



# Final Statement of the Working Group on The Determination of Brain Death and its Relationship to Human Death



## Final Considerations Formulated by the Scientific Participants

At the invitation of the Pontifical Academy of Sciences, a Working Group met on 11-12-13-14 December 1989 to re-examine the conclusions on the determination of death reached at a similar meeting in 1985. The Working Group reviewed recent progress in the medical-scientific field concerning severe cerebral damage and related advances in reanimation. Considerable time was given to a profound discussion on related moral, philosophical and theological issues. In the medical session of the Working Group, we mainly dealt with the definition of death and the criteria for establishing the diagnosis of death. We concluded, as did the 1985 meeting, that it is well-established that when the whole brain has suffered a complete and irreversible loss of function (brain death), any possibility of mental activity and coordination of bodily functions is definitively abolished, even if some bodily functions like heart activity and respiration can be maintained artificially for a brief period of time.

### I. Clinical Definition of Death

A person is dead when there has been total and irreversible loss of all capacity for integrating and coordinating physical and mental functions of the body as a unit.

Thus death has occurred when:

- a) Spontaneous cardiac and respiratory functions have irreversibly ceased, which rapidly leads to a total and irreversible loss of brain functions, or
- b) There has been an irreversible cessation of all brain functions, even if cardiac and respiratory

functions which would have ceased have been maintained artificially.

From the renewed discussions at this 1989 Working Group several general conclusions have emerged: from the present discussion, it again appears evident that the establishment of total and irreversible loss of all brain functions is the true medical criterion of death and that this criterion can be established in two ways. Either indirectly by establishing the cessation of circulation and respiration or directly by demonstrating the irreversible loss of all brain functions (brain death). This present group of 1989 has also reviewed the various clinical methods which determine this irreversible cessation of all brain functions. We have concluded that the previous and almost universally accepted guidelines to establish the indirect and direct criteria of death are still valid. They include a clinical history and examination of the patient and may involve the establishment of electrocerebral silence, as well as the absence of cerebral circulation as confirmatory evidence. Previous warnings, also generally accepted, indicate that these criteria cannot be applied in patients who are under the influence of drugs or are in a state of hypothermia. The Working Group also emphasized the need for a sufficient period of observation, which includes repeated documentation of the criteria mentioned in order to establish the diagnosis of death. These criteria do not apply to the human life in utero.

## **II. Differential Diagnosis of Death**

The 1989 Working Group also considered the differential diagnosis of brain death. The discussion demonstrated that there are still misunderstandings prevalent amongst the general public and also within the medical profession about chronic states of severe brain damage which might be confused with the above defined state of brain death. It is generally agreed by the Working Group, based on evidence from a vast clinical literature, that these cases of chronic severe brain damage still have retained some, however reduced, brain functions, hence that they cannot be included under the above definition of brain death. They are patients who need care and also treatment.

## **III. Artificial Prolongation of Organ Functions**

In case of brain death, artificial respiration can prolong cardiac function for a limited time thus permitting a short period of survival for organs for the possibility of transplantation. This is possible only in cases of complete irreversible loss of all brain functions (brain death).

The 1989 Working Group is aware of the fact that the deliberations have not covered all problems related to death, thus it remains for future discussions to consider: 1) The detailed consequences for transplantation, 2) The special problems related to the diagnosis of death in embryos, foetuses and infants, as well as the use of foetal tissues for transplantations.