Regulating Decision-Making in Multiple Pregnancy:

An Inquiry into the Practice of Fetal Reduction

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To my wife, Miriam, for your humour, friendship,
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ABBREVIATIONS

AA 1967 – Abortion Act 1967
ACOG – American College of Obstetricians and Gynecologists
BJOG – An International Journal of Obstetrics and Gynaecology
BMA – British Medical Association
BMJ – British Medical Journal
BMFMS - British Maternal and Fetal Medicine Society
CCS – Clinical Case Study
CDCLA – Congenital Disabilities (Civil Liability) Act 1976.
CICA – Criminal Injuries Compensation Authority
CQC – Care Quality Commission
DA – Diamniotic pregnancy
DC – Dichorionic pregnancy
DOH – Department of Health
DHSC - Department of Health and Social Care
ECHR – European Convention on Human Rights 1950 (Council of Europe)
ECtHR – European Court of Human Rights
ER – Embryo reduction
FIGO – International Federation of Gynecology and Obstetrics
FR – Fetal reduction
GMC – General Medical Council
HCP – Healthcare professional
HCProv – Healthcare provider
HFEA – Human Fertilisation and Embryology Act(s)
ILPA 1929 – Infant Life (Preservation) Act 1929
IUGR - Intrauterine growth restriction
LR – Literature Review
MC – Monochorionic pregnancy
MFPR – Multifetal pregnancy reduction
MP – Multiple pregnancy
MPTS - Medical Practitioners Tribunal Service
NDSCR – National Down Syndrome Cytogenetic Register
NICE – National Institute for Health and Care Excellence
NIHR – National Institute for Health Research
NHS – National Health Service

OAPA 1861 – Offences Against the Person Act 1861
OUP – Oxford University Press
PSA – The Professional Standards Authority
RCOG – Royal College of Obstetricians and Gynaecologists
RCP - Royal College of Physicians
TA – Transabdominal
TAP – Triamniotic pregnancy
TC – Transcervical
TCP – Trichorionic pregnancy
TFA – Termination for fetal anomaly
TOG – The Obstetrician and Gynaecologist
TOP – Termination of pregnancy
TTTS – Twin to twin transfusion syndrome
TAPS – Twin anaemia polycythaemia sequence
TRAPS – Twin reversed arterial perfusion sequence.
TV – Transvaginal

CHAPTER 1

INTRODUCTION

This book examines the regulation and practice of medical decision-making where the context is that of multiple pregnancy and where the question is whether or not to carry out a fetal reduction procedure. There are three main lines of inquiry: first, to establish the nature of fetal reduction and the legal grounds for termination typically relied upon. Secondly, it assesses the extent to which legal, ethical, and professional norms guide and constrain this particular kind of decision-making. Thirdly, it evaluates the adequacy of these norms in the context of medical practice.

The project's thinking started life in my doctoral research and took several years to reach the page. I undertook the underpinning research whilst working as a busy lecturer in higher education, with various roles and responsibilities distracting me along the way. I had an early interest in the regulation of end-of-life decisions as an undergraduate student. After returning to academia following a career in legal practice, I decided to re-direct my attention to the beginnings of human life. The regulation of reproduction and medical decision-making is a rapidly evolving and highly topical area. I looked for an original perspective on abortion and came across the ethical discussion of the 'lifeboat' dilemma in high order (triplet and greater) multiple pregnancies. I was fascinated by the arguments and drawn in by the relative sparsity of literature on the subject. It got me thinking about different stakeholder perspectives, and specifically, how regulatory influences shape behaviours in medical practice,

I have used socio-legal research methods and drawn upon various academic and medical sources, including new interview data obtained from English fetal medicine subspecialists between 2017 and 2018. A critical realist perspective has enabled the work to shine a spotlight on professional practice and regulation in action. My key findings show that fetal abnormality is often given as the justifying ground for fetal reduction, and the legal, ethical, and professional norms offer little explicit guidance to professionals. On the general question of termination, ethical norms suffer from a high level of contestation; the key norms in the abortion legislation are unclear and disconnected from practice, and professional norms are only

marginally more adequate. Given the indeterminacy of these norms, it is no surprise that the evidence indicates that doctors are only weakly guided by them in making their decisions. Various recommendations are advanced, including the need for legal reform and a situational emphasis on shared decision-making and patient-centred care.

This book should be of interest to those working in reproductive health and couples who have had or are going through a multiple pregnancy. It may also have relevance for those with a general interest in health and abortion regulation. The work contributes directly to the contemporary debate about patient and professional autonomy in light of recent jurisprudence.[1] Finally, it offers a range of situational empirical evidence relevant to the design of the regulatory frameworks.[2]

The dilemma of multiple pregnancy

Multiple births represent about 3% of all live births across England and Wales.[3] Unfortunately, multiple pregnancy significantly increases the risk of fetal mortality, development issues, prematurity, and associated complications.[4] These risks increase with each additional embryo, and high order multiples have a significant risk of complete pregnancy loss.[5] There are also general elevated health risks for pregnant women associated with carrying a multiple pregnancy.[6] In the late seventies and early eighties, clinicians started to evolve new surgical procedures (fetal reduction and

[1] *Montgomery v Lanarkshire Health Board* [2015] UKSC 11.

[2] Michael Dunn, K W M. Fulford, Jonathan Herring, Ashok Handa, "Between the Reasonable and the Particular: Deflating Autonomy in the Legal Regulation of Informed Consent to Medical Treatment." *Health Care Anal*. 27(2) (2019): 110; Oliver Quick, *A scoping study on the effects of health professional regulation on those regulated: Final report submitted to the Council for Healthcare Regulatory Excellence* (Quick, 2011), 3 & 22.

[3] TAMBA, "Press Statement 10 January 2019", accessed 12 February 2019. https://www.tamba.org.uk/document.doc?id=1018; NICE, *Multiple pregnancy: twin and triplet pregnancies (Quality Standard QS46)* (NICE, 2019)

[4] Complications of prematurity include cerebral palsy.

[5] Mark I. Evans, Stephanie Andriole, Shara M. Evans, David W. Britt, "Medical Reasons for pregnancy interruption: Fetal reduction." *Prenatal and Preimplantation Diagnosis* (2015): 97-117.

[6] Jane Denton and Elizabeth Bryan, *Multiple Birth Children and their families following ART, Current practices and conspiracies in assisted reproduction* (WHO Denton & Bryan, 2002); Royal College of Obstetricians & Gynaecologists, *Multiple pregnancy: the management of twin and triplet pregnancies in the antenatal period (NICE Clinical Guidance)* (RCOG, 2011a).

selective termination). These clinical options made it possible to reduce some of the inherent risks of multiple pregnancy by ending one or more embryo or fetus life, preserving the pregnancy for the survivors, or increasing their chance of survival and healthy life.[7] Initially, fetal reduction was focused on "*life or death cases*", but increasingly, these procedures are being used to address "*quality of life*" issues.[8]

Multiple pregnancy can present a real dilemma for parents and healthcare professionals, and decisions to reduce may be against a background of fertility treatment and longstanding desire for children. These procedures are far from routine, often involving technical or practical considerations around selecting the embryo to be 'reduced'.[9] Also, healthcare professionals have to make decisions against the backdrop of a complex regulatory and ethical framework.

Definitions and terminology[10]

The terms 'embryo' and 'fetus' are used interchangeably but denote different gestational development periods. There are different jurisdictional spellings of 'foetus' and 'fetus', but the latter scientific variant has been adopted for consistency wherever possible. Whilst the term 'abortion' has been used in conjunction with the 'termination of pregnancy', it is recognised that the former carries connotations and conveys possible meaning beyond the immediate descriptor. Further, abortion is commonly used to describe the termination of a whole pregnancy, whereas fetal reduction or selective termination generally refers to the ending of specific life. Finally, I have tried to avoid contentious references to 'mother', 'baby'

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[7] See Richard L. Berkowitz, Lauren Lynch, Usha Chitkara, Isabelle A. Wilkins, and others, "Selective reduction of multifetal pregnancies in the first trimester." *The New England Journal of Medicine,* 318(6) (1988): 1043-1047. Mark I. Evans, Stephanie Andriole, David W. Britt, "Fetal Reduction: 25 years' experience.*" Fetal Diagnosis & Therapy,* (2014): DOI: 10.1159/000357974.

[8] Evans and others. "25 years' experience"; G Greenberg, R Bardin, S Danieli-Gruber, K Tennebaum-Gavish, and others, "Pregnancy outcome following fetal reduction from dichorionic twins to singleton gestation." *BMC Pregnancy Childbirth* 20, (2020): 389.

[9] Alan Cameron, *Fetal medicine for the MRCOG and beyond* (2nd ed, London: RCOG Press, 2011).

[10] This section is developed from a working paper: Jeffrey Wale, "Selective termination of pregnancy and fetal reduction in multiple pregnancy: terminology, blurred lines and ethical discourse." *Researchgate.*(2015): DOI:10.13140/RG.2.1.5099.7368

or 'child', preferring the terms 'pregnant woman', 'embryo', 'fetus' and 'unborn entity' wherever possible.

My working definition for fetal reduction is *"the interruption of the development of one or more probably normal fetuses in multiple pregnancy"*.[11] Although there is some consensus, terminological and conceptual inconsistency still pervades the discourse about these procedures.[12] Some conceptualise fetal reduction narrowly,[13] whilst others take a broader approach conflating fetal reduction with selective termination of pregnancy (*'selective termination'*).[14] For clarity, I will adopt the following working definition for selective termination:

> *"[a procedure] used to interrupt the development of one of the fetuses affected by a serious and incurable pathology … [or in the] case of less severe pathologies which could be affecting the fetus, pathologies which could be prejudicial to the development of the healthy fetus or foetuses".*[15]

The primary distinction is that fetal reduction involves the termination of ostensibly healthy life or lives, whilst selective termination entails the termination of some form of anomalous life. However, in practical terms, both can involve a choice against a background of overlapping risk to the lives to be saved or preserved, a real consideration in terminations of monochorionic pregnancies with a vascular connection between the fetuses.[16] Further, these procedures can involve consideration of maternal risks; and intervention in high order multiple pregnancies (triplets or greater) often engages overlapping goals and motivation. Finally, both procedures require active and deliberate steps by healthcare professionals to

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[11] Claire-Marie Legendre, GMR Drouin, R Favre and C Bouffard, "Differences between selective termination of pregnancy and fetal reduction in multiple pregnancy: a narrative review." *Reproductive Bio-Medicine Online (Elsevier Science)*, 26(6) (2013): 542-543.

[12] Ibid.

[13] Ibid.; Royal College of Nursing (RCN), *Termination of Pregnancy: An RCN nursing framework* (RCN, 2017). Also, ACOG. "Committee Opinion", https://www.acog.org/Resources-And-Publications/Committee-Opinions/Committee-on-Ethics/Multifetal-Pregnancy-Reduction.

[14] See for eg., Caroline M. Ogilvie, "Multiple pregnancy, fetal reduction and selective termination", *Reproductive BioMedicine Online (Elsevier Science), 26(6)* (2013): 522; Wale, "Terminology, blurred lines and ethical discourse".

[15] Legendre and others., "Differences", 543 (bracketed words added).

[16] Cameron, *Fetal Medicine*; Aris Antsaklis and Eleftherios Anastasakis, "Selective reduction in twins and multiple pregnancies." *Journal of Perinatal Medicine*, 39(1) (2011):15; B R Toneto. *Complications in Monochorionic Pregnancies* (Online: Intechopen, 2018).

bring about the end of at least one embryo or fetal life. From the woman's perspective, these procedures might involve an omission because they enable her to:

> *"decline the medical technology that would otherwise be required to sustain a pregnancy associated with severe fetal morbidity".*[17]

However, this narrative framing presumes an inherent need for supporting technology and sidesteps the active steps necessary to remove the need for technological support. The claim is also predicated on the risk of severe fetal morbidity–a point that is contested in low order multiple pregnancies.

Pausing to examine the terminological distinction between selective termination and fetal reduction in a little more detail. First, selective termination is usually an elective procedure requiring informed and explicit agreement by the pregnant woman. Beyond specific lifestyle considerations, prospective parents are unlikely to bear any responsibility for the existence of anomaly. A conscious decision will need to be made by healthcare professionals and pregnant women to terminate a specific entity. If the parties' primary goal is to target an 'affected' fetus, it necessarily requires a conscious assessment and decision concerning the anomaly's nature and severity. In Great Britain, the relevant legal ground for termination requires two registered medical practitioners (doctors) to certify in good faith:

> *"that there is a substantial risk that if the child were born it would suffer from such physical or mental abnormalities as to be seriously handicapped".*[18]

Accordingly, when using this ground, doctors are primarily responsible for assessing and deciding whether the risk/anomaly meets the permissible criteria and cannot be challenged without evidence of bad faith.

Secondly, there is no doubt that selective termination involves termination of life, although the nature and value of that life can be debated. However, it is arguable that it is specific life and not the pregnancy that is being terminated. Accordingly, '*selective fetal or embryo termination'* may be a better descriptor. Further, the phrase "*interrupt the development*"

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[17] Mary B. Mahowald. "The fewer the better? Ethical issues in multiple gestation". In *Ethical issues in Maternal-Fetal Medicine*, ed. Donna Dickenson (Cambridge: Cambridge University Press, 2002), 258.

[18] Abortion Act 1967, s1(1)(d). There may be concurrent grounds under s 1(1)(a) up to the 24th week of the pregnancy.

obscures or avoids the practical reality of what is being done by the clinician, namely the active termination of embryo or fetal life.[19]

Thirdly, the working definition of selective termination frames the procedure either as the means to prevent the birth of an entity with abnormality/disease or to protect another embryo/fetal life in the multiple pregnancy. Whilst these are distinct ends, they may also be collective aims of the healthcare professionals and pregnant women involved. Indeed, the working definition of selective termination does not explicitly identify the prevention of maternal morbidity or mortality as a primary aim. However, the woman's welfare is likely to be a central concern even if serious complications are uncommon and the risk of maternal death is incredibly low. [20]

By comparison, Legendre et al. have described fetal reduction as the means to three possible goals: reducing maternal morbidity, lessening fetal mortality, and socio-economic ends.[21] First, their fetal reduction label expressly includes the context (multiple pregnancy), whereas that specificity is missing from their label for selective termination. Secondly, it is notable that their terminology for fetal reduction drops the word 'selective'. In no sense does the healthy fetus choose to be terminated, and the term 'select' might be something of a misnomer as it probably overstates the real choice available to pregnant women in this context.[22] However, Judith Daar would prefer to retain the term because it accurately reflects "*what is transpiring when a woman elects to undergo the procedure*" in the sense that she chooses to have it.[23] The pregnant woman's involvement in selecting the targeted life may depend on clinical practice. Still, if a choice is available, respect for her bodily autonomy dictates that she should be given this option.[24] In any event, the pregnant woman will probably want to improve fetal/ personal outcomes and is unlikely to desire or wish to terminate a healthy fetus. The literature shows that clinical selection is based on medical criteria, accessibility, and location.[25] However, Patkos argues that *"embryonic reduction is not a selective procedure but a numerical reduction of*

[19] Mahowald, "The fewer the better".
[20] Legendre and others., "Differences", 547.
[21] Legendre and others, "Differences", 546.
[22] Stacey Pinchuk, "A Difficult Choice in a Different Voice: Multiple Births, Selective Reduction and Abortion." *Duke J Gender L & Policy*, 7(29) (2000): 31.
[23] Judith F. Daar., "Selective reduction of multiple pregnancy: lifeboat ethics in the womb." *Davis LR,* 25(4). (1992):773, 779-780.
[24] Cf Jane Fisher, P A. Lohr, C Lafarge, S C. Robson, "Termination for fetal anomaly: Are women in England given a choice of method?" *Journal of Obs & Gynae*, 35(2) (2015): 168.
[25] Cameron, *Fetal Medicine*; Antsaklis and others, "Selective reduction".

embryo",[26] relegating the entity to a problem to be managed. Berkowitz and Lynch have argued that selective reduction is inaccurate and potentially "*psychologically damaging because it implies that specific fetuses have been targeted*".[27] This view is consonant with evidence that shows that many clinicians prefer to emphasise the positive rather than the negative aspects of the fetal reduction procedure.[28] Variable moral beliefs and differentiated goals probably underpin these different views and approaches in any event.

Thirdly, an essential feature of the fetal reduction label is the explicit focus on 'reduction' rather than on the termination of life. Mahowald argues that the term 'reduction' is misleading or ambiguous because it obscures that the procedure kills at least one entity and rarely makes it impossible for the others to survive.[29] Similarly, David Price asserts that the distinction is "*(l)inguistic juggling (that) cannot alter the nature of the act."*[30] Mahowald concludes that the better terminology is "*fetal termination with pregnancy preservation*".[31] However, this limits the scope to cases where pregnancy preservation is a necessary condition of fetal reduction and is thus contestable in low order multiples.[32]

These terminological inconsistencies also pervade the associated legal and professional ethical rules/codes. UK law does not formally differentiate between the procedures, but selective termination requires the authorising ground to apply to the target (anomalous) fetus when an anomaly is the decisive reason for acting.[33] However, fetal mortality or the risk of fetal mortality does not provide direct and lawful grounds for termination. The specific use of 'intention' based crimes to regulate these procedures arguably contributes to the confusion because this mental element encompasses consequences that are foreseen as a virtually certain result of conduct

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[26] P, Patkos, "Embryonic reduction, selective termination." *Ultrasound Rev. Obstet. Gynecol* 3 (2003):290.

[27] Richard L. Berkowitz and Lauren Lynch, "Selective reduction: An unfortunate misnomer." *Obstetrics and Gynecology* 75(5) (1990): 873.

[28] E.g., FIGO Committee for the Ethical Aspects of Human Reproduction & Woman's Health, "Ethical Recommendations on multiple pregnancy and multifetal reduction." *International Journal of Gynecologists & Obstetricians,* 92 (2006): 331.

[29] Mahowald, "The fewer the better", 250.

[30] David P T. Price, "Selective reduction and feticide: the parameters of abortion." *Crim L. R.* (1988): 199, 206 (bracketed word added).

[31] Mahowald, "The fewer the better", 251.

[32] See for example, Fanny Kuhn-Beck, G. Moutel, A S Weingertner, M. Kohler and others, "Fetal reduction of triplet pregnancy: One or two?" *Prenatal Diagnosis,* 32(2) (2012):122.

[33] Abortion Act 1967, s 5(2)(a). This Act does not apply to Northern Ireland.

(oblique intention).[34] Consequently, the criminal law may capture conduct with a primary goal (preserving life) and a foreseeable and virtually certain secondary outcome (death). Although there is a general reluctance to make allowances for an agent's motive, the courts have tended to show a deferential approach to beneficent healthcare professionals, impacting the law's overall coherence in this area.[35]

Some differences can be drawn between the two procedures in terms of medical indications, context, and timing, but there is a degree of overlap in practice. Indeed, the majority of my research participants regarded the distinction as an arbitrary one. Whether these distinctions are important will turn, to some degree, on your ethical framing of the procedures involved.[36] Healthcare professionals can deploy specific language and labels for technical reasons, beneficent concern for patients,[37] or out of a desire to sidestep a polarised ethical debate.[38] A good example comes from the FIGO Committee for the Ethical Aspects of Human Reproduction and Woman's Health:

> *"Multifetal reduction is not medically considered as terminating that pregnancy but rather as a procedure to secure its best outcome".*[39]

This narrative emphasises the procedural goal but is misleading if you believe that we should always consider the means to our ultimate ends.

Preliminary considerations

In Great Britain, fetal reduction sits within the same basic legal framework as singleton termination–a model complicated by jurisdictional variation and the separate framing of criminal offences and defences. The Abortion Act 1967 (AA 1967) was amended to address selective termination

[34] The law in England and Wales as per *R v Nedrick* [1986] 1 WLR 1025.
[35] *Gillick v West Norfolk & Wisbech AHA* [1986] AC 112; Roger Brownsword and Jeffrey Wale. "Compromise Medicalisation". In *Pioneering Health Care Law Essays in honour of the work of Professor Margaret Brazier*, eds. Catherine Stanton, Sarah Devaney, Anne-Maree Farrell & Alexandra Mullock (Abingdon: Routledge, 2015).
[36] Mark I. Evans and David W. Britt, "Multifetal Pregnancy Reduction: Evolution of the Ethical Arguments." *Seminars in Reproductive Medicine,* 28(4) (2010): 295.
[37] Berkowitz and Lynch, "An unfortunate misnomer".
[38] Price, "the parameters", 7.
[39] FIGO, "Ethical Recommendations", 332.

and fetal reduction in multiple pregnancy.[40] Although fetal outcome is not a legal ground for termination under the AA 1967, it is arguable that all multiple pregnancies involve a greater risk to the pregnant woman than the termination procedure. Unlike most singleton terminations,[41] fetal reduction is necessarily a hospital-based surgical procedure typically undertaken in a specialist (NHS) tertiary fetal medicine centre.[42] Although there is some variation, feticide by thoracic injection is the primary clinical option, often employed in the early second trimester of the pregnancy.[43] The place, method, timing, and rationale for reduction all feed into the legal foundation for these procedures in Great Britain.

Our national statistics do not differentiate between fetal reduction and selective termination: the combined number of procedures has not exceeded 150 per annum since 2002, with 111 procedures notified in England and Wales in 2017 and 2018.[44] The proportions of reductions (3 reduced to 2, 3 reduced to 1 etc.) have stayed roughly the same over the years. In 2018 there were 74 cases (where 2 reduced to 1), 30 cases (3 reduced to 2), 6 cases (3 reduced to 1), and 1 case (where 4 or more fetuses were involved). 86% of these procedures were performed using the anomaly ground (ground E), in marked contrast to singleton terminations that are typically justified using ground C.[45]

Structure

This book is divided into eight chapters, starting with this introduction. Chapters 2 to 4 explore the norms and frameworks that influence these procedures and aim to address the second line of inquiry. Specifically, chapter 2 examines the relevant moral and philosophical ethical frameworks and is primarily concerned with the influence of the embryo or fetus's moral status upon medical decision-making. Chapter 3 considers the relevant legal

[40] Abortion Act 1967, s 5 (as amended by Human Fertilisation & Embryology Act 1990, s 37).
[41] In 2018, 71% of pregnancy terminations were performed by medical as opposed to surgical methods (Department of Health and Social Care (DHSC), *Abortion Statistics, England and Wales: 2018: Summary information from the abortion notification forms returned to the Chief Medical Officers of England and Wales* (DHSC, June 2019)).
[42] NHS Standard Contract for Fetal Medicine.
[43] Legendre and others., "Differences". R Katie Morris. and Mark D. Kilby, "Fetal Reduction." *Obs, Gynae & Reprod Med,* 20(11) (2010): 341.
[44] DHSC, Abortion Statistics 2018.
[45] Ground E=Abortion Act 1967, s 1(1)(d). Ground C=Abortion Act 1967, s 1(1) (a) but limited to consideration of the pregnant woman.

regulatory frameworks, with a specific focus on Great Britain.[46] In particular, the chapter examines regulation using the concept of pregnancy and the alternative of entity-based regulation. Chapter 4 examines general principles of medical ethics and the role of personal, professional, and cultural norms in healthcare delivery. It also considers the role of professional regulation, medical deference, and the complexity of medical decision-making in the context of fetal reduction and selective termination. Chapters 2 and 4 are interconnected and complement one another because they are both concerned with the guidance that healthcare professionals might derive from the ethical frameworks and general ethical principles. Chapter 5 frames healthcare professionals as 'choice architects' and evaluates models, mechanisms, and priorities for regulating decision-making in the clinical encounter. Chapter 6 examines a range of empirical studies, draws upon different stakeholder perspectives, and helps situate the discussion of regulatory reform. Chapter 7 discusses possible regulatory responses, and chapter 8 offers some closing remarks.

[46] England, Wales, and Scotland.

CHAPTER 2

ETHICAL FRAMEWORKS

Introduction

This chapter aims to give you a flavour of the arguments around entity moral status, the ethical considerations underpinning pregnancy termination, and the possible connections between moral status and legal regulation. A large part of this chapter is concerned with the question of the moral status of the embryo/fetus and what this might mean for medical decision-making in multiple pregnancy. This is an important question for healthcare professionals because they need to know whether, in their decision-making, they should treat an embryo or fetus as having: (a) no interest, (b) an interest that grows with development, or (c) an equal interest to a born human. Although competing claims are evaluated, it is not my intention to definitively resolve any moral or ethical issue. Instead, the primary aim is to convey a sense of the considerations that are likely to influence stakeholders and the moral/ethical frameworks in which medical practice operates.

At the outset, it is important to distinguish between the ethical norms applied to the termination of pregnancy in general and the ethical norms applied to fetal reduction and selective termination. To be sure, there is some overlap, but there is also added tension and possible conflict flowing from the presence and development of multiple unborn lifeforms. What is made of these circumstances will depend, to a large extent, on the value and weight attributed to different forms of human life and broader consequentialist arguments. However, because of this overlap, the analysis starts in general terms before focussing upon the specific issues arising from fetal reduction and selective termination.

Moral status

Discussion about the morality of pregnancy termination typically starts with an analysis of the beginnings of human life and a determination of the

embryo or fetus's moral status. Ethicists Tom Beauchamp and James Childress describe moral norms and moral status as follows:

> *"criteria of moral status are moral norms in the generic sense of "moral norm". A norm in the most general sense is a (prima facie) standard that has the authority to judge or direct human belief, reasoning, or behaviour. A norm guides, commands, requires, or commends. Failure to follow a norm warrants censure, criticism, disapproval or some other negative appraisal. Criteria of moral status satisfy this description."*[1]

Accordingly, being accorded the moral status of a 'human person' ought to afford that entity the same prima facie obligations, rights, and protections that apply to other 'human persons'. Of course, this begs the question of whether to categorise all human life in the same way or restrict the 'human person' concept to a narrower band of human life. Mary Warren claims that when an entity has moral status, it generates or imposes obligations on moral agents in relation to that entity.[2] For Warren, the function of moral status involves either setting minimum standards of behaviour or establishing moral ideals in dealings with those entities.[3] In the context of pregnancy termination, concern about moral status typically extends to consideration of the unborn's right to life and recognition of a right not to be killed or left to die. Your response to these issues is likely to be influenced by the preference for minimum or idealised moral standard-setting. According to Warren, the "*strategies that we use to resolve the tension between these two functions…will influence our attitudes towards many practical moral issues*".[4]

Human biological development

So how do we know or decide when and which type of human life attains moral significance? To start with, we need some insight into the process of human biological development. Conventional (in-vivo) human conception takes place when the sperm enters the egg. Fertilisation takes place later when the zygote is formed, and the nuclear material from the gametes fuse.

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[1] Tom L. Beauchamp and James F. Childress, *Principles of Biomedical Ethics*, (7th edition, Oxford: Oxford University Press, 2013), 85.

[2] Mary A. Warren, *Moral status: obligations to persons and other living things* (Oxford: Oxford University Press, 1997), 3. See also, David R. Lawrence and Margaret Brazier, "Legally Human? 'Novel Beings' and English Law." *Med L. Rev,* 26(2) (2018): 309, 313-314.

[3] Warren, *Moral status*, 13-14.

[4] Warren, *Moral status,* 14.

The zygote goes on to form the morula, and subsequently the blastocyst, as it moves from the fallopian tube to the womb and implants (in-utero implantation). The primitive streak forms approximately 14-15 days after fertilisation.[5] In-vitro fertilisation (IVF) involves some modification as the process takes place outside of the woman in an ex-vivo environment.

The medical profession conventionally uses the first day of the woman's last menstrual period to calculate pregnancy duration.[6] However, this starting date is approximately 2 weeks before ovulation, and discourse on fetal or embryo development runs typically from 2 weeks after the first day of the woman's last period: so 7 weeks of development corresponds to 9 weeks of pregnancy.[7] A more technical dating exercise may occur following ultrasound scanning, typically between 11 and 13 weeks 6 days in multiple pregnancies.[8] The human embryonic stage ends after 7 weeks of development/ 9 weeks of pregnancy, and the fetal stage starts at 8 weeks of development/10 weeks of pregnancy.[9] The first trimester covers the first 12 weeks of the pregnancy. The second trimester runs between weeks 13 to 28 of the pregnancy. Viability (a term used to describe when the fetus becomes technically capable of independent existence from the woman) is around 24 weeks in most developed countries[10] but is a variable point dependent on a range of socio-economic and technical factors. Fetal pain response occurs sometime after 24 weeks, although the literature is not conclusive on the starting point,[11] and moral precaution has been claimed for pregnancies

[5] Warnock Committee Report, *Report of the Committee of Inquiry into Human Fertilisation and Embryology* (HMSO Reprint, 1988), 66.

[6] See Department of Health and Social Care, *Clarification of time limit for termination of pregnancy performed under Grounds C and D of the Abortion Act 1967* (DHSC 23 July 2018); NHS. "Your pregnancy and baby guide". Accessed 12 February 2021. http://www.nhs.uk/Conditions/pregnancy-and-baby/pages/due-date-calculator.aspx .

[7] Legendre and others., "Differences", 544.

[8] Royal College of Obstetricians & Gynaecologists, *Multiple pregnancy: the management of twin & triplet pregnancies in the antenatal period (NICE Clinical Guidance)* (RCOG, 2011a).

[9] Legendre and others., "Differences", 544.

[10] See for e.g., BMA, *The Law & Ethics of Abortion, BMA Views* (BMA, updated September 2020)), 6.

[11] Royal College of Obstetricians & Gynaecologists, *Fetal Awareness: Review of Research & Recommendations for Practice (*RCOG, 2010).

between 20-23 weeks gestation.[12] The third trimester starts in the 29th week of pregnancy, and the pregnancy is at full term from the 37-38th week.

Moral protection

According to Beauchamp and Childress, the mainstream approach to the question of who or what should be protected by a moral norm is to ask whether the being:

> *"is the **kind of entity** to which moral principles or other moral categories can and should be applied and, if so, based on which **properties** of the being".*[13]

This statement assumes that moral status or categorisation can be determined by the '*essential nature of beings*' or *intrinsic* considerations.[14] There is also the question of the appropriate emphasis on '*what an entity is'* and what an *'entity can do'*. Some philosophers have suggested that a simple shift in ontological status can change moral rights.[15] However, fixed-point references can be problematic in a transformative physiological process.[16] Others have claimed that moral status can and ought to be determined by circumstances external to the nature of the being,[17] asserting that moral protection can and

[12] E. Christian Brugger, "The Problem of Fetal Pain and Abortion: Toward an Ethical Consensus for Appropriate Behavior." *Kennedy Institute of Ethics Journal,* 22(3) (2012): 263.
[13] Beauchamp & Childress, *Principles*, 65 [emphasis added].
[14] Alan Clune, "Deeper problems for Noonan's probability argument against abortion: On a charitable reading of Noonan's conception criterion of humanity." *Bioethics,* 25(5) (2011): 280, 283. See also Lawrence and Brazier, "Legally Human", 317-318.
[15] John T. Noonan. "An Almost Absolute Value in History". In the *Morality of Abortion: Legal and Historical Perspectives*, (Pr: Harvard University Press, 1970) 51; Stephen Smith. "Dignity: The difference between abortion and neonaticide for severe disability". In *The Criminal Justice System and Health Care,* eds. C A. Erin and S Ost (Oxford: Oxford University Press, 2007).
[16] See generally Samuel Taylor-Alexander, Edward S. Dove, Isabel Fletcher, Agomoni Ganguli Mitra, and others, "Beyond Regulatory Compression: Confronting the Liminal Spaces of Health Research Regulation." *Law, Innovation and Technology*, 8(2) (2016):149.
[17] Judith J Thomson, "A Defense of Abortion." *Philosophy & Public Affairs*, 1 (1971): 57.

should be independent of intrinsic moral status.[18] Once again, the concept of framing is critical: we need to understand how terms are being deployed in any discourse about human life[19] and the narrative messages conveyed by terms like 'abortion', 'human being', and 'human person'. In the following section, I will highlight popular arguments about moral status that have been associated with gestational development:

Conception

Religious, quasi-religious[20] and secular[21] arguments have claimed that full human moral status starts from conception. Conception is the point at which the sperm penetrates the egg, and some secular claims maintain that the genetic components of human life are complete at this stage of creation.[22] Francis Beckwith argues that we have "*a unified organism with its own intrinsic purpose and basic capacities*" at conception.[23] Don Marquis counters that there is also biologically human life before conception (the sperm and unfertilised egg), although moral claims are rarely advanced for the gametes in isolation.[24] Opponents of the conception starting point often make a moral distinction between human life and the human person, the latter occurring sometime after conception. For John Noonan, conception is the appropriate criterion of moral rights due to the '*sharp shift*' in the probability of the entity becoming possessed of human reason at that point.[25] Others have claimed that we should play it safe and use conception because it is the clearest place to draw the line.[26]

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[18] Beauchamp & Childress, *Principles*; Carson Strong. "Overview: a framework for reproductive ethics". In *Ethical Issues in Maternal-fetal Medicine*, ed. Donna Dickenson (Cambridge: Cambridge University Press, 2002).

[19] Michael Tooley, "Philosophy, critical thinking and 'after-birth abortion: why should the baby live?" *J Med Ethics,* 39(5) (2013): 269.

[20] Peter Kreeft, "The Apple Argument Against Abortion." *Human Life Review,* 27(1) (2001) 81.

[21] Francis J. Beckwith, *Defending life: a moral and legal case against abortion choice* (New York: Cambridge University Press, 2007); Christopher Kaczor, *The ethics of abortion: women's rights, human life, and the question of justice* (New York; Abingdon: Routledge, 2011).

[22] Ibid.

[23] Beckwith, *Defending Life*, 182.

[24] Don Marquis, "Abortion and the beginning and end of human life." *Journal of Law, Medicine and Ethics,* 34 (2006): 16, 19.

[25] Noonan, "An Almost Absolute"; Clune, "Deeper problems".

[26] C E., Koop, "The Sanctity of Life." *The Journal of the Medical Society of New Jersey* 75(1) (1978): 62.

Fertilisation

Fertilisation involves the creation of the zygote and the fusion of the nuclear material (the chromosomes) from each gamete and should not be confused with conception.[27] Whilst it is notable that fewer than 15% of fertilised eggs result in birth,[28] Christopher Kaczor maintains that this fact should not have any bearing on the moral status.[29] One obvious problem for this starting point is that a zygote gives rise to both a placenta and a human being, and *"it cannot already be both a human being and a placenta."*[30] The fact that the zygote can split before implantation and give rise to multiple embryos is also problematic[31] but does not necessarily preclude independent moral status for that entity.[32]

Implantation

The criminal law in England and Wales offers qualified legal protection following implantation of the fertilised egg in the uterus, and the pregnancy is then recognised as being established.[33] However, the ex-vivo embryo does have some legal protection before implantation,[34] and neither legal position necessarily reflects the moral status of the embryo at this point of gestation. Once again, it may be challenging to establish the timing of implantation with absolute certainty, a problematic state of affairs for any regulatory system that depends on this event as a starting point for legal protection.

Primitive streak

Following the formation of the primitive streak–a base or foundation from which the embryo develops-we can definitively identify the number of embryos. Formation of the primitive streak occurs approximately 14 days after fertilisation, but this is not a precise point in time. Many abortion

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[27] Michael Tooley, Celia Wolf-Devine, Philip E. Devine, and Alison M. Jaggar, *Abortion: Three Perspectives* (Oxford: Oxford University Press, 2009), 45.
[28] Highlighted in *R (John Smeaton on behalf of the Society for the Protection of Unborn Children) v Secretary of State for Health* [2002] EWHC 610.
[29] Kaczor, *The ethics of abortion*, 131-133.
[30] John A. Burgess. "Could a zygote be a human being". *Bioethics,* 24(2) (2010): 61.
[31] Ibid., 62.
[32] Kaczor, *The ethics of abortion*, 127-130.
[33] Offences Against the Person Act 1861, ss 58-59; *R (Smeaton)*.
[34] Cf Human Fertilisation & Embryology Act 1990

opponents recognise the inherent difficulties of advancing an earlier starting point for moral status.[35] The formation of the primitive streak has been used as a legally significant point for embryo protection in the context of in-vitro storage and research in the UK.[36]

Cardio-vascular system

At approximately 6 weeks of gestation, a rudimentary cardio-vascular system develops in the embryo.[37] Some claim that there should be symmetry between our conceptions of when and what causes life to begin and end.[38] As we tend to use brain stem death as the definitive test for the end of human life, the fetal brain stem's formation and functioning may be a better starting point. This event occurs slightly later in gestational development.[39]

Quickening

The concept of 'quickening' has historical significance in legal regulation and denotes when embryo movement is first detected.[40] Again, quickening is not a fixed point in time and relies on extrinsic factors (external perception of movement). It is, therefore, a problematic starting point for moral status or protection and is rarely advanced in modern ethical discourse.

Appearance

From about 8 weeks of development, the fetus starts to look human and to possess some human physical characteristics. However, Kaczor says that we should base our judgements on moral status *"not on what appears to be the case, but on what is in reality the case"*. '[41] One of the reasons that 3/4D scan imaging has become so contentious during pregnancy is its impact and

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[35] Wolf-Devine & Devine in Tooley & others., *Three Perspectives*, 87-88.
[36] Human Fertilisation and Embryology Act 1990, s 3(3); Warnock Committee Report, 66.
[37] Burgess, "Could a Zygote", 69.
[38] For a critique, see Marquis, "Abortion".
[39] For a critique of the brain stem test, see Jeff McMahan, *The ethics of killing: problems at the margins of life* (NewYork; Oxford: Oxford University Press, 2002), 426.
[40] John Keown, *The Law and Ethics of Medicine: Essays on the Inviolability of Human Life* (Oxford: Oxford University Press, 2012).
[41] Kaczor, *The ethics of abortion*, 79.

role in constructing the fetus as a human person through physical similarity to early neonates.[42]

Capacity

A popular claim is that human personhood and full moral status are only achieved once life becomes viable and has the capacity for independent existence. Jonathan Herring points out that viability relativises moral status, and even a child born at full term could not survive if left alone without support.[43] Marquis correctly highlights that '*independence is not a necessary condition of being alive'*;[44] indeed, the prospect of ectogenesis[45] poses practical challenges for moral claims built on the capacity for separate existence.[46] Although there is some evidence of survival at 22 weeks gestation, the BMA has maintained that survival rates and the rates of severe disability have not improved amongst babies born at 23 weeks or less in recent years.[47] Others base moral status on the existence of sentient life: where there is the capacity to experience discomfort, sensation, or desires. Warren describes sentience as the capacity to feel pleasure or pain; and something more than consciousness.[48] Again it is difficult to pin down a precise starting point, and capacity-based claims need to address fluctuations in capacity and the exercise of capacity over time.[49] David Boonin claims that we should use organised cortical brain activity as the measure of moral significance,[50] treating the start of life in the same way we measure the end of life,[51] arguing that dispositional conscious experience is present from this point. David Lawrence and Margaret Brazier prefer to use '*sapience*'

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[42] Kristin L. Savell. "Life & death before birth: 4D ultrasound & the shifting frontiers of the abortion debate". *Journal of Law & Medicine,* 15(1) (2007): 103.
[43] Jonathan Herring, *Medical Law & Ethics* (4th edition, Oxford: Oxford University Press 2012), 322.
[44] Marquis, "Abortio*n*", 18.
[45] Gestation in an artificial environment outside the woman.
[46] Amel Alghrani and Margaret Brazier, "What Is It? Whose It? Re-Positioning the Fetus In the Context of Research." *Cambridge Law Journal,* 1 (2011): 51.
[47] BMA, *The Law and ethics of abortion: BMA Views* (BMA November 2014), 4. Note: not asserted in updated versions.
[48] Warren, *Moral status*, 52-56. Cf. Lawrence and Brazier, "Legally Human?", 312-213.
[49] Beauchamp & Childress, *Principles*,75-76. Warren, *Moral status*.
[50] David Boonin, *A Defense of Abortion* (Cambridge: Cambridge University Press, 2002).
[51] Julian Savulescu, "Abortion, Embryo Destruction and the Future of Value Argument." *J Med Ethics,* 28 (2002): 133-135.