Conference article

The 2025 UK Code of Practice: A narrative review of the latest updates in the diagnosis of death by neurological criteria

Hatem Soliman Aboumarie[1,*], Lynne Barrass[2]

1. *Royal Brompton & Harefield Hospitals, UK*
2. *Barts Hospital NHS Trust, UK*

*hatem.soliman@gmail.com

Abstract

The diagnosis of death by neurological criteria (commonly referred to as "brain death") remains one of the most sensitive and potentially complex areas of clinical practice. In January 2025, the Academy of Medical Royal Colleges (AoMRC) in the United Kingdom released a landmark update to its Code of Practice for the Diagnosis and Confirmation of Death. This narrative review explores the key revisions in the 2025 guidance, highlighting clinical, ethical, and operational implications. It also contextualises these updates within international standards and discusses the specific considerations for paediatric populations.

Introduction

The determination of death represents one of the most consequential acts in medical practice, carrying profound clinical, ethical, legal, and societal implications. Among the accepted frameworks for death determination, death by neurological criteria (DNC)—often referred to as “brain death”—remains the most conceptually complex and, at times, contested. Its diagnosis requires absolute diagnostic certainty, meticulous clinical execution, and clear communication with families at moments of intense emotional vulnerability. As such, the standards governing DNC must be both scientifically rigorous and ethically robust, while remaining practical and reproducible across diverse clinical settings.

In the United Kingdom, the diagnosis of DNC has historically been anchored in the demonstration of the irreversible loss of brainstem function, signifying the permanent absence of the capacity for consciousness and spontaneous respiration. This approach, distinct in its brainstem emphasis, has been internationally influential since its formalisation in the late twentieth century. However, evolving scientific understanding, advances in critical care technology, and increasing international efforts toward harmonisation have necessitated periodic reassessment of diagnostic

frameworks. Variability in practice—particularly in areas such as apnoea testing thresholds, temperature prerequisites, and the role of ancillary investigations—has increasingly been recognised as a potential source of professional uncertainty and public mistrust.

In January 2025, the Academy of Medical Royal Colleges (AoMRC) released a substantially revised Code of Practice for the Diagnosis and Confirmation of Death, replacing the 2008 guidance. This update represents the most comprehensive revision of UK DNC standards in over a decade and reflects a deliberate effort to address previously identified ambiguities, integrate contemporary evidence, and align UK practice more closely with emerging international consensus. Importantly, the revised Code moves beyond incremental adjustment, introducing structural changes that unify criteria across age groups, standardise physiological thresholds for testing, and clarify the legal moment of death.

The 2025 Code was developed through an extensive multidisciplinary process involving intensive care physicians, neurologists, paediatric specialists, ethicists, and professional bodies, and was informed by major international initiatives including the World Brain Death Project and updated North American and Australasian guidance. A notable and deliberate emphasis of the revised document is the inclusion of coherent, explicit guidance for paediatric and neonatal populations—an area that has historically been associated with heightened variability in practice and greater professional anxiety. By extending unified principles from 37 weeks corrected gestational age through adulthood, while preserving necessary age-specific safeguards, the Code seeks to balance diagnostic consistency with biological and developmental nuance.

Beyond technical refinements, the updated guidance also acknowledges the broader ethical and communicative dimensions of DNC determination. In an era characterised by increasing public scrutiny of end-of-life decision-making and organ donation pathways, transparency, consistency, and compassionate engagement with families are recognised as integral components of good clinical practice. The revised Code explicitly situates the diagnosis of DNC not merely as a technical exercise, but as a process embedded within trust, professionalism, and societal accountability.

This narrative review aims to examine the key updates introduced in the 2025 UK Code of Practice, with particular emphasis on their clinical rationale, practical implementation, and ethical implications. Where relevant, the UK approach is contextualised within international standards to highlight areas of convergence and divergence. By synthesising these developments, this review seeks to support clinicians involved in acute, neurocritical, and paediatric care in applying the updated guidance confidently, consistently, and compassionately in everyday practice.

Historical background and rationale for update

The 2008 UK Code of Practice provided a structured and widely respected framework for the diagnosis of death by neurological criteria; however, over time, several substantive limitations became apparent. Chief among these was the presence of interpretative variability across age groups, particularly in paediatric and neonatal populations, where physiological immaturity, evolving neurological function, and limited validation data contributed to heterogeneous clinical practice. The separation of adult and paediatric pathways, combined with differing observation

periods and testing intervals, created uncertainty for clinicians and risked inconsistency in application across institutions.

In addition, the 2008 guidance predated major international efforts to standardise apnoea testing, resulting in variability in carbon dioxide thresholds, testing duration, and physiological prerequisites when compared with contemporary global practice. Such discrepancies became increasingly problematic in the context of multinational training, international clinical collaboration, and organ donation pathways, where lack of alignment risked both professional confusion and erosion of public confidence. The limited role and inconsistent application of ancillary investigations—particularly in children—further highlighted the need for clearer, evidence-informed guidance.

Recognising these challenges, the Academy of Medical Royal Colleges convened a multidisciplinary expert working group to undertake a comprehensive revision of the Code. This group drew upon a growing international evidence base and consensus-building initiatives, most notably the World Brain Death Project, which sought to harmonise definitions and minimum standards for death determination worldwide. Additional influence was derived from the Australian and New Zealand Intensive Care Society statement, as well as contemporary Canadian and United States consensus guidelines, each of which contributed refined physiological thresholds, ethical frameworks, and practical safeguards informed by large-scale critical care experience.

Crucially, the development of the 2025 Code was grounded not only in international consensus but also in extensive real-world experience from UK National Health Service practice, ensuring that theoretical alignment translated into operational feasibility. One of the most significant outcomes of this process is the adoption of a unified framework applicable across the lifespan, extending from 37 weeks corrected gestational age through adulthood. This inclusive approach represents a deliberate shift away from fragmented age-based protocols, aiming to enhance diagnostic consistency while retaining age-specific protections where evidence and developmental considerations demand them. In doing so, the revised Code seeks to reconcile scientific rigour with clinical pragmatism, reinforcing confidence among practitioners and promoting coherence in one of the most sensitive domains of modern medical practice.

Core updates in the 2025 Code of Practice

1. **Unified Criteria Across age groups**
   The 2025 Code eliminates the fragmented approach previously seen in paediatric versus adult cases. From 37 weeks corrected gestational age through adulthood, a single set of criteria is applied with minor age-specific considerations for those under 2 years:
   - A 24-hour observation period post-loss of brainstem reflexes.
   - A 24-hour interval between the two mandatory sets of clinical tests.
   - No allowance for ancillary investigations in this age group.

2. **Standardisation of Apnoea Testing**
   A significant change is the harmonisation of apnoea testing parameters. These changes reduce variability in practice and aligns UK standards with international recommendations:
   - Testing begins when $PaCO_2$ is ≥ 5.3 kPa.
   - A rise of ≥ 2.7 kPa in $PaCO_2$ is required, with the final level ≥ 8.0 kPa and a pH < 7.3.
   - Minimum observation during testing is 5 minutes.
3. **Definition of Time of Death**
   The moment of death is now defined as the time when the second set of clinical tests is completed, or when the ancillary test result is formally acknowledged by both physicians if this occurs later. This offers clarity in documentation and legal precision.
4. **Temperature Requirement**
   Testing is only valid if the core temperature is ≥ 36°C. If hypothermia is a factor, a 24-hour period of normothermia must be achieved before clinical assessment (refer to Code for specific guidance).
5. **Requirement for Complete Examination**
   If either eye or ear cannot be adequately examined, clinical diagnosis is invalid without supplementary ancillary investigations. This ensures a reliable assessment of brainstem function.

Paediatric considerations

One of the most notable aspects of the 2025 Code is its inclusion of guidance for children. The Royal College of Paediatrics and Child Health (RCPCH) contributed to a unified approach. Importantly, the guidance restricts the use of ancillary investigations in infants below 2 years, reflecting the limitations of evidence and technical constraints in this group. This removes historical ambiguities and supports clearer decision-making for paediatric intensivists and neonatologists.

Ethical and communication considerations

The updated Code recognises the profound emotional impact of diagnosing death by neurological criteria. It explicitly includes guidance for communicating with families, stressing transparency, compassion, and cultural sensitivity. In an era of increasing scrutiny, such guidance fosters public trust and professional confidence.

International alignment

A defining strength of the 2025 UK Code of Practice is its deliberate and explicit alignment with contemporary international standards for the determination of death by neurological criteria. Over the past decade, increasing global mobility of healthcare professionals, multinational training pathways, and cross-border collaboration in organ donation and transplantation have highlighted the limitations of nationally isolated diagnostic frameworks. In this context, harmonisation is not merely aspirational but essential to maintaining professional credibility, public trust, and ethical consistency.

The revised UK Code closely reflects the principles articulated by the World Brain Death Project, which represents the most comprehensive global effort to establish minimum accepted standards for death determination. Central to this alignment is the emphasis on clear preconditions for testing, standardised apnoea testing thresholds, and the primacy of clinical examination in confirming irreversible loss of neurological function. By adopting comparable physiological criteria and conceptual definitions, the UK framework reinforces a shared international understanding of what constitutes death, while preserving jurisdiction-specific legal interpretations.

Similarly, alignment with the Australian and New Zealand Intensive Care Society statement has informed practical refinements in testing methodology, particularly in relation to apnoea testing conduct and safety parameters. The ANZICS guidance, widely regarded for its clarity and operational focus, has influenced the UK's move toward more explicit and reproducible testing standards, reducing variability between clinicians and centres.

The incorporation of principles from the Canadian Medical Association brain-based definition of death guidelines further strengthens the ethical and conceptual coherence of the 2025 Code. Canadian guidance has been influential in framing death as a unified biological event, rather than a collection of context-dependent criteria, and in emphasising transparency, consistency, and public engagement. These elements resonate strongly with the UK update, particularly in its attention to communication with families and documentation of the diagnostic process.

Alignment with United States guidance, including that of the American Academy of Neurology and the Society of Critical Care Medicine, has further contributed to convergence in minimum testing standards, examiner requirements, and safeguards against diagnostic error. While differences in legal frameworks persist, the increasing similarity in clinical thresholds and procedural expectations facilitates mutual professional recognition and shared educational standards.

Collectively, this international alignment enhances global coherence in end-of-life care and strengthens the integrity of death determination across healthcare systems. It supports international clinical collaboration, enables more seamless cooperation in organ donation and transplantation pathways, and reduces the risk of conflicting practices undermining public confidence. By situating UK practice firmly within a global consensus while retaining national legal clarity, the 2025 Code represents a mature and outward-facing approach to one of medicine's most sensitive responsibilities.

Conclusion

The 2025 UK Code of Practice represents a significant advancement in the diagnosis of death by neurological criteria. By unifying protocols across age groups, standardising key testing parameters, and integrating international best practices, it enhances both the clinical rigour and ethical robustness of this sensitive process. As medicine continues to evolve, ongoing education, audit, and public engagement will be essential to ensure the Code's successful implementation.

References

1. Academy of Medical Royal Colleges. A Code of Practice for the Diagnosis and Confirmation of Death. London: AoMRC; 2025.
2. Intensive Care Society. Code of Practice: Diagnosis of Death 2025. Available at: https://ics.ac.uk
3. Royal College of Paediatrics and Child Health. Diagnosis of Death by Neurological Criteria in Infants and Children. RCPCH; 2025.
4. Greer DM et al. Determination of Brain Death/Death by Neurologic Criteria. The World Brain Death Project. JAMA. 2020;324(11):1078–97.
5. ANZICS Statement on Death and Organ Donation. Australian and New Zealand Intensive Care Society; 2018.
6. Canadian Death Determination Guidelines. Canadian Medical Association; 2023.