

DEFINING DEATH

FROM MEDICINE TO LAW

Giovanni Spitale, MA, PhD student – Research Assistant @IBME, UZH



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AIMS



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1. Present the evolution of the descriptive definition of death
2. Present the evolution of the bioethical debate on death
3. Present the normative and legal implementation

TOPICS



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1. A (short) historical perspective
2. Defining principles
3. Translating to law
4. Discussion

1. A (SHORT) HISTORICAL PERSPECTIVE



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1720 - 1722

Joyful times: during the Great Plague of Marseille it was common practice to insert a pin under the nails of the toes of the plague victims to determine if they were still alive.



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1740

Jacques – Bénigne Winslow writes about the unreliability of diagnostic systems and considers putrefaction the only certain sign of death (1740)

(Dissertatio an mortis incertae signa minus incerta a Chirurgicis, quam ab aliis experimentis? Paris 1740)

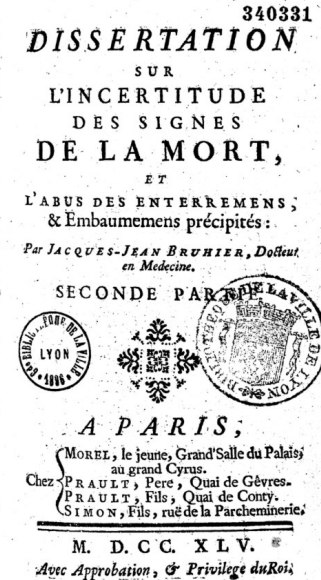


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1740

the nostrils of the individual had to be irritated by introducing "sternourishers, errhines, juices of onion, garlic and horseradish". They could also be tickled with a feather, while others preferred to push a pencil well pointed in the nose of the corpse. the gums were to be rubbed with garlic, and the skin irritated by the liberal application of "whips and nettles". The intestines could be irritated by the most acrid enemas, the limbs agitated by violent bumps, and ears shocked "by horrible cries and excessive noise". Vinegar was poured into the mouth of the corpse "and where it is not available, it is customary to pour hot urine into it, as it has been observed to produce happy effects."



Merry readings for nice dreams



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1752

Antoine Louis, Royal Surgeon at the Salpetriere Hospital, Paris, suggests observing rigor mortis and intraocular pressure as secure signs of death; he also develops a system to test for false positives...

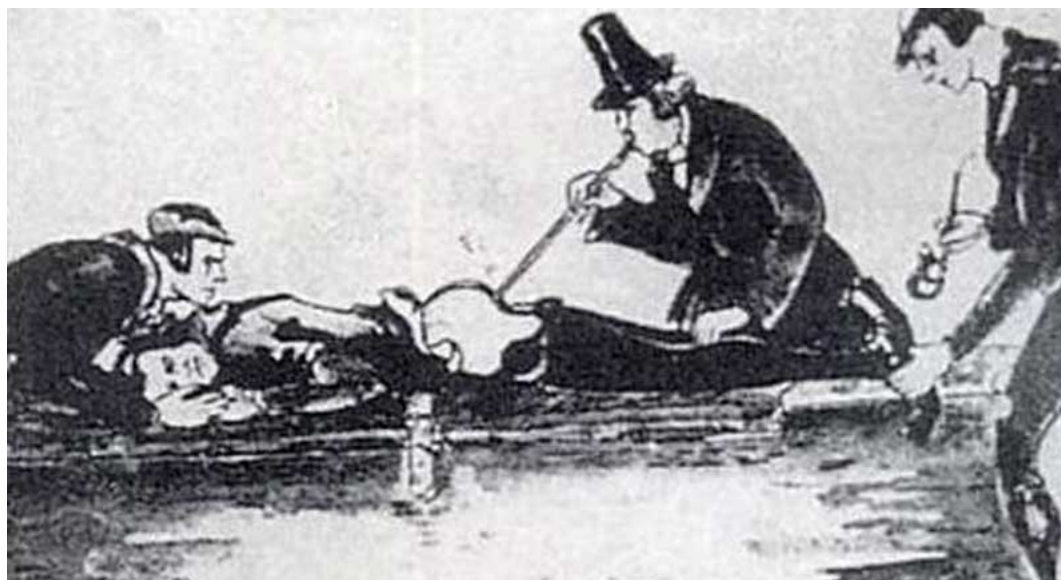
(Lettres sur la certitude des signes de la mort, Paris 1752)



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1752



... Tobacco enemas!



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1837

Pietro Manni, Professor of toxicology at Rome and Naples, starts and finances a competition to find an effective system to assess death.
The proposals are at least peculiar.

(J. Bondeson, Buried Alive. The terrifying history of our most primal fear, W.W. Norton & Company, 2002.)



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1837

- Leeches placed on the anus;
- Thermometers to measure the temperature of the stomach;
- Pliers to apply electric currents at the nipples;
- Boiling of the limbs;
- Long needles with a flag at the end to be planted in the heart of the supposed corpse;
- ...



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1838

Eugene Bouchout, accepting Bichat's intuitions on the “tripod of life” (cardiocirculatory, respiratory and nervous system), suggests using the stethoscope (recently invented by Laennec) to ascertain the absence of a heartbeat.

He did not win Manni's competition

(The tripod of Life, British Medical Journal, 1969, 1898, p. 916)



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1892 - 1894

First link between absence of intracranial circulation and respiratory arrest:

1892: Jalland reported a case where removal of an abscess and the consequent lowering of intracranial pressure had allowed the patient to resume spontaneous respiration, which had ceased for a few minutes;

1894: Horsely asserted that patients with cerebral hemorrhages, brain tumours and depressed cranial fractures did not die from cardiac arrest, but from respiratory arrest.

(C. Machado et al., the concept of brain death did not evolve to benefit organ transplants, Journal of Medical ethics, 4, 2007, pp. 197-200.)



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1929

Berger invents the electroencephalogram, and within a year Crile attributed the cause of death to the mere fall of electrical potential between different tissues.

(C. Machado et al., the concept of brain death did not evolve to benefit organ transplants, Journal of Medical ethics, 4, 2007, pp. 197-200.)



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1938 - 1939

1938: Sugar and Gerard demonstrated the abolition of electrical potentials in the brain through the occlusion of carotids;

1939: Crafoord stated that death was caused by the interruption of blood vessels to the brain, which in turn could depend on a number of causes, from arterial occlusion to cardiac arrest.

(C. Machado et al., the concept of brain death did not evolve to benefit organ transplants, Journal of Medical ethics, 4, 2007, pp. 197-200.)



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1959

Mollaret and Goulon define the coma dépassé, a condition of deep coma with :

- no spontaneous respiration
- no nervous reflexes,
- polyuria,
- low blood pressure,
- total absence of brain electrical activity

highlighting how only artificial ventilation and norepinephrine infusion could delay the inevitable cardiac and respiratory arrest.

(C. Machado et al., the concept of brain death did not evolve to benefit organ transplants, Journal of Medical ethics, 4, 2007, pp. 197-200.)



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2. DEFINING PRINCIPLES



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1968

Harvard Report and Sidney Declaration specify the neurological standard for death assessment.



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HARVARD REPORT

- Uses the notion of “irreversible coma”
- Adopts a *quite* utilitarian standpoint: “The **burden** is great on **patients** who suffer permanent loss of intellect, on their **families**, on the **hospitals**, and on **those in need of hospital beds** already occupied by there comatose patients. (2) Obsolete criteria for the definition of death can lead to controversy in **obtaining organs** for transplantation”

Defines four principles:

- Unreceptivity and Unresponsivity: total unawareness to stimuli;
- No spontaneous movements or breathing (for at least one hour);
- No reflexes;
- Flat EEG

(Ad Hoc Committee of the Harvard Medical School to Examine the Definition of Brain Death, A definition of irreversible Coma, Journal of American Medical association, 6, 1968, pp. 337-340.)



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SIDNEY DECLARATION

- Uses the notion of “death”
- Provides a *somehow* ontological/existentialist definition: “death is a **gradual process** at the cellular level with tissues varying in their ability to withstand deprivation of oxygen. But **clinical interest** lies not in the state of preservation of isolated cells but **in the fate of a person**”.
- Touches the points of resuscitation and organ donation (without being utilitarian): “Determination of the point of death of the person makes it ethically permissible to cease attempts at resuscitation and in countries where the law permits, to remove organs”

It is more vague in defining a procedure:

- Diagnostic aids, in particular EEG;
- Judgement of the physician

(C. Machado, J. Korein, Y. Ferrer, L. Portela, M. de la C. Garcia, M. Chinchilla, Y. Machado, Y. Machado, J. M. Manero, The Declaration of Sydney on human death, in Journal of Medical Ethics, n° 33/2007, p. 701.)



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1981

Defining Death: this document deals with the subject in a widespread manner, analyzing the history, implications, criticalities and the possible interpretations of different conceptualizations of death. The conclusion is substantially an endorsement of the “Harvard Standard”

(President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research, Defining death: A Report on the Medical, Legal and Ethical Issues in the Determination of Death, 1981)



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3. TRANSLATING TO LAW



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ITALY

- L. 644/1975: the law on **organ transplantation** contains also the **definition of death**;
- 1991: the National Committee for Bioethics **suggests to separate the two things** in order to avoid any possibility of instrumentality;

- L. 578/1993: new **separate law defining death** (still in force) as “the irreversible cessation of all functions of the brain”
- Specifies that “death is one” (and the etiological primacy is neurological) but can be **assessed with both criteria**:
 - **cardiocirculatory** (flat ECG, 20 min.)
 - **neurological** (Harvard standards with EEG, at least 6 hours)



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SWITZERLAND

- 1999: the Constitutional Article 119a (on **organ donation**) is voted and approved;
- 2004: on that ground, the Federal Council passes the Federal Act on the Transplantation of Organs, Tissues and Cells (**Transplantation Act**), containing (art. 9) the criteria for determining death: “A person is dead if the functions of his or her brain, including the brain stem, have ceased irreversibly.”
- 2017: SAMW guidelines on “**Determination of Death** with Regard to Organ Transplantation and Preparations for Organ Removal”:
 - **primary brain damage**: observation with Harvard standards (clinical signs) plus demonstration of cerebral circulatory arrest;
 - **cardiac arrest**: observation with Harvard standards (clinical signs) after at least five minutes from the cardiac arrest.



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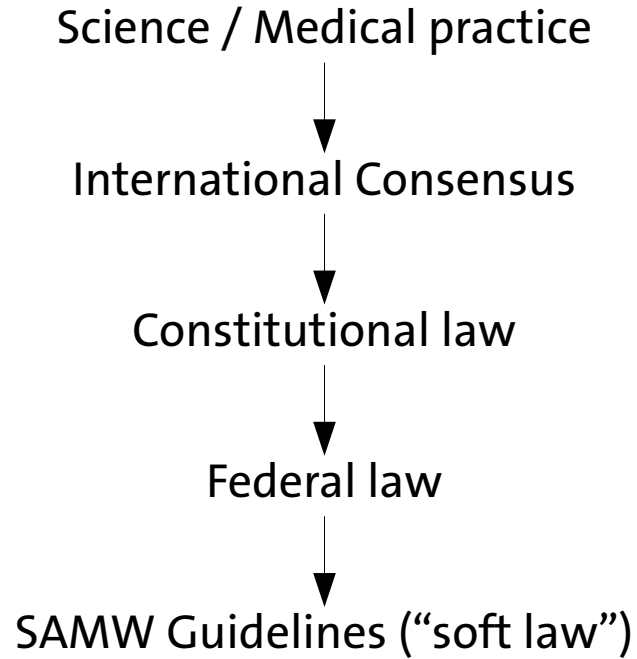
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4. DISCUSSION



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THANKS FOR YOUR TIME.

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