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Dear Commissioners

Submission to the Review of Human Tissue Laws

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Please find attached a submission to the Inquiry. I make this submission on behalf of myself, Prof Ian Kerridge, Dr Lewis Macken and Dr George Skowronski. The submission has been accepted for the Journal of Law and Medicine and will appear in the next issue.

I would be very happy to speak to any further queries you have relating to this submission.

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Debates about Death Definitions: Six Truths We Need to Accept

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The 2025 Australian Law Reform Commission (ALRC) Inquiry into Human Tissue presents an opportunity for the Australian public to discuss the legal definition of death. Questions about death are not simply medical questions – they are deeply inscribed with legal, ethical and sociocultural concerns. In thinking through these concerns, it is crucial that we do not simply reiterate current practices or norms. We need to reach a position that is biologically accurate, clinically appropriate, culturally informed and philosophically and ethically sound. In doing so we should also not presume what the public may or may not accept without clear evidence to support any assertion made. Given the definition of death is teleological we must recognise that there may be other public goods worth pursuing apart from organ and tissue donation. This column posits several truths that we believe it is necessary to recognise for the current debate to proceed on a sure footing.

Keywords: *death; brain death; law reform*

I. INTRODUCTION

The Australian Law Reform Commission (ALRC) has opened a *Review of Human Tissue Laws*,[1] the first since its original review in 1977.[2] Part of the 2025 review involves examining the definition of death that is employed by States and Territories in Australia.[3] In this section we will briefly examine the current definitions of death in Australia and their development as part of a wider history of common law death determination. We argue that public debate about how to define death should be based on some basic shared understandings about the kinds of death definition we currently employ.

Over 15 years ago, a controversy arose in Australia over death definitions, as it was argued by intensivist, James Tibballs, that the practice of death diagnosis did not satisfy the legal definition of death, both in relation to brain death (for recently described as "neurological death") and to circulatory criteria.[4] His provocative, but, we think helpful, work, prompted some concerns that such types of criticism would

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[1] ALRC, *Review of Human Tissue Laws,* Issues Paper 51 (May 2025) <https://www.alrc.gov.au/wp-content/uploads/2025/05/HT-issues-paper-2025.pdf>.

[2] ALRC, *Human Tissue Transplants*, Report No 7 (1977).

[3] ALRC, n 1, 12.

[4] J Tibballs, "The Non-compliance of Clinical Guidelines for Organ Donation with Australian Statute Law" (2008) 16 JLM 335.

create public fear and distrust of organ donation.[5] We agree with Naffine et al,[6] that we have a responsibility as legal and bioethical scholars to speak responsibly about death and how it should be defined, and it is in that spirit that we offer the following perspectives on definitions of death.

II. Legal Definitions of Biological Death in Human Beings

A. The Common Law's Definition of Biological Death

The common law has always relied heavily on the medical profession for a definition of the biological death of a human being. The legal definition of biological death at common law has followed the medical one and has changed and adapted over time.[7] By the 17th century, and with the emergence of the pre-modern medical profession, a person was identified as dead when their heart had stopped beating.[8] A hundred years later, medicine would look for evidence of asystole, lack of respiration, rigor mortis, non-pulsatile arteries, pupil dilation, anal laxity, cloudy corneas, muscle depression, hypothermia, and putrefaction.[9] In the 20th century attention there to be more generalised acceptance.[10] By the 1950s the concept of brain death was described by Mollaret and Goulon's study of "coma dépassé", a coma from which there was no return.[11] This definition of death gained further acceptance in 1968 with the Ad Hoc Committee of Harvard Medical School's definition of "irreversible coma" and in 1981, the definition of "brain death" was accepted as being synonymous with the death of organism as a whole, by the United States President Commission.[12]

B. Brain Stem Death as the Common Law Definition of Death

The common law definition of death is reliant on the death of the brain stem, that part of the brain which controls autonomous functions. The criteria for a determination of brain death are largely dependent on analysis of the functions of the brain stem. The result has been that the terms "brain death" and "brain stem death" are often used interchangeably,[13] with the result that the common law definition of death is brain stem death.

In the United Kingdom, where there is no statutory definition of death, the courts have consistently employed brain stem death as the legal definition. One of the first cases to do so was *Re A*[14] where there was a question of the status of a young boy who suffered a head injury. The trial judge found that even though the child's autonomous functions were being carried on by artificial means after the child had

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[5] N Naffine et al, "Scaring Us All to Death: The Need for Responsible Legal Scholarship on Post-mortem Organ Donation" (2009) 16 JLM 696. See also J Tibballs and N Bhatia, "Transplantation of the Heart after Circulatory Death of the Donor: Time for a Change in Law?" (2015) 203(6) *Medical Journal of Australia* 268; J Tibballs and N Bhatia, "New Challenges to the Legal Definition and Medical Determination of Brain Death: A Multi-jurisdictional Approach – Cases from the United States, the United Kingdom, Canada and Australia" (2021) 28(3) JLM 83; N Bhatia and J Tibballs, "Heart Transplantation after Circulatory Death: It Is Time to Redefine Death According to Irreversible Cessation of the Circulation and Reconcile It with Irreversible Cessation of Brain Function" (2022) 45(3) *University of New South Wales Law Journal* 914.

[6] Naffine et al, n 5.

[7] C Stewart, "Legal Constructions of Life and Death in the Common Law" (2002) 2(1) *Oxford University Commonwealth Law Journal* 67.

[8] I Kerridge et al, "Death, Dying and Donation: Organ Transplantation and the Diagnosis of Death" (Topics for Attention, AIHLE Issues Paper No 10, Murdoch Institute, 1999).

[9] K Boyd, "Attitudes to Death: Some Historical Notes" (1997) 3 *Journal of Medical Ethics* 124.

[10] Kerridge et al, n 8.

[11] Kerridge et al, n 8.

[12] Kerridge et al, n 8.

[13] B Jennett, "Brain Stem Death Defines Death in Law" (1999) 318 *British Medical Journal* 1755; D Lamb, *Death, Brain Death and Ethics* (Croom Helm, 1988).

[14] *Re A* [1992] 3 Med LR 303.

died when his brain stem had ceased to function.[15] Later cases have continued to adopt brain stem criteria, recognising the medical profession's central role in establishing guidelines for testing for brain stem death.[16]

C. Current Australian Legislative Definitions

Currently, Australian States and Territories define death by reference to two criteria:

- irreversible cessation of all functions of the brain ("total brain death" or "neurological death" or "death by neurological criteria"); or
- irreversible cessation of blood circulation ("circulatory death" or "cardiac death").[17]

These definitions override the common law definition of brain stem death. These definitions were brought into the legislation of the States and Territories as a response to recommendations in the ALRC's 1977 report.[18] The view of the ALRC was that legislative reform was necessary because the common law's approach to death was uncertain. It was particularly important to clarify death in order to legally stabilise the grounds for the use of organs in transplantation. As discussed by Naffine et al:

> The current death definitions, which are now well accepted, seek to promote the social good of saving or vastly improving the lives of people who need organs by ensuring that viable organs which might save them are not buried or incinerated with the dead. Traditional diagnosis of death based on cessation of circulation could not accommodate either withdrawing treatment or explanting organs from the brain dead. The donation laws which employ these definitions seek to promote the social good of permitting altruistic donation but criminalise the sale of organs (which is associated with the evil of human rights abuse). At the same time, they aim to promote the good of respecting the wishes of the donor to make altruistic decisions about the post-mortem use of their organs (reflecting the fundamental legal principles of autonomy and consent) but avoid the evil of premature removal of organs (the legal principle of respect for bodily integrity).[19]

The ALRC did not specifically refer to the method for determining that there had been an irreversible cessation of all brain function. Today, that function is primarily performed by the Australian and New Zealand Society of Intensive Care (ANZICS) and the National Health and Medical Research Council (NHRMC).[20] The ALRC report expressly refused to posit detailed criteria to be included in the legislation, so as to allow the medical profession flexibility in developing ways to diagnose brain death.

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[15] Similar comments on "death" being brain stem death can be found in (see below for commentary on these cases). In the United States the common law of various states has adopted the brain death definition: *Re Bowman*, 617 P 2d 731 (1980); *Re Alvarado*, 547 NYS 2d 190 (1989); *People v Eulo*, 63 NYS 341 (1984).

[16] *R v Malcherek & Steel* [1981] 2 All ER 422; *Airedale NHS Trust v Bland* [1993] AC 789; *Smeaton v Secretary of State for Health* [2002] EWHC 610 (Admin); *Oxford University NHS Trust v AB (A Minor)* [2019] EWHC 3516 (Fam); *Re M (Declaration of Death of Child)* [2020] 4 WLR 52; [2020] EWCA Civ 164; *A Health and Social Care Trust v RL* [2022] NIFam 17; *Guy's and St Thomas' NHS Foundation Trust v A* [2022] EWHC 2422 (Fam); *Re A (A Child)* [2022] EWHC 1873 (Fam); *North West Anglia NHS Foundation Trust v BN* [2022] EWHC 663 (Fam); *Barts Health NHS Trust v Dance; Re Archie Battersbee* [2022] EWCA Civ 935; *St George's Hospital NHS Foundation Trust v Casey* [2023] EWCA Civ 1092; *University Hospitals Bristol and Weston NHS Foundation v The Mother of G* [2024] EWHC 1288 (Fam). See also Academy of Royal Medical Colleges, *A Code of Practice for the Diagnosis and Confirmation of Death 2025 Update* (2025) <https://www.aomrc.org.uk/wp-content/uploads/2025/01/Code_of_Practice_Diagnosis_of_Death_010125.pdf>.

[17] See *Transplantation and Anatomy Act 1978* (ACT) s 45; *Human Tissue Act 1983* (NSW) s 33; *Human Tissue Transplant Act 1979* (NT) s 23; *Death (Definition) Act 1983* (SA) s 2; *Human Tissue Act 1985* (Tas) s 27A; *Human Tissue Act 1982* (Vic) s 41; *Interpretation Act 1984* (WA) s 13C. This definition has effect for all laws within each jurisdiction, except in Queensland (*Transplantation and Anatomy Act 1979* (Qld) s 45) where the definition is only relevant in the context of organ donation.

[18] ALRC, n 2.

[19] Naffine et al, n 5, 699.

[20] See ANZICS, *The Statement on Death and Donation* (2017) <https://www.anzics.org/death-and-organ-donation/>; ANZICS, *Brain Death Determination Statement* (2021) <https://www.anzics.org/death-and-organ-donation/>; National Health and Medical Research Council, *The Ethical Guidelines for Cell, Tissue and Organ Donation and Transplantation in Australia* (2017) <https://www.nhmrc.gov.au/research-policy/ethics/ethical-guidelines-cell-tissue-and-organ-donation-and-transplantation>.

The ALRC's stated intention was that the death definitions should have general application and not be limited to any particular kinds of patients or to patients on life support.[21] We think this evidenced a desire on the part of the ALRC to de-couple brain death from being totally a function of organ donation but, as we will argue below, that is not reflected in the current practice of brain death diagnosis.

There has been some public discussion about brain stem death being used in Australia as a proxy for total brain death. For example, Tibballs has argued that:

> While the law defines that organ donation may proceed when all the brain is dead, the diagnosis of brain death is determined by medical bodies, and is taken to be loss of brain-stem reflexes and coma. In this respect there is a mis-match between what is stipulated as "cessation of all brain function" in law and what is defined as brain death in Australian medical clinical guidelines.[22]

D. Australian Case Law

There has been very little case law discussion in Australia about the legislative definitions of death.[23] In *Krommydas v Sydney West Area Health Service*,[24] though, the patient was in the intensive care unit at Westmead Hospital but the hospital argued that the patient had satisfied the definition of death as laid out in the New South Wales legislation. The judge felt that once this determination based on "acceptable and credible evidence" had been made then there was no residual discretion remaining with the court to order continued treatment. In *Re AAC*,[25] too, a patient was diagnosed as brain dead by all her treating doctors. Not surprisingly the Queensland Guardianship and Administrative Tribunal (now QCAT) found that further life-sustaining treatment would be inconsistent with good medical practice, although it must be noted that once that factual determination had been made the tribunal no longer had a jurisdiction to make orders.[26]

In *Ibrahim v South Eastern Sydney Local Health District*[27] a declaration was made for a woman who had suffered a head injury in a motorcycle crash. The doctors confirmed total brain death diagnosis as there was no blood flow to her brain and the pressure in her skull was incompatible with life.

These cases shed very little light on controversies concerning brain death definitions, but they do illustrate that the courts are willing to accept the medical profession's findings about total and irreversible cessation of all functions of a person's brain, and they do not go to any lengths to interrogate such evidence.

II. Truths about Death

We argue that there are a number of basic truths about the process of defining death that need to be recognised for any sensible debate to proceed about how the law should define death. They are as follows:

A. The Law Has Always Played a Role in Defining Different Kinds of Death for Different Sociocultural Purposes

While we have argued that the law is very deferential to medicine in discussions of death, the goals of medicine are not the only factor influencing the law. There are many other ethical, economic, religious

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[21] ALRC, n 2, [137].

[22] Tibballs, n 4, 354.

[23] See, eg, *Ansett Australia Ltd v Dale* (2001) 22 NSWCCR 527; [2001] NSWCA 314.

[24] *Krommydas v Sydney West Area Health Service* [2006] NSWSC 901.

[25] *Re AAC* [2009] QGAAT 27.

[26] I Kerridge, M Lowe and C Stewart, *Ethics and Law for the Health Professions* (Federation Press, 4th ed, 2013) 761.

[27] *Ibrahim v South Eastern Sydney Local Health District* [2018] NSWSC 913.

and social functions that death plays, and the law has historically adopted definitions of death to service these functions. In *Smeaton v Secretary of State for Health*[28] Mumby J said:

> Once upon a time the law, following medical science, treated death as marked by the cessation of breathing or of heartbeat. At present the law treats death as meaning brain stem death … But there may be contexts in which the law treats death as occurring at some other time. In certain circumstances the court may presume death if someone has not been heard of for at least seven years.[29]

Mumby J's example of presumed death illustrates how pressing economic needs are sometimes the basis for creating rules for when death occurs in different situations.[30] Importantly, there is not a singular definition of death – and it is a mistake to presume otherwise.

For example, estates need to be managed and property needs to be distributed and this is the economic trigger for having a presumption of death for missing people. Another example comes from the laws of co-ownership, where death is presumed to occur in order of "eldest first" in situations where joint tenants die together or in circumstances when they died instantaneously.[31] Once again economic imperatives of certainty for the transmission of estates, have pressed the law into choosing the timing of when people die. This has nothing to do with biology but everything to do with the need for certainty in property law.

Civil death was a common feature of the common law's power to exert death on populations due to sociocultural concerns. Religious concerns motivated the common law's treatment of priests and monks as being dead when they took holy orders. The common law adopted a Canon Law fiction that the priest or monk was born anew into the life of Christ and his property would descend to his heirs as if he were dead. Monks and priests were still subject to and protected by the criminal law, but they were unable to be sued for debts or under contracts. Monks and priests could be brought back to life if they were removed from their orders or "deraigned" (brought back to life) by a woman who claimed to have entered into a contract of marriage with them before they took their orders.[32]

Sometimes the motivation for imposing civil death was purely discriminatory. "Monsters" (people born with extra appendages or limbs) were treated as not being alive because they were feared to be evil.[33] Married women also suffered a form of civil death by becoming a *femme covert* by joining their soul with their husband. They could not hold property, sue to protect their common law rights or enter into contracts (except when acting as agents of their husbands).[34] The common law's discriminatory treatment of married women was reformed in the 1880s,[35] but unfortunate intellectual hangovers survived like the belief that a husband could not be found guilty of raping his wife.[36]

Felons who had their sentence of death commuted were also treated as monsters, and as such were "dead at law". Blackstone regarded "felons attaint" as "no longer fit to walk upon the earth" but "to be exterminated as a monster and a bane to society".[37] The result of this civil death was that a person had no standing to give evidence in court or to bring proceedings in their own name for debts or wrongs

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[28] *Smeaton v Secretary of State for Health* [2002] EWHC 610 (Admin), [57].

[29] *Smeaton v Secretary of State for Health* [2002] EWHC 610 (Admin), [57].

[30] See *Axon v Axon* (1937) 59 CLR 395; *Re Manning [No 2]* (1978) 32 FLR 481; *Re Chambers* [2023] SASC 34.

[31] See *NSW Trustee and Guardian v New South Wales* [2015] NSWSC 1121; *Fraser v Thom* [2010] VSC 626.

[32] Henry VIII put a stop to this practice and resurrected all monks from the dead as part of his dissolution of monasteries: *An Act that such as were religious Persons may purchase sue and be sued, in all manner of Actions* 1539, Stat 31 Hen VIII c 6.

[33] In *Re A (children)(conjoined twins)* [2000] 4 All ER 961, 996; [2000] EWCA Civ 254, Ward LJ found that the doctrine of monstrous birth was totally repugnant and offensive to human dignity, current medical knowledge and social sensibility.

[34] J Baker, *An Introduction to English Legal History* (OUP, 4th ed, 2002) 550–551.

[35] *Married Women's Property Act 1882* (UK) (this is also known as the *Married Women's Property Act 1883* (UK) because it commenced on 1 January 1883).

[36] The English courts removed this notion from the common law in *R v R (rape: marital exemption)* [1992] 1 AC 599. The High Court of Australia has denied that it was ever part of our common law: *PGA v The Queen* (2012) 245 CLR 355; [2012] HCA 21.

[37] W Blackstone, *Commentaries on the Laws of England* (9th ed, 1783, rep Garland Publishing Inc, 1978) Vol 4, 380.

committed against them. The felony attaint was only removed from the convict upon the completion of the sentence or a pardon.[38] In colonial Australia, where felons were important for the economic future of the colonies, these laws were largely ignored (as were the laws discriminating against married women).[39]

These examples illustrate that the law has always used death in a teleological way, namely, by defining different kinds of death by reference to a particular sociocultural set of values with targeted aims. This is important for the current debate about death. Legally, practically and socially, brain death allows organ transplantation but does not mean that a brain dead person is treated like a corpse – other processes happen, such as, treatment withdrawal and then, inevitably, circulatory death. Our understandings of death are generated and mediated by the purposes that death serves. There are different definitions of death that serve different purposes and, while the definition of the biological death of a human being is influenced by medical knowledge, it was and will always be a legal question that is determined by the law.

B. The Current Total Brain Death Definition Is Teleologically Geared for Organ Donation

If one examines the history of brain death, it is clear that brain death is inextricably linked to the need for organs and tissue for post-mortem transplantation. By redefining death in terms of brain function, society's increasing need for organ transplants was put on a philosophical footing that would allow the expansion of transplant programs. This economic and social pressure led to the need for a scientifically and philosophically valid definition of human death that would enable organs and tissue to be removed in time for them to be viably transplanted but without the organ removal being considered a cause of death (leading to consequential criminal liability).[40]

In the early days of post-mortem transplantation there were criminal prosecutions of doctors. In England, in *Potter's case*,[41] for instance, a doctor who removed a kidney from a patient with severe head injuries was convicted of common assault after keeping the patient on life support for a period long enough to allow for organ removal. In the United States, in *State v Schaffer*[42] a doctor was prosecuted but found not guilty after removing the kidneys of a patient who was circulatorily dead. These cases illustrate the benefit of having a definition of death that serves to protect the social and economic benefits of organ donation by providing legal certainty to health practitioners who are involved with procuring organs from the deceased.

Arguments that brain death is not ideologically connected to transplantation ignore the history of brain death and its emergence as a solution to the problem of the dead donor rule and the need to retrieve solid organs quickly for them to stay viable for transplantation. They do so at their peril, because to ignore this history is to ignore the teleological reasons for having brain death in the first place. That is not to say that brain death cannot, and should not be used, outside of cases of post-mortem donation but for it to acknowledge that brain death would not have been legally recognised as a form of death without the need for post-mortem donation to be protected as a practice.

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[38] B Kercher, *An Unruly Child: A History of Law in Australia* (Allen & Unwin, 1995) 22.

[39] B Kercher, *Debt, Seduction and Other Disasters: The Birth of Civil Law in Convict New South Wales* (Federation Press, 1996) Ch 3.

[40] Kerridge, Lowe and Stewart, n 26, 6.

[41] *R v Potter* (Unreported, UK, 1963) discussed in (1963) 2 *British Medical Journal* 394; *The Times*, 26 July 1963, commented on in B Hogan, "A Note on Death" [1972] *Criminal Law Review* 80; F Galbally, "Death by Statute" (1981) 55 ALJ 339; and I Kennedy and A Grubb, *Medical Law: Text with Materials* (Butterworths, 1994) 1389.

[42] *State v Schaffer*, 574 P 2d 205 (1977).

C. Brain Death Does Not Cause Irreversible Progression to Circulatory Death and Brain Dead Patients May, with Support, Continue Existing for Months to Years, Grow, Go through Puberty and Even Give Birth

It is now irrefutable that brain death does not necessarily lead to a loss of physiological integration, namely the loss of integrated functioning of the organism as a whole.[43] For example, it has been shown that a significant percentage of brain dead patients (<50%) do not develop diabetes insipidus, demonstrating preserved neuroendocrine functioning.[44] This absence of diabetes insipidus suggests that some hypothalamic/pituitary activity may still be active in the brains of these people.

Prominent cases, such as the American case of Jahi McMath, have provided a clear and well-publicised examples of where patients who satisfy brain death criteria may "survive" for considerable periods of time.[45] Jahi continued to grow and went through puberty after her brain death diagnosis. It was also said that she developed intermittent responsiveness to commands.

There are a number of examples of brain dead women being supported with intensive care for the purpose of carrying foetuses and giving birth to live children.[46] Cases of live births from brain dead mothers have been reported in Brazil,[47] Canada,[48] Czechia,[49] Finland,[50] Japan,[51] Poland,[52] Portugal,[53] Spain,[54] and the United States.[55] Boren et al reported in a literature review in 2019 that there was a total

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[43] A Joffe, G Khaira and A de Caen, "The Intractable Problems with Brain Death and Possible Solutions" (2021) 16 *Philosophy Ethics and Humanities in Medicine* 11; M Green and D Wikler, "Brain Death and Personal Identity" (1980) 9(2) *Philosophy and Public Affairs* 105; P Byrne et al, "Brain Death – The Patient, the Physician, and Society" (1981) 18 *Gonzaga Law Review* 429; D Shewmon, "The Brain and Somatic Integration: Insights into the Standard Biological Rationale for Equating Brain Death with Death" (2001) 26 *Journal of Medicine and Philosophy* 457; R Truog, "Is It Time to Abandon Brain Death?" (1997) 27(1) *Hastings Center Report* 29.

[44] M Nair-Collins and A Joffe, "Hypothalamic Function in Patients Diagnosed as Brain Dead and Its Practical Consequences" in D Swaab et al (eds), *Handbook of Clinical Neurology* (Elsevier, 2021) Vol 182.

[45] D Shewmon and N Salamon, "The Extraordinary Case of Jahi McMath" (2021) 64(4) *Perspectives in Biology and Medicine* 457.

[46] C Stewart et al, "Brain Death and Pregnancy: On the Legalities of Post-mortem Gestation" (2020) 28(1) JLM 75; D Field et al, "Maternal Brain Death During Pregnancy: Medical and Ethical Issues" (1988) 260 *Journal of the American Medical Association* 816. See also C Sherman, "Fetus of Brain-dead Georgia Woman Kept Alive Due to Abortion Ban Is Growing, Says Family", *The Guardian*, 21 May 2025 <https://www.theguardian.com/us-news/2025/may/20/pregnant-georgia-woman-brain-dead>.

[47] J Coelho, "Pregnant Bride, 30, Dies from Stroke Minutes from Altar before Doctors Save Baby with Emergency C-section", *Fox News*, 20 September 2019 <https://www.foxnews.com/health/pregnant-bride-dies-stroke-wedding-baby-saved>.

[48] "'Baby Iver' Born Healthy, Body of Mother Robyn Benson Dies", *CBC News*, 10 February 2014 <https://www.cbc.ca/news/canada/british-columbia/baby-iver-born-healthy-body-of-mother-robyn-benson-dies-1.2531549>.

[49] "Czech Doctors Deliver Baby Girl 117 Days after Mother's Brain-death", *Reuters*, 3 September 2019 <https://www.reuters.com/article/us-czech-birth/czech-doctors-deliver-baby-girl-117-days-after-mothers-brain-death-idUSKCN1VN1HQ>.

[50] JE Heikkinen et al, "Life Support for 10 Weeks with Successful Fetal Outcome after Fatal Maternal Brain Damage" (1985) 290 (6477) *British Medical Journal* 1237.

[51] Y Kinoshita et al, "Healthy Baby Delivered Vaginally from a Brain-dead Bother" (2014) 2(3) *Acute Medicine & Surgery* 211 (child born after mother was dead for 13 weeks).

[52] "Boy Born in Poland to Mother on Life Support Goes Home", *BBC News*, 20 April 2016 <https://www.bbc.com/news/world-europe-36095424>.

[53] "Portugal Baby Born to Mother Brain-dead for Months", *BBC News*, 7 June 2016 <https://www.bbc.com/news/world-europe-36475665>; "Portugal Baby Born to Woman Brain Dead for Three Months", *BBC News*, 29 March 2019 <https://www.bbc.com/news/world-europe-47741343>.

[54] A Vives et al, "Maternal Brain Death during Pregnancy" (1996) 52 *International Journal of Gynecology & Obstetrics* 67.

[55] S Holliday and B Magnuson-Woodward, "Somatic Support Following Cardiac Arrest for 90 Days Leading to a Healthy Baby Boy: A Case Report" (2017) 46 *Heart & Lung: The Journal of Acute and Critical Care* 397.

of 24 cases of brain dead women being maintained on life support between 18 and 40 years.[56] The mean gestational age of this group was 20 weeks and the mean duration of life support was just under 43 days. The evidence suggests that the chances of a live birth fall when the foetus is less than 20 weeks gestation at the time of brain death. For example, Boran et al noted that all of recorded cases of intrauterine foetus death occurred when the gestational age was 20 weeks or less.[57] Nevertheless, there are records of successful live births resulting from pregnancies where diagnosis of brain death occurred at 15 weeks of gestation.[58] While the legal issues regarding such treatment remain to be discussed in Australia,[59] in some of these jurisdictions treatment was provided on the basis that the foetus was considered to have personhood even though the mother was dead.[60] Such laws do not presently exist in Australia.

These examples show very clearly that brain death is not the same kind of death as circulatory death. To put it another way, "there is no reason that withstands critical scrutiny to believe that [brain death] is the state of biological death of the human organism".[61] There are, no doubt, very good arguments supporting the use of brain death as a legal definition, but the argument that brain death is physiologically the same as circulatory death cannot be sustained.

D. The Public Have Mixed Feelings about Brain Death but Support Organ Donation

There is ample empirical research that demonstrates both that many donor families do not believe that their loved one was not "truly" dead until their heart permanently stopped but that this realisation would not have changed their decision to authorise organ donation.[62] This is an important factor to consider in debates about brain death as public confidence in the organ donation system is an important factor in the choices made about the legal and medical definitions of death.

E. Developments in Cellular Science Are Providing the Possibility of Brain Repair and Regeneration

The promise of brain regeneration also needs to be considered in the modern debates about the definition of death. Cellular therapies promise the possibility of brain repair and replacement.[63] The much-

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[56] ÖF Boran et al, "Assessment of Somatic Support Process for Pregnant Brain Death Patients Occurring in a Transition Country between Asia and Europe from Medical, Ethical, Legal and Religious Aspects" (2019) 59 *Journal of Religion and Health* 2935 <https://doi.org/10.1007/s10943-019-00952-1>. See also A Bendowska et al, "Status of Baby Born to Brain-dead Mother: Ethical and Logical Issues" (2019) 60 *Studies in Logic, Grammar and Rhetoric* 49.

[57] Ibid.

[58] Ibid.

[59] See *Millard v Australian Capital Territory* [2020] ACTSC 138.

[60] See *PP v Health Service Executive* [2014] IEHC 622. For discussion of the case see A Mulligan, "Maternal Brain Death and Legal Protection of the Foetus in Ireland" (2015) 15 *Medical Law International* 182. It was reported in 2019 that PP's family and the Health Service Executive had settled a number of claims brought by the family members based on PP's treatment: A O'Faolain, "Family of Brain-dead Pregnant Woman Kept on Life Support over Eighth Amendment Concerns Gets Apology from HSE and Hospital after 'Nightmare'", *Irish Mirror*, 20 November 2019 <https://www.irishmirror.ie/news/irish-news/family-brain-dead-pregnant-woman-20924669>. See also *Muñoz v John Peter Smith Hospital* (No 096-270080-14, 96th Dist Ct, Tarrant County, Texas, 24 January 2014) and M Parker, "Brain Death, Pregnancy and Ethics: The Case of Marlise Munoz", *The Conversation*, 21 January 2014 <https://theconversation.com/brain-death-pregnancy-and-ethics-the-case-of-marlise-munoz-22076>. See also *University Health Services Inc v Piazzi* (Ga Sup Ct, No CV86-RCCV-464, 4 August 1986) and S Shuman, "Advanced Directives and Pregnancy: A Comparison between the US and Ireland" (2022) *CICLR Online* 44 <https://larc.cardozo.yu.edu/ciclr-online/44>.

[61] G Skowronski et al, "A Scoping Review of the Perceptions of Death in the Context of Organ Donation and Transplantation" (2021) 22 *BMC Medical Ethics* 167; Joffe, Khaira and de Caen, n 43; K Zheng et al, "Public Understandings of the Definition and Determination of Death: A Scoping Review" (2022) 8(5)*Transplantation Direct* e1300; JK Kilcullen, "'As Good as Dead' and Is That Good Enough? Public Attitudes Toward Brain Death" (2014) 29 *Journal of Critical Care* 872.

[62] Skowronski, ibid.

[63] C La Rosa and L Bonfanti, "Searching for Alternatives to Brain Regeneration" (2021) 16(11) *Neural Regeneration Research* 2198.

publicised report of partially resuscitated brain from dead pigs raises the spectre that dead human brains may able to be resuscitated in the future.[64] The question of irreversibility and futility must therefore be considered if we are going to continue to rely on brain death as a legal criterion.

F. The Benefits of Increasing Organ Donation Rates May Come at the Cost of Other Social Goods

Finally, no one can doubt the enormous benefits that organ and tissue donations provide, but it is not the only social benefit that needs to be considered. These other social goods include the trust of the public in the health system that may be eroded by the adoption of death definitions without sufficient debate (and on these grounds the ALRC Inquiry is most welcome). Health systems that profess to respect autonomy must be always on guard to never actively rob their publics of the chance to exercise it in public debates about important issues.

Another important public good is the benefit of high-quality end of life management systems that provide good deaths for terminally ill patients. It must be recognised that our health system may have to choose between good deaths and higher post-mortem organ donation rates, as better death management often involves not admitting these patients into intensive care and, instead providing them with palliative care, either in the community or in hospital,, that may mean that these patients are not available to donate organs.[65]

VI. Conclusions

We welcome the ALRC Inquiry and the chance for the public to discuss death definitions. We believe that the "truths" we have posited may have been controversial ten years ago but are now irrefutable. We hope that the public debate about death that is opened by the ALRC will dispel the paternalistic notion that people will not understand or accept organ donation unless it comes with some sort of cast-iron guarantee that brain death is identical to circulatory death.

The reality of modern medicine is that death is a process, not a single event. This is true biologically, culturally, socially and practically. At different points during this process different obligations may be owed to the person, and it is in this context that we need to have a rigorous debate about the kinds of deaths we want to have.

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[64] M Kozlov, "Pig Organs Partially Revived in Dead Animals – Researchers Are Stunned" (2022) 608(7922) *Nature* 247; B Parent, "Partially Revived Pig Organs Could Force a Rethink of Critical-care Processes" (2022) 608 (7921) *Nature* 32; HT Greely, "OrganEx: What Will It Mean?" (2022) 221(11) *American Journal of Bioethics* 4; D Andrijevic et al, "Cellular Recovery after Prolonged Warm Ischaemia of the Whole Body" (2022) 608 *Nature* 405.

[65] A Bendorf, IH Kerridge and C Stewart, "Intimacy or Utility? Organ Donation and the Choice between Palliation and Ventilation" (2013) 17 *Critical Care* 1; S Camut et al, "Non-therapeutic Intensive Care for Organ Donation: A Healthcare Professionals' Opinion Survey" (2016) 23(2) *Nursing Ethics* 191.