Nuffield Council on Bioethics

BACKGROUND BRIEFING
November 2025

The 14-day rule for embryo research:

Ethical considerations

Introduction

The briefing forms part of the evidence gathered to inform a broader inquiry into the 14-day rule in the UK currently being undertaken by an **interdisciplinary Working Group**.

It aims to elucidate the interests and values that are engaged by reviewing the 14-day rule and, in doing so, unpack some of the current ethical debates relating to embryo research and the 14-day limit. This briefing does not aim to draw conclusions about how these interests should be factored into ethical decision making, or their implications for different policy options for the future of embryo research, as this will be analysed in more detail in our final report for this project.

This briefing draws on our evidence gathering for the wider project, including reviews of the literature, and on insights arising from a workshop held at the Nuffield Council on Bioethics in October 2025, which explored the ethics of maintaining or altering the 14-day rule. It is also informed by discussions within the project's Working Group.

More information about the way embryos are donated for and used in research in the UK, as well as the focus and outcomes of that research, is available in a **separate briefing**.

The 14-day rule

The 14-day rule is a key feature of human embryo research governance in the UK. It stipulates that human embryos should not be grown, for whatever purpose, *in vitro* after the appearance of the primitive streak or for longer than 14 days after the process of creating the embryo began.[1] The adoption of the 14-day rule in public policy is generally attributed to two key reports: the US Report on embryo research of the Ethics Advisory Board to the Department of Health, Education and Welfare,[2] and the UK report of the Committee of Inquiry into Human Fertilisation and Embryology (known as 'the Warnock Report').[3]

The Committee of Inquiry was established in 1982, four years after the first baby was born through IVF, to examine technologies of assisted reproduction and human embryo research. The Warnock Report articulated the Committee's remit as "the question of how it is right to treat the human embryo" rather than questions about the meaning of human "life" or "personhood".[4] It examined the arguments for and against the use of human embryos for research, concluding that while the embryo deserves some protection in law, this protection should not be absolute. In selecting 14 days as the limit, the Warnock Committee referred to **sentience** (the ability to feel pain) and **individuation** (the emergence of a definite single human individual, thought to coincide with a developmental marker known as the **primitive streak**) as relevant factors in their determination. The Committee was clear that 14 days does not mark a defined point between the embryo having no moral status and suddenly acquiring it. Instead, the time limit sought to allow some research to proceed, whilst recognising the sensitive and highly controversial nature of the issue.

In the UK, the 14-day rule was later enshrined in the Human Fertilisation and Embryology Act 1990, and has remained a central element of embryo research regulation ever since. It has offered a clear and legally enforceable stopping point for research.

1 Section 3(3)(a) of Legislation.gov.uk (2017) Human Fertilisation and Embryology Act 1990, available at: http://www.legislation.gov.uk/ukpga/1990/37/contents.

2 Ethics Advisory Board, US Department of Health Education and Welfare (1979) *HEW support of research involving human in vitro fertilization and embryo transfer* (US Government Printing Office).

3 Department of Health & Social Security (1984) *Report of the Committee of Inquiry into Human Fertilisation and Embryology* (Cmnd.9384) (London: HMSO).

4 Ibid.

Scientific, technological, and cultural shifts over the past decade have renewed interest in revisiting the limit. A range of options has been proposed, from a new fixed time limit, to case by case review.[5] This briefing will not assess the various options, but will provide an overview of some of the ethical considerations and interests engaged so as to support further discussion about the future of regulation in embryo research.

5 On a new fixed time limit, see De Los Angeles A, Benvenisty N, Deng H, *et al.* (2025) Human embryo research: how to move towards a 28-day limit *Nature* **643(8070)**: pp 31-4. On case-by-case review, see International Society for Stem Cell Research (2021) *Guidelines for stem cell research and clinical translation*. Available at: https://www.isscr.org/policy/guidelines-for-stem-cell-research-and-clinical-translation.

Interests, values and considerations

At the heart of discussions about extending or revising the 14-day rule are the diverse interests that are affected or engaged by embryo research.[6] The perspectives of many people and groups – including scientists, patients, embryo donors, and members of the wider public – have been, and remain, central to shaping how embryo research is understood and governed. Their interests can both align and come into tension at times, reflecting differences in the lived experiences, social contexts and moral standpoints from which they arise.

Sometimes, different groups may share a similar interest for different reasons. For example, both scientists and patients may support embryo research with the aim of improving fertility treatments, but for scientists this may stem from professional curiosity or scientific progress, while for the patients it may arise from personal experience of infertility.

Equally, individuals may recognise or benefit from certain outcomes of embryo research without endorsing the research itself. For instance, someone might welcome medical advances derived from embryo research but hold moral reservations about the research processes involved. Conversely, others may have deep ethical or religious concerns about creating or using embryos for research, yet still consider some embryo research justified if it contributes to significant health benefits.

It is argued that the views and interests of these groups are important as the law and policy in this field has to "give an account of problems and solutions that both speaks to and also on behalf of a diverse and morally pluralist society."[7] The regulation of assisted reproduction and embryology in the UK has drawn on a deliberative approach, emphasising pragmatism over a perfectly consistent

6 Farsides B, Scott R (2012) No small matter for some: practitioners' views on the moral status and treatment of human embryos *Medical Law Review* **20(1)**: pp90-107; Haimes E, Porz R, Scully J, Rehmann-Sutter C (2008) "So, what is an embryo?" A comparative study of the views of those asked to donate embryos for hESC research in the UK and Switzerland *New Genetics and Society* **27(2)**: pp 113–126.

7 Montgomery J (2014) Public ethics and faith *Theology* **117(5)**: pp 342-8. For more on a "public ethics" approach, see Montgomery J (2013) Reflections on the nature of public ethics *Cambridge Quarterly of Healthcare Ethics* **22(1)**: pp 9-21.

moral position, and the need for decisions to be publicly justifiable rather than grounded solely in expert or political authority.[8]

Although this briefing does not attempt to capture *all* relevant views, it explores a range of views evident in the literature, including those informed by religious traditions, and those held by people who may be asked to donate their embryos for research following IVF.

Potential scientific and medical benefits arising from embryo research beyond the 14-day limit

One of the central values underpinning embryo research is the pursuit of knowledge that could improve human health and wellbeing. When the rule was established, it was not technically possible to **culture** human embryos beyond five or six days (in other words, to keep live embryos developing outside of the body). In 2016, separate research teams at the University of Cambridge and Rockefeller University reported that they had succeeded in growing embryos to 14 days, at which point they were destroyed.[9] This means it is likely that maintaining embryos *in vitro* beyond the 14-day limit has been a technical possibility for almost 10 years, and some researchers contend that the 14-day rule now constrains potentially transformative lines of inquiry.[10]

Among the possible benefits highlighted in favour of extension is the potential to unlock the 'black box' of human development. This term is often used to describe the window from 14 days – when the cultured embryo must be destroyed – to the point where embryonic and fetal tissue donated following miscarriage or termination of pregnancy can be accessed for research from around 28 days.[11] Being able to study embryonic development during this period could enable scientists to gain better understanding of the formation of primitive tissues, and early organ development. Hypothetically, such research could lead to medical advances that have the potential to improve the safety and success rate of current IVF procedures; shed light on the causes of miscarriage; and enable the

8 Nuffield Council on Bioethics (2017) *Human Embryo Culture: Discussions concerning the statutory time limit for maintaining human embryos in culture in the light of some recent scientific developments*, available at: https://cdn.nuffieldbioethics.org/wp-content/uploads/Human-Embryo-Culture-NCOB-paper-2017.pdf.

9 Shahbazi MN, Jedrusik A, Vuoristo S, *et al.* (2016) Self organization of the human embryo in the absence of maternal tissues *Nature Cell Biology* **18(6)**: pp 700-8; Deglincerti A, Croft GF, Pietila LN *et al.* (2016) Self-organization of the in vitro attached human embryo *Nature* **533(7602)**: pp 251-4.

10 De Los Angeles, *et al.* (2025) A road map for extending human embryo research to 28 days *Nature* **643**: pp 31-34

11 Hurlbut J, Hyun I, Levine A, *et al.* (2017) Revisiting the Warnock rule *Nature Biotechnology* **35**: pp 1029–1042. However, access to this tissue is limited. For an exploration of this and other ways to study embryonic development see Nuffield Council on Bioethics (2025) *The 14-day rule for embryo research: Studying early human development*, available at: https://www.nuffieldbioethics.org/publication/the-14-day-rule-for-embryo-research-studying-early-human-development/.

early identification, treatment or prevention of certain types of birth defects such as congenital cardiac anomalies and neural tube defects like spina bifida.[12]

Some argue, however, that it may be premature to extend the limit. For example, it only became possible in 2016 to culture embryos for up to 14 days and so research into embryos between 7 and 14 days is still in its infancy. It is also uncertain how accurately a post-implantation embryo culture would replicate the in-utero environment, which may limit the utility of research on embryos beyond 14 days.[13]

From a **beneficence**-based view of scientific responsibility, researchers have a moral obligation not merely to avoid harm (through adherence to ethical limits), but also to do good and to pursue knowledge that can alleviate suffering. However, this depends on a reasonable expectation of benefit. The Nuffield Council on Bioethics carried out a workshop in 2017 exploring whether there were persuasive reasons to review the legal limit on embryo research, and concluded that, at that point, there were not significant grounds for thinking that rapid progress could be made with research into embryos for extended periods.[14] The scientific case may have evolved over the past 8 years, but it will still be necessary to consider questions such as: How likely are these benefits to be realised? How do these prospective benefits or focus areas for research align with the priorities of affected groups and the wider public? Is research involving live embryos the only way to achieve the desired ends?

The development of embryo models

One of the ethical considerations in reviewing the 14-day rule is whether other technologies – in particular, **stem cell–based embryo models** (SCBEMs) – might reduce the need to rely on human embryos for some types of research.[15] SCBEMs are structures derived from human pluripotent stem cells that can replicate certain features of early human embryonic development. The Nuffield Council on Bioethics' 2024 report on SCBEMs highlights that these models may offer new opportunities to study aspects of development without using human embryos.

12 Hurlbut J, Hyun I, Levine A, *et al.* (2017) Revisiting the Warnock rule *Nature Biotechnology* **35**: pp 1029–1042. We note that advances in these areas were also highlighted as part of the case for permitting embryo research in the UK and informed the Warnock Committee's recommendations, discussed for example in Franklin S and Jackson E (2024)*The 14 day rule and human embryo research* (Abingdon, UK: Routledge).

13 Blackshaw BP, Rodger D (2021) Why we should not extend the 14-day rule *Journal of Medical Ethics* **47**: pp 712-714.

14 Nuffield Council on Bioethics (2017) *Human Embryo Culture: Discussions concerning the statutory time limit for maintaining human embryos in culture in the light of some recent scientific developments*, available at: https://cdn.nuffieldbioethics.org/wp-content/uploads/Human-Embryo-Culture-NCOB-paper-2017.pdf.

15 Alternatives to human embryo research, such as animal models, exist and are used. These raise their own ethical challenges and considerations which fall outside the scope of this briefing.

However, while SCBEMs have the potential to complement embryo research, they cannot now, and are unlikely to ever, replace embryo research, as their findings require empirical validation against data derived from human embryos.[16]

The use of SCBEMs will also raise its own ethical and regulatory questions, particularly as they become more sophisticated and potentially resemble embryos or embryonic features more closely. This raises the question of what it is that we value about human embryos. If SCBEMs and natural embryos resemble one another, is it ethically consistent to prohibit certain uses of embryos, but allow them in SCBEMs?

The moral status of the human embryo

A central point of contention in debates about embryo research has, from the outset, been the moral status of the human embryo – whether, and to what extent, the embryo deserves moral protection, and under what conditions it may be permissible to use and destroy it for scientific purposes.

> *"To have moral status is to be morally considerable, or to have moral standing... If an entity has moral status, then we may not treat it in just any way we please; we are morally obliged to give weight in our deliberations to its needs, interests, or well-being."*[17]

Something has **moral *status*** if its needs have importance *in their own right*.[18] Something may also have **moral *value*** if it morally matters to and for others. Moral status, like moral value more generally, may be thought of as something that comes in degrees. The highest degree of moral status is *full* moral status, commonly accorded to human beings.[19] It also can be seen as all-or-nothing; either an entity either has moral status or it lacks it.[20]

Some argue that the embryo has full moral status from conception, whereas others claim that it has no moral status, similar to other human cells.[21] There is a range of intermediate views that lie in between these two positions.

16 Nuffield Council on Bioethics (2024) *Human stem cell-based embryo models: A review of ethical and governance questions*, available at: https://www.nuffieldbioethics.org/publication/human-stem-cell-based-embryo-models-a-review-of-ethical-and-governance-questions/.

17 Warren MA (2000) *Moral Status: Obligations to Persons and Other Living Things* (Oxford: Oxford University Press).

18 Ibid.

19 Jaworska A, Tannenbaum J (2023) The Grounds of Moral Status *The Stanford Encyclopedia of Philosophy,* available at https://plato.stanford.edu/archives/spr2023/entries/grounds-moral-status/.

20 DeGrazia D (2008) Moral Status As a Matter of Degree? *The Southern Journal of Philosophy* **46**: pp 181-98.

21 Harris J (1990) Embryos and Hedgehogs: On the Moral Status of the Embryo, in *Experiments on Embryos*, Dyson A and Harris J (Editors) (London: Routledge), pp 52–64.

These include:

- Gradualist views: These accounts hold that moral status grows over time, in parallel with embryonic and fetal development. According to this view, a newly fertilised egg has little or no moral status, but gradually acquires greater moral significance as it becomes more biologically and functionally complex.[22]
- Views that place emphasis on physical characteristics: These views contend that the emergence of particular physical characteristics could be treated as necessary and/or sufficient conditions for full or partial moral status. A variety of features and developmental milestones are proposed to hold moral significance, for example the point of fertilisation, the ability to experience pain, exhibit brain activity or survive outside the womb.
- Potentiality-based views: Others believe that the embryo has moral status due to its unique *potential* to become a person.[23] For those who see potentiality as morally significant, the embryo is not just a collection of cells but a human life in waiting.[24]
- Symbolic or instrumental views: Regardless of whether the embryo has moral status, it may have value or deserve respect for other reasons, for example due to its symbolic, relational, or societal significance.[25] One version of this is the argument that embryos matter because of the relationships they have – to parents, researchers, and the wider social and cultural context in which reproduction is understood.

These perspectives are not mutually exclusive; they can be held in combination. For example, a gradualist framework may coexist with recognition of the embryo's symbolic or relational value.[26]

Views about the justification or degree of an embryo's moral status do not necessarily by themselves determine how much, or what kind of, moral consideration it should be given, or settle questions about the nature or strength of the ethical obligations that follow. Establishing responsibilities may require further reflection on the type and strength of duties involved, and how they might be balanced against other interests and moral considerations.

22 Nuffield Council on Bioethics (2017) *Human Embryo Culture: Discussions concerning the statutory time limit for maintaining human embryos in culture in the light of some recent scientific developments*, available at: https://cdn.nuffieldbioethics.org/wp-content/uploads/Human-Embryo-Culture-NCOB-paper-2017.pdf.

23 Development of the embryo into a human being is dependent on it being placed in the right environment.

24 Pereira Daoud AM, Dondorp WJ, Bredenoord AL, De Wert GMWR (2024) Potentiality switches and epistemic uncertainty: the Argument from Potential in times of human embryo-like structures *Medicine, Health Care and Philosophy* **27(1)**: pp 37-48.

25 Robertson JA (1995) Symbolic issues in embryo research *Hastings Center Report* **25(1)**: pp 37–8.

26 Nuffield Council on Bioethics (October 2025) Workshop on the ethics of human embryo research and the future of the 14-day rule.

Religious perspectives

Religious and faith-based belief systems play a significant role in shaping how some people understand the moral status of the embryo. While we note that there is a diversity of views within traditions and systems, we summarise here the broad reasoning presented in the literature around three major religions in the UK. Through the **public dialogue** work being carried out as part of this project we hope to elucidate a fuller, more nuanced and representative picture of the views and values people hold in relation to the human embryo.

One prominent position found within Christianity is the belief that "life must be protected with the utmost care from conception" as "the embryo is a living thing – under the care of God".[27] This carries a strong moral presumption against the destruction of embryos. However, a range of positions are held around the origin of the soul – ranging from conception through to individuation, and quickening.[28]

Within Judaism, full moral status is not considered to be acquired until birth, but 40 days marks an important point of development in assessing the embryos' moral status because it is when it is believed that the soul first becomes present.[29] Concerns for the embryo may be factored into estimations around other principles and duties, such as the principle of justice: Tzedakah, and pikuach nefesh: the duty to heal and save a life.[30] It is therefore often thought that preimplanted embryos that are not designated for implantation, including their stem cell lines, may be used for potentially lifesaving and disease-curing purposes.[31]

Similarly, many Islamic commentators believe that life begins when the soul is "breathed into the embryo", which they state occurs at 40 days at the earliest and 120 days post fertilisation at the latest.[32] In some Islamic writings, embryos prior to ensoulment have "sanctity" and ordinarily should not be destroyed, though research might be allowed for therapeutic or research purposes.[33]

Whilst these views indicate some religions might be more permissive of a longer time limit, this does not imply a blanket endorsement of any time period before 40 days. Rather, they encompass a spectrum of reasoning about the embryo's

27 Second Vatican Council Gaudium et Spes 51; Athenagoras Legatio 35.

28 Peters T (2021) Keep the 14-day rule in stem cell research *Theology and Science* **19(3)**: pp 177-83.

29 Silber SJ (2010) Judaism and reproductive technology. *Cancer Treatment and Research* **156**: pp 471-80.

30 Pew Research Center (2002) Moral Status of the Human Embryo, available at https://www.pewresearch.org/religion/2002/02/27/moral-status-of-the-human-embryo/.

31 Eidelman A and Halperin M (2009) The preimplantation embryo and Jewish law *Nature Medicine* **15(238)**.

32 Ghaly M (2012) The beginning of human life: Islamic bioethical perspectives *Zygon*® **47**: pp 175-213. Suleman M Islamic perspectives on the moral and policy significance of developmental threshold. In Nuffield Council on Bioethics (2017) *Human Embryo Culture: Discussions concerning the statutory time limit for maintaining human embryos in culture in the light of some recent scientific developments*, available at: https://cdn.nuffieldbioethics.org/wp-content/uploads/Human-Embryo-Culture-NCOB-paper-2017.pdf.

33 Larijani B, Zahedi F (2004) Islamic perspective on human cloning and stem cell research *Transplantation Proceedings* **36(10)**: pp 3188–9.

moral status, the purposes for which it may be used, and how respect for early human life is balanced against potential benefits for health and knowledge. Different schools of thought may diverge in their views about whether and when embryo research is permissible, even if they share broad commitments to protecting early human life.

The experiences and values of embryo donors

There is a paucity of research in the UK on attitudes and views of potential embryo donors (e.g. those who have 'left over' embryos after IVF), particularly in recent years. It has been noted that despite decades of grappling with issues around the acceptability of embryo research, perhaps the voice that has been heard least is that of the potential providers of donated embryos.[34]

Existing data suggest that only a small proportion of potential donors choose to donate their embryos for research, and that this is declining. The number of embryos donated to research, after IVF treatment, has fallen steadily from around 17,000 in 2004 to 675 in 2019.[35] There is no qualitative research available on the cause of this decline, but it has been suggested that it may be due to the development of induced pluripotent stem cells, which in many settings can be used as an alternative to embryonic stem cells, reducing demand and the need to approach couples for human embryos in stem cell research.[36] Despite this decline, an HFEA survey of 188 patients about to start, undergoing or recently having finished IVF treatment in 2017 found that a majority (58%) of patients would prefer to donate embryos to research rather than allow them to be discarded, with only 6% preferring disposal.[37] The survey also revealed that opportunities to donate are limited. If a clinic does not have a prior agreement with a research team, they are unlikely to raise the possibility of donating embryos to research with patients. In addition, where those agreements do not exist, people might struggle to donate their embryos, even if they wish to.

Among those who do donate, a common motivation, not just in the UK but across a number of jurisdictions, is the desire contribute to potentially curative medical research.[38] Another is that the embryo is a 'precious' resource and therefore it is

34 Catherine A McMahon, Frances L Gibson, Garth I Leslie, *et al.* (2003) Embryo donation for medical research: attitudes and concerns of potential donors *Human Reproduction* **18(4)**: pp 871–7.

35 Yue Z, MacKellar C (2024) A quantitative analysis of stored frozen surplus embryos in the UK *The New Bioethics* **30(3)**: pp 173-9; Guardian (6 December 2023) *Call to help UK IVF patients donate unused embryos after shortage hinders research*, available at: https://www.theguardian.com/science/2023/dec/06/call-to-help-ivf-patients-donate-unused-embryos-after-shortage-hinders-research.

36 Yue Z, MacKellar C (2024) A quantitative analysis of stored frozen surplus embryos in the UK *The New Bioethics* **30(3)**:pp 173–90.

37 HFEA (2017) Minutes of Authority meeting 10 May 2017, available at: https://www.hfea.gov.uk/media/1871/june-2017-meeting-papers.pdf.

38 Scully JL, Haimes E, Mitzkat A, Porz R, Rehmann-Sutter C (2012) Donating embryos to stem cell research *Journal of Bioethical Inquiry* **9(1)**: pp 19-28.

preferable to use embryos for research rather than to destroy or waste them.[39] However, even among those who consent to donation, there is a sense that embryos deserve special moral consideration – that they are not simply "leftovers" from treatment.[40]

It is also evident that views about the embryo are complex and dynamic, changing over the different stages of IVF. One study exploring the views of IVF couples asked to donate fresh embryos for research reported that initially all embryos are important but as measures of quantity and then quality emerge, couples begin to focus on those that have most potential to produce a baby. The authors noted that what caused interviewees most concern were the embryos that were good quality but went to research instead: the troubling "third embryos".[41] Their value to interviewees lay not in their inherent qualities as embryos but because they might have been capable of producing a baby.[42]

This shows that concerns about potentiality and capacity are also found in this context, but with a different emphasis, sometimes embedded in "calculations of quantity and quality, and good and bad embryos, rather than the inherent qualities of embryos *per se*."[43] It suggests that the human embryo is not viewed as a single, fixed entity but an entity that derives its multiple meanings from different social contexts.

Public attitudes and societal values

Past surveys and dialogues can provide some insights into broader public views on embryo culture limits. A YouGov poll commissioned by the BBC in the UK in 2017, asked 1740 respondents' views on an extension of the limit of the permitted research period on embryos up to 28 days. Of the 1740 respondents, 48% said that they would be in favour of extending the limit, while 19% wanted to keep the current limit. 10% maintained that they would want embryo research to be banned altogether, while 23% did not know.[44]

More recently, a 2023 UK public dialogue, conducted by Ipsos and the Babraham Institute as part of the Wellcome-funded Human Developmental Biology Initiative (HDBI), found that participants generally expressed openness to reviewing or modestly

39 Scully JL, Haimes E, Mitzkat A, Porz R, Rehmann-Sutter C (2012) Donating embryos to stem cell research *Journal of Bioethical Inquiry* **9(1)**: pp 19-28; Catherine A. McMahon, Frances L. Gibson, Garth I. Leslie *et al.* (2003) Embryo donation for medical research: attitudes and concerns of potential donors *Human Reproduction* **18(4):** pp 871–7.

40 Haimes E, Taylor K (2009) Fresh embryo donation for human embryonic stem cell (hESC) research: the experiences and values of IVF couples asked to be embryo donors *Human Reproduction* **24(9)**: pp 2142-50.

41 A shorthand given to top quality embryos that are neither transferred nor frozen.

42 Haimes E, Taylor K (2009) Fresh embryo donation for human embryonic stem cell (hESC) research: the experiences and values of IVF couples asked to be embryo donors *Human Reproduction* **24(9)**: pp 2142-50.

43 Ibid.

44 Leida A (2017) Almost half of the UK public support extending the 14 day rule. *Bionews*, available at https://www.progress.org.uk/almost-half-of-uk-public-support-extending-14-day-rule/.

extending the limit, especially where research could lead to better understanding of miscarriage, developmental disorders, or improve IVF outcomes. This openness, however, is caveated by the need to preserve respect for the human embryo, and participants voiced concerns about "slippery slopes" (see **page 14**), potential misuse of technology, and maintaining clear moral and legal boundaries. Public trust was seen as contingent on transparency and meaningful public engagement, particularly with those who have lived experience of fertility issues.[45]

As part of the wider project, the NCOB is building upon existing evidence by conducting major public dialogue work to explore public views and priorities on potential changes to the 14-day rule.

45 Human Developmental Biology Initiative (HDBI) (2023) *Public dialogue on research involving early human embryos*. Commissioned by HDBI, delivered by Hopkins Van Mil, available at: https://static1.squarespace.com/static/62878e0e940f1562ad8843fa/t/65382045dedc8d69cd9b84b2/1698177098079/HVM+HDBI+public+dialogue+report.pdf.

Implications of regulatory change

Decisions about changing the 14-day rule must take into account not only the key interests and values engaged by embryo research, but also the wider implications of potential regulatory change. Revisiting the rule raises questions about how scientific and ethical boundaries are maintained and perceived, and the impact that they may have on other jurisdictions.

Concerns of a 'slippery slope'

It has long been a concern that allowing research on early embryos could set a precedent that would make it harder to resist future extensions to the rule.[46] This is known as the **slippery slope** argument, which in the context of embryo research looks something like this: embryo research should not be allowed/the limit should not be extended because allowing research on embryos in a very early stage of their development/extending the limit beyond day 14 will lead to the permissibility of research on older embryos, fetuses or even newborns.[47] This argument is often used in debates about scientific and technological advances. Those who are concerned about the slippery slope may not object to extension of the rule in principle, but object due to the difficulties of drawing a line between practices currently considered less morally problematic, and practices currently considered highly immoral.[48]

Others contend that the ability to revisit limits does not, in itself, signal a slippery slope**.** It has been suggested that the 14-day rule can be seen as a regulatory "fence" – a way to pause, assess new developments, and make deliberate, evidence-based decisions about whether and how to proceed. On this view, a willingness to revisit the rules could be seen as a necessary feature of responsive, accountable policymaking.[49]

46 Freeman JS (1996) Arguing along the slippery slope of human embryo research *The Journal of Medicine and Philosophy* **21**: pp 61–81.

47 Cavaliere G (2017) A 14-day limit for bioethics: the debate over human embryo research *BMC Medical Ethics* **18(1)**.

48 Ibid.

49 Chan S (2018) How and Why to Replace the 14-Day Rule *Current Stem Cell Reports* **4(3)**: pp 228-234.

Nevertheless, there may be social consequences to extending the 14-day rule, even by a few days, as those who are worried about a slippery slope might take this extension as a sign that their fears are well grounded, eroding public trust.[50]

International impacts

Any change to the 14-day rule in one country could have implications further afield. The UK has historically been considered to have played a leading role in the governance of embryo research, and decisions by UK policy makers may influence global debates, whether directly or indirectly. Decisions about regulatory change therefore warrant careful reflection on the potential international consequences.

Embryo research operates within a globally-connected scientific landscape. Cross-border collaboration, publication, and funding mean that policy changes in one jurisdiction may affect expectations and practices in others. If after appropriate public dialogue, parliamentary debate, and expert review, a decision to extend embryo research limits were seen as ethically justifiable within the UK context for example, it may carry weight in jurisdictions where such processes have not occurred.

It is important to consider, therefore, what, if any, ethical responsibilities states or regulatory bodies have to the global community when altering boundaries in relation to embryo research, and what the impacts may be further afield.

50 Cavaliere G (2017) A 14-day limit for bioethics: the debate over human embryo research *BMC Medical Ethics* **18(1)**.

Conclusions

This briefing has outlined the diverse interests and values engaged by human embryo research and the 14-day rule. Decisions about whether, and if so how, to change the rule need to take into account this plurality of perspectives spanning scientific opportunities, arguments about the sanctity of life, trust, and public confidence. Questions remain about how different policy options might balance these values, how emerging scientific developments and evolving societal views should inform decisions about extending or maintaining the rule, and how ethics can be embedded throughout the decision-making process.

The NCOB's ongoing work, including deliberative workshops and public dialogue, will build on this evidence to explore these questions in depth, providing insights to inform future discussion and policy development.

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