



## Determining When the Adult Brain Is Dead

New guidelines are published

*Neurology, 8 juni 2010*

One of the things most likely to entice controversy in medical care is taking people off life support. Determining when a patient is brain-dead is surprisingly difficult, and doctors and family members need to make very difficult decisions when considering terminating life support. In order to make this job somewhat easier, researchers have recently published a new set of guidelines, which provide experts with a step-by-step process in determining when the adult brain is really dead. The new document does not apply to the infant brain, the people behind it say.

"Many of the details of the clinical neurological examination to determine brain death cannot be established by evidence-based methods. Our goal was to develop a detailed brain death evaluation protocol that would be a useful tool for clinicians," says neurologist Panayiotis N. Varelas, who was one of the coauthors for the new guidelines. He is based at the Henry Ford Hospital Department of Neurology & Neurosurgery, where he is the director of the Neuro-Intensive Care Service. Details of the work appear in the June 8 issue of the American Academy of Neurology's (AAN) respected medical journal *Neurology*.

The most important new feature of the document is an improvement it carries over the last set of guidelines, published back in 1995. This is a check-list of things that doctors need to verify, before finally concluding certainly that a brain has expired. Generally, the concept of brain death refers to the instances in which the brains of patients become unable to sustain their bodily functions without the assistance of advanced life support devices, such as mechanical ventilation machines and feeding tubes. This state can be the result of an accident, in which the central nervous system is severely affected, through compression, piercing or any other means.

In addition to severe traumatic brain injury, stroke and prolonged CPR can also cause the brain to die. The new guidelines identify three main conditions that need to be met to declare a person brain-dead. The first is the presence of a coma with established origins, the second is the complete shutdown of all brainstem reflexes, and the third is the termination of breathing. The last condition can be easily verified, given that people who stop breathing can only be kept alive through artificial ventilation.

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