13. If any criteria on the *Brain Death Determination/ Confirmation Using Clinical Examination Form* is not met, then Neuro Critical Care (pager #50550) must be consulted to decide if confirmatory testing is required and which confirmatory test is most appropriate.
14. For the Neurologic Examination, either the oculocephalic OR the oculovestibular reflexes (or both) must be tested; if neither one can be completed (i.e. the patient is in cervical spine precautions and the auditory canal is obstructed) then confirmatory testing is required.
15. For special circumstances, such as pregnant women, the case should be referred to Neuro Critical Care (pager #50550)
16. Once a patient has been declared brain dead the checklist must be completed and placed in the patient's chart. The declaring physician must also utilize the Epic template note (..Braindeath) to document their findings and time of death.
    a. The time of death will be the time the final ABG is drawn for the apnea test.
    b. If confirmatory testing is required, the time of death is the time of Radiology read/interpretation.
17. Once a patient has been declared brain dead, a reasonable amount of time, up to 24 hours or as appropriate determined by the primary team, should be allowed for the family to visit prior to removal of the ventilator. This should be considered a reasonable accommodation which includes the continued provision of ventilator support and routine nursing care. Reasonable

accommodation does not require performance of any diagnostic or therapeutic procedures, including, but not limited to, blood tests, radiologic studies, physiologic monitoring, administration of medications for any purpose, nutrition or hydration support, cardiopulmonary resuscitation, or treatment in critical care unit. In the event that there is a lack of acceptance by the family of the concept of death based on neurologic criteria or religious objection, an ethics consult can be requested.

18. Any resuscitative efforts after the determination of brain death are to be under the discretion of Life Link for organ donation purposes.
19. Once a patient has been declared brain dead and the family wishes to proceed with organ donation, ANY physician (including any Attending, Fellow or Resident) may perform procedures deemed necessary by Life Link (i.e. central lines, arterial lines, bronchoscopy, etc.)
    a. The Attending who declared brain death is permitted to perform necessary procedures.
    b. All necessary procedures MUST be performed in a timely fashion.
20. Patients who are between 15 and 17 years of age are considered pediatric patients. The following variations will be observed due to national standards for pediatric and adolescent patients:
    a. Two clinical brain death examinations will be performed 12 hours apart by two different credentialed faculty or fellows.
    b. An apnea test will be performed with the second clinical brain death exam.
        i. If the patient is unable to tolerate an apnea test, a confirmatory test will be performed after consultation with Neuro Critical Care (pager #50550).
        ii. EEG, transcranial doppler ultrasonography, or radionuclide cerebral blood flow study are considered acceptable confirmatory tests in this age group.
21. All challenges and concerns related to the new protocol will be addressed and mediated by the Brain Death Protocol Committee.
    a. The Committee will meet on a regular basis to assess appropriate use of, and adherence to, the protocol for Quality Improvement purposes.
    b. The committee will convene on a regular basis to make changes to the protocol deemed necessary.
    c. The current committee Chair or Co-chair will update the protocol every 2nd year or sooner if indicated. In the event that neither the Chair nor Co-chair is available, this responsibility will be directed to the chief of service or their designee.

Brain Death Determination/Confirmation using Clinical Examination Form	**Results**
<u>Mechanism</u>	
Clear Mechanism for Brain Death	[ ]
No toxins/drugs on urine toxicology screen	[ ]
No metabolic abnormalities	[ ]
No sedation which could influence clinical examination	[ ]
<u>Vital Signs</u>	
Temperature (*must be ≥36° C*)	[ ]
Blood pressure (*absence of hypotension or stable vital signs on vasopressors*)	[ ]
<u>Neurologic Examination</u>	
Response to verbal stimuli absent	[ ]
Pupils non reactive	[ ]
Corneal reflexes absent	[ ]
Oculocephalic reflex absent (*for patient not in c-spine precautions*)	[ ]
Oculovestibular reflex absent (*for patient in c-spine precautions*)	[ ]
Gag/cough reflex absent	[ ]
Motor response to noxious stimulation absent	[ ]
Apnea test (*pCO2 ≥60 mmHg or 20 mmHg above baseline)* • Pre-test ABG: _____ • Post-test ABG: _____ • Duration of apnea ventilation _____	[ ]

Much meet all above criteria to declare clinical brain death based on clinical exam.

I certify that I have performed the tests indicated above according to hospital policy and that this patient is brain dead.

_____ _____ _____ _____

Licensed physician Signature ID Number Date Time

Brain Death Determination/Confirmation using Objective Tests	Test used	Positive	Negative
4-vessel cerebral angiography	[ ]	[ ]	[ ]
EEG	[ ]	[ ]	[ ]
Transcranial Doppler Ultrasound	[ ]	[ ]	[ ]
Radionuclide cerebral blood flow study	[ ]	[ ]	[ ]
Somatosensory Evoked Potential (SSEP)	[ ]	[ ]	[ ]

I certify that a diagnostic study was achieved. The result of this test meets objective criteria for brain death.

_____ _____ _____ _____

Licensed physician Signature ID Number Date Time

IV. DEFINITIONS:

Confirmatory Tests

- Four -Vessel Angiography - Brain death confirmed by demonstrating the absence of intracerebral filling at the level of the carotid bifurcation or Circle of Willis.
- EEG – Brain death confirmed by documenting the absence of electrical activity during at least 30 minutes of recording that adheres to the minimal technical criteria for EEG recording in suspected brain death as adopted by the American Electroencephalographic Society, including 16-channel EEG instruments.
- Transcranial Doppler Ultrasonography– Brain death confirmed by small systolic peaks in early systole without diastolic flow, or reverberating flow, indicating very high vascular resistance associated with greatly increased intracranial pressure.
- Radionuclide cerebral blood flow study – Brain death confirmed by absence of uptake of isotope in brain parenchyma and/or vasculature, depending on isotope and technique used ("hollow skull phenomenon").
- Somatosensory evoked potentials - Brain death confirmed by bilateral absence of N20-P22 response with median nerve stimulation. The recordings should adhere to the minimal technical criteria for somatosensory evoked potential recording in suspected brain death as adopted by the American Electroencephalographic Society.

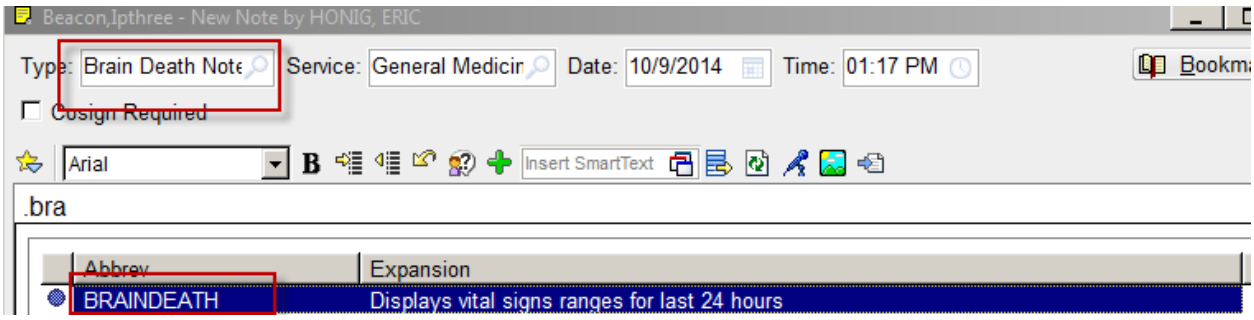
Physicians Qualified to Declare Brain Death

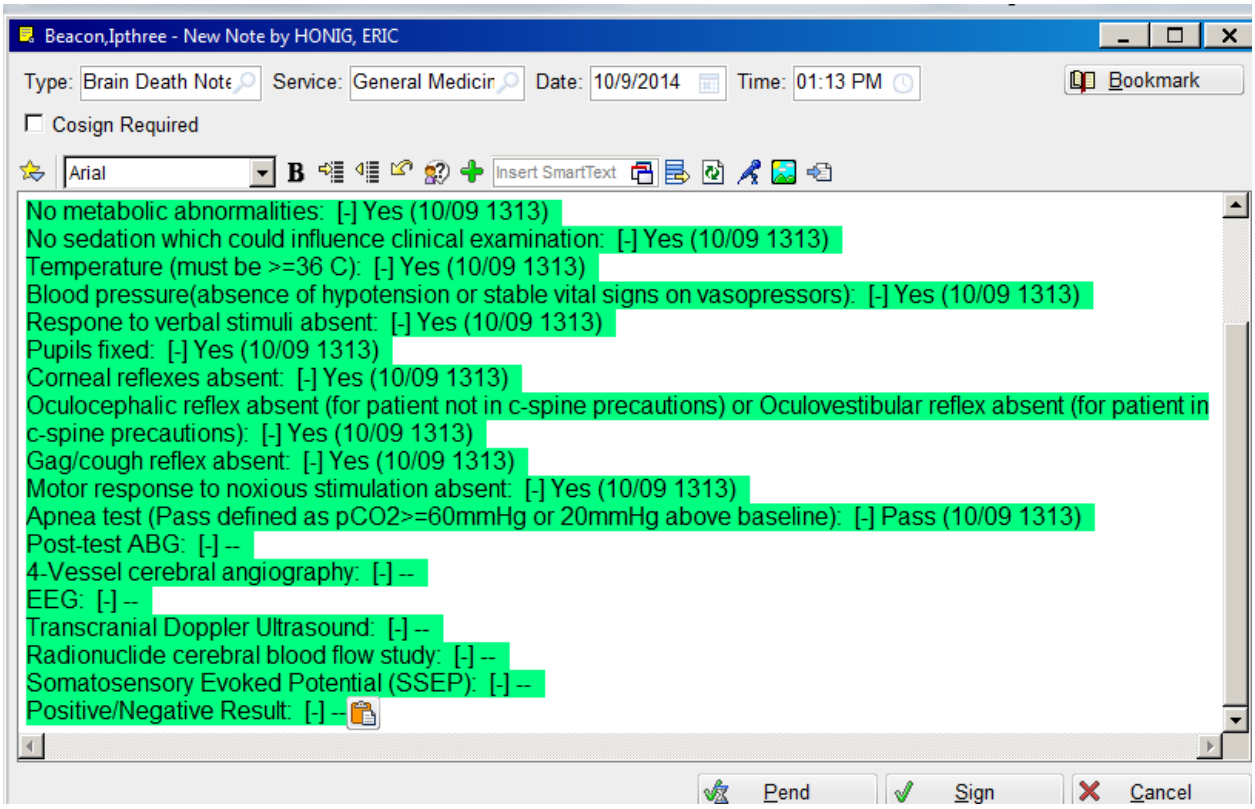
- Eligible physicians must either attend in an intensive care unit (ICU) and have responsibility for the critical care management of patients, or be an ICU Fellow.
    - This includes any Pulmonary Critical Care Fellow/Attending, Surgical Critical Care Fellow/Attending, Neurology Fellow/Attending, Neuro Critical Care Fellow/Attending, and Neurosurgery Attending.
- ONLY Attending physicians and Fellows who have completed the required training (viewing Cleveland Clinic *Portal for Death by Neurological Criteria* tutorial (https://www.cchs.net/onlinelearning/cometvs10/dncPortal/default.htm) and completion of post-test) can declare brain death.
- A credentialed Fellow may declare brain death without an Attending co-signature.
- Documentation of credentialing will be maintained in the Medical Staff Services Office (this may include the CME certificate printed at the conclusion of the course OR the final page of the tutorial).

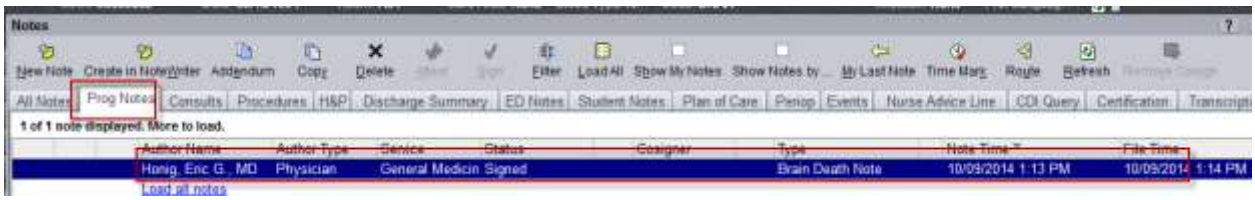
Brain Death Determination Smart Form

- The Brain Death Determination Smart form can be found under the "Rounding" tab all the way to the left when you open the patient's Epic chart.
- Click on "Rounding" and the Brain death form should be the last one listed under the flowsheets.
- Once all relevant information has been filled in, click 'Next", and it will automatically be saved as a flowsheet. It must then be saved as a Progress note to make it a permanent part of the patient's record.
- To save it as a progress note, open the "Notes" tab, click on "New Note" and enter "Brain Death Note" as the note type.

- In the body of the note, type in the dot phrase .BRAINDEATH to import the most recent results from the form (please refer to screen shots below for further clarification).







Brain Death Protocol Committee:
Chair - Rondi Gelbard, MD - Emory Trauma/Surgical Critical Care Faculty
Co-chairs - Anuradha Subramanian, MD - Emory Trauma/Surgical Critical Faculty, Medical Director,

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SICU
Leslie Ghisletta - Emory Trauma/Surgical Critical Care Fellow

Members - Ken Wilson, MD – Morehouse Chief of Trauma
Arthur Jackson Fountain, MD – Grady Chief of Radiology
Vishal Patel, MD – Grady Neurology/Neuro Critical Care
Alexis Frederick, MSN, CEN, ANCP – BC – Morehouse Surgery
Jason Lesandrini – Grady Ethics
Michael Grossman – Grady SICU Nurse Practitioner
Bisa Ajanaku – Grady Office of Legal Affairs
Kim Kottemann – LifeLink of Georgia Manager
MeShona Walker – LifeLink of Georgia Coordinator
Sarina Jackson – LifeLink of Georgia Coordinator

V. REFERENCES, CROSS REFRENCES OR REGULATORY INDEXING:

This policy has been developed using references from the following publication(s): The American Academy of Neurology 2009 Guidelines (*Neurology* 2010;74:1911-1918). This policy is developed to guide organizational adherence to the Uniform Determination of Death Act, drafted by the National Conference of Commissioners of Uniform State Laws.