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'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

Erica Haines, Rouven Porz, Jackie Scully and Christoph Rehmann-Sutter

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Corresponding author:

Professor Erica Haines

School of Geography, Politics and Sociology

Newcastle University

Newcastle NE1 7RU

erica.haines@ncl.ac.uk

0191-243 0789 (direct)

0191-243 0780 (messages)

Abstract:

The moral status of the human embryo has gained much attention in debates over the acceptability, or otherwise, of human embryonic stem cell research. Far less attention has been paid to the suppliers of those embryos: people who have undergone IVF treatment to produce embryos to assist them to have a baby. It is sociologically and ethically important to understand their views and experiences of being asked to donate embryos for research if we are to fully understand the wider social and regulatory aspects of hESC science. This paper reports on parallel studies investigating these issues in the UK and in Switzerland. The studies reveal the inextricable entangling of the social and moral status of embryos. Since donors participate in different discursive domains and contexts (public, clinic, family) that shape their perception of 'what' an embryo is, their views of embryos embody conflicting views and ambivalences.

I: Introduction

Recent developments in the life sciences have stimulated sociological and anthropological interest in the human embryo generally and particularly in its role in human embryonic stem cell science (hESC) (Waldby and Mitchell 2006, Franklin 2006, Parry 2006, Svendsen and Koch 2008). A key question raised by hESC science is the moral status of the human embryo and the acceptability of deriving stem cells from embryos. A second sociologically and ethically important issue is the source of embryos and the protection afforded embryo donors; couples undergoing, or who have undergone, IVF treatment (Haimes and Luce, 2006). This paper contributes insights to both questions with data from parallel projects in Switzerland and the UK on the experiences of those asked to donate their 'spare' embryos.

Few comparative data are available on either the social implications of hESC science or decisions that people are asked to make, during or after IVF treatment, in donating an embryo to hESC science: this paper is the first to provide such comparative insights. For each study we provide brief details of the relevant regulatory context, and then provide indications of the values and concerns that emerge when donors discuss their responses. The legislative and cultural context regulating the use and storage of embryos is different in each country, so this comparative approach extends insights into the broader issue of national and international governance of embryonic stem cell research (Jasanoff, 2005). There are also considerations common to both countries. For example, the IVF clinic is a particular social and physical setting at the medico-familial interface, but the introduction of stem cell science potentially changes that into a medico-research space. One question is whether, and if so how, this affects the social relationships therein.

II: The UK study:

Regulatory context. The UK was the first country to allow human embryonic stem cell research. The use and storage of embryos is regulated by the Human

Fertilisation and Embryology Act (HFE Act) 1990, amended in 2001 specifically to allow research on embryos to improve the creation of stem cell lines and the development of the treatment capabilities of those lines. Within Europe the UK epitomizes a liberal, pragmatic approach to biomedical regulation, though there was much debate, with opposition primarily from those who believe that life begins at conception and so the embryo should be protected from destruction by such research (Deckers, 2007). Four counter-arguments were accepted by UK legislators: the 'argument from suffering' justifies embryo research because of its potential to assist the development of treatments for disease; the 'argument from twinning' asserts that early embryos cannot be considered human individuals because blastocysts can develop into two human beings; the 'argument from capacities' suggests that since embryos lack the ability to think, act and communicate they cannot be accorded full status as human beings, and the 'argument from potentiality' accepts that though the embryo has the potential to develop into a human being, this can only occur under specific circumstances and therefore it cannot be considered a human being in itself (Deckers, 2005; Lizza, 2007). Nonetheless, UK legislators accepted that the human embryo should be accorded particular respect (Johnson, 2006; Gibson, 2007) and that carefully regulated research should only be allowed on embryos up to fourteen days old.

These deliberations posit two views of the embryo: the first, held by opponents of embryo research, that the embryo should be a fully protected life form; the second, accepted by UK legislators, that the embryo is a precious resource, worthy of respect and protection in its special relationship to human life, whilst very valuable for other purposes. 'Precious' here acquires two senses: 'special' and 'scarce'.

Empirical study. The UK report is based on research in one clinic. All couples undergoing IVF treatment over a specified time period who were asked to donate 'spare'ⁱ embryos for hESC research were contacted by the social researchers approximately six weeks after receiving their pregnancy result to request their participation in an interview to explore their views and experiences. Forty four

couples were interviewed in depth; most had consented to donate embryos at some point though not all consented to the full range of studies and not all donated in every cycle.

Five major themes emerged from this study: (1) how interviewees spoke about the embryo; (2) why and how they made the decision to donate or to refuse; (3) their evaluations of the consent process; (4) their understandings of the research projects they were being asked to donate to, and finally, as a cross-cutting theme, (5) the context in which interviewees were asked to donate their embryos. Choosing to donate, or not, is a decision positioned in relation to other decisions and choices in interviewees' lives, including, most crucially, the decision to seek IVF treatment in the first place (Franklin, 1997). Couples can only be asked to donate because they are going through IVF; successful treatment and having 'our baby' is their primary concern and forms the backdrop to the experience of being asked to donate embryos. They are, from their point of view, 'IVF patients' rather than 'potential embryo donors'.

The following emerged as key reference points for interviewees' discussions of the embryoⁱⁱ: (i) deliberations over whether the embryo is a baby/child, and whether the embryo is a living entity; (ii) distinguishing between eggs, embryos and fetuses; (iii) the 'calculus of conception' (Haimes 2007): the mental arithmetic that couples constantly have to perform when considering the possible combinations of treatment outcomes; (iv) the experience of seeing, or declining to see, the embryos to be transferred, on a screen, prior to transfer; (v) comparing the embryos transferred into a woman with those donated for research. We shall focus on the first theme, but awareness of other themes shows how complex and potentially variable interviewees' understandings of the embryo are.

The dominant framing for how interviewees discussed the embryo could be termed 'baby talk'. This is not surprising given the IVF context but neither is it insignificant therefore in understanding how the embryo is located in the overlapping lexicons of reproduction and research. This is not to say, however,

that the embryo was simply seen as the equivalence of a baby; rather, that 'baby talk' frames the context of deliberations, being the initial and most prominent reference point from which further distinctions developed. Two clusters of views emerged: the possibility that the embryo *is* a baby or could be regarded as such, either actually or in its immediate potential, and the view that the embryo is clearly *not* a baby, though this in turn often leads to a debate over whether the embryo is nevertheless living. These two positions do not represent hard and fast groupings to which interviewees could be easily allocated, however; rather they were clusters of considerations which they voiced as they struggled to reach a settled view.

'Baby talk': An example of the ways in which 'baby talk' was the starting point for interviewees' deliberations comes from one couple who nonetheless disagreed in their conclusions. The woman said: *'...I think an embryo is still a baby. I still think of it as a baby right from day one. Once they come together and start cell dividing, I still think that's life'*. Her husband's view was that *'anything up to twelve weeks is really just a mixture of cells, before it starts forming into something different'*. However, for this woman, the embryo they donated for research was *'unused material, it's stuff that can't be put back in us ...'cos they don't think it's good enough'* (IVF 4:885-990). Although 'baby talk' was the starting point for their discussion, the embryo was not seen as a baby in absolute terms, even by someone who uses this as her initial reference point: a 'not good enough' embryo is 'stuff'. Another said, *'When I got my treatment they showed me my two [embryos] and they were as close as I would get to a baby if the treatment didn't work and I would remember that as being my baby...They were what I would class as being my babies...'* (IVF 7: 171-183). This is another demonstration of what is regarded as the appropriate starting point for trying to express what the embryo means in terms of value and social status, and the lasting meaning that it would have, even if treatment failed.

'Embryo = baby = life': Examples of the ways in which interviewees viewed the embryo as a baby, and of the belief that the embryo is the start of life or a life, follow. One couple described their first reaction at being asked to donate as 'we

first thought we didn't want anybody to have our babies [laughs] ... our embryos' (IVF35:229-232). Another woman for whom there was a close association between embryo and baby said 'to me an embryo's, it's like a human, well to me it was' (IVF18:221-223) and later said 'to me they were like our babies and for all that they weren't, it was just the idea of it' (IVF18:950-987). Another said 'I even feel a bit funny about having embryos frozen. ... [laughs]...I do find it hard to think our embryos are in a freezer, really. I think of them as our little lives.' (IVF30:592-622)

Another woman who was clear about the status of the embryo, though without explicitly equating 'embryo' with 'baby', said, *'for me life starts at conception, that four cell embryo is life' (IVF32:863-897) and her husband said, 'I think an egg has potential for life but is not life, an embryo is life' (IVF 32:1122-1132). Another woman saw the egg (as well as the embryo) as: 'It's always a potential life. I think from a young age I've always felt strongly about that. I don't think I've ever judged somebody ... I've had friends who have had abortions, but I've always felt strongly that it's still a potential life' (IVF23:815-827).*

'Embryo not a baby': However, a clear assertion of the non-equivalence between embryo and baby/child is given by this interviewee (who nonetheless spontaneously uses 'baby talk' as her primary reference point): *'And I'm looking at the screen at two little circles...and the doctor's saying, "aren't they perfect?" and I'm like, "yes, they're lovely", well, they looked like two little circles to me [laughs]. ... they put them back in and ten days later you get a blood test to see whether they've taken and they hadn't. But I never thought that I'd lost two babies, I thought it hadn't worked ... for those ten days I didn't think I had two babies inside me. So I wasn't grieving for the loss of two babies' (IVF6:376-395). Other descriptions of the embryo included; 'just a ball of cells', 'a blob', 'it's this tiny little dot', 'it's just a few cells', 'just a collection of cells at that stage'.*

'But is an embryo living?': However, those who did not consider the embryo to be a baby (and for many it was not entirely clear – even those who said they did not consider the embryo to be a baby did refer to being aware that it could

nonetheless develop into '*little people*' (IVF36:376-395)) still raised the question of whether the embryo is a living entity. One woman was quite clear: '*Some people see the embryo as being a living thing, which to me it's not. You know, it can only live if it implants in me and it's only as part of me that it can live*' (IVF5:754-774). Another said, '*I still don't see an embryo as a life, which is what the people who are campaigning against it do. I don't. It's just a few cells*' (IVF20:257-301). For most this led to a consideration of what defines life and when life begins, as one man said, '*at what point does a blob, or speck of cells, divided cells, become a person? Or when does it become capable of thought?*' (IVF39:1144-1231). Capacity to feel pain was mentioned as a possible criterion (IVF24), as was awareness (IVF38) but for most who debated this point the presence of a heartbeat was the key criterion (for example, couples 20; 25; 38; 39; 40).

Struggling between conflicting views: Whilst some interviewees hold clear views, for many this question of what the embryo 'is' and whether what it 'is' constitutes life is a cause of much struggle between various viewpoints. As we have seen from IVF4 (in 'Baby talk') the dominance of one view over another can shift during the treatment process. The emotional nature of IVF shapes some of their thinking. One woman said: '*At first I was thinking that a fertilised embryo is potentially a baby... So I just thought emotionally rather than logically, it was just a collection of cells at that stage, but you think emotionally that it's going to grow up to be ... a child... So I was saying, "oh no, I'm not going to have anything like that [research], you know the cells cut up", just because you're thinking in a crazy way. But then, it [IVF] did work and you realised the benefits of research, realised we wouldn't be where we are without the research and without people before us*' (IVF31:312-329). The male partner of another woman said: '*I don't look at them as babies, I think they're just embryos. Whether that's to save myself any more emotional turmoil, but I think they're just embryos at the minute, cells...they're not a life yet, just potential*' (IVF30:640-675).

Another interviewee shares the view that the embryo is not a baby whilst expressing the ambivalence that goes alongside this position: '*I think you've just*

got to get past the fact and not think of the egg and the embryo in terms of a child. You've got to still think of it as an egg and an embryo, which is what in fact it is. It's never been given a chance to be a child. Unless it's planted inside of the womb it's never going to develop into a child and I think you've got to basically remember that it's still an embryo and an egg. Yes, if it was given that chance, but you made the decision, it's impossible for it to be given that chance, so why should it just be discarded when it can help?' (IVF7:573-580).

It is noticeable how much these extracts refer to the emotional experience of IVF and indicate the ways in which interviewees persuade themselves, through 'logic', 'science', 'facts', to think about these questions in a certain way, to counter difficulties they are experiencing. It is apparent from this last quote that one of the difficulties is balancing the potential of an embryo to become a child with the usefulness of the same embryo for research.

In summary, there are interviewees who clearly think of the embryo as a baby and others who are equally clear that the embryo is not a baby (though this leaves a puzzle over whether it is a living entity). However these are not absolute distinctions because some of those who seem to fall into the second category appear to have to persuade themselves to be there. Examination of their deliberations suggests that these questions of what the embryo 'is' are answered in different ways across different stages of the IVF process. However, all the interviewees use 'baby talk' as the starting point for their considerations and, in so doing, are tapping into an assumed shared framework of understanding: that this context is primarily about babies. This reflects their focus as IVF patients rather than as contributors to hESC research. It is also apparent that these interviewees deploy arguments from 'potentiality' (and to some extent 'capacity', but not 'twinning or 'suffering') in their moral and social framings of the embryo. For a small minority the embryo is seen as a protected life form; for the majority the embryo is seen as a precious resource, though not in the same way as by UK regulators. Rather, the interviewees see the embryo as 'our embryo' that might develop into 'our baby' and they are only too well aware, from their knowledge of IVF success rates and their own calculations, of how special and scarce such

embryos are; their usefulness for research is very much a secondary considerationⁱⁱⁱ.

III: The Swiss study:

Regulatory context: Compared to the UK, Switzerland has a relatively short history of human embryo research. The Constitution and law give a high degree of protection to the human embryo and tightly regulate the procedures that may be performed with embryos in IVF treatment or research. Nevertheless, stem cell research may use surplus embryos if certain conditions are fulfilled, including; that the embryo is not produced for the sake of research, it is 'spare' for reasons independent of research, and the couple has given voluntary informed consent.

The possibility of donating frozen surplus embryos to stem cell research has only existed in Switzerland since the introduction of the law on stem cell research, (LSCR) in March 2005^{iv}. Together with a ban on freezing embryos introduced with the law on reproductive medicine (LRM) of 2001^v, this effectively creates five different categories of embryos, with different characteristics and occupying different regulatory spaces:

- (1) the 'normal embryo': embryos not created through IVF;
- (2) the 'IVF embryo', in existence since the early 1990s;
- (3) the 'frozen surplus embryo': these are referred to as 'old law embryos' (*altrechtliche Embryonen*), as the new LRM of 2001 forbade embryo freezing. Between 2001 and 2005 couples could use frozen embryos for attempts at pregnancy; after 2005, they could also donate them to hESC research.
- (4) although surplus (untransferable) embryos generated between 2001 and 2005 should have been discarded, some may have been cryopreserved (see Köferl, 2006). We refer to these as 'ghost' embryos.
- (5) 'surplus fresh embryos' from current IVF treatment, created by the 2005 LSCR. These cannot be cryopreserved for use in future pregnancy; they must be either disposed of or donated to hESC research. At the time of writing

(December 2007) no fresh embryo donation has taken place as the required infrastructure has not yet been established (cf. Mauron and Jaconi 2007).

This listing illustrates the complexity that is now legally, medically and ethically organised around the central concept of the 'embryo'.

Empirical study:^{vi} The Swiss study used qualitative methods. We held 'expert interviews' with doctors and stakeholders to get an insiders' perspective on Swiss IVF procedures and stem cell research. Focus group discussions explored the attitudes and opinions of the Swiss public. Finally, we conducted twelve in-depth interviews with couples contacted via the IVF clinic who had been asked to donate 'frozen surplus *old law* embryos'.

These couples had received a letter from a stem cell research team unconnected with the IVF clinic, asking them to consider embryo donation to research. The request therefore arose months or years after the end of IVF treatment. Approximately half the couples interviewed had decided to donate their frozen surplus embryos to research.

Six major themes emerged in the Swiss study: (1) interviewees' talk about their IVF embryo, (2) decision-making around donation to stem cell research, (3) psychological and physical impact of IVF procedures, (4) split between medical and domestic discourses, (5) making sense of the IVF and stem cell research processes, and (6) shame/secretcy about IVF and consequently about donation. This list demonstrates that the regulatory background, and therefore the responses of the Swiss interviewees, differs from the UK study. Compared to UK interviewees, the Swiss couples were making a different kind of decision in a different context: should they give a frozen embryo to research, use it to attempt another pregnancy, or discard it?

Here we focus on topics within the first two themes only, which illustrate the couples' views of their embryo from past treatment.

'Are IVF embryos and babies different?' Some interviewees seem to have been unsure at the beginning of the IVF treatment whether the end product

would be a baby like others. Markus said: *'Will we have to look a bit differently at our children, because they were created in this way, or are they just children like all other children?'*^{vii} He emphasised that his uncertainty was created because 'test tube babies' are discussed as something strange. At the time of IVF, none of our interview participants personally knew of other IVF children, and hence the lack of public discussion was compounded by unfamiliarity. Heike highlighted the absence of public discussion: *'Our first attempts at IVF we kept strictly to ourselves... At that time people really did not talk about it in public.'* Some of our interviewees commented they had not even told their own families. After starting to feel more self-confident about undergoing IVF, Ina began to talk more openly about IVF. In doing so she invented a new, positive identity for her IVF babies: *'More and more people are having problems with getting children in the normal way, and that means IVF is the scenario of the future now. And that's why we began to call them "future babies"'*. She contrasts them with children obtained the 'normal' way, but normalises their difference within a normality of the future.

'Images of the IVF embryo': The couples' perspective on the embryo and the hoped-for baby changed in the course of treatment. Familiarity meant they became more positive both about the IVF process and the entity they were generating. This was particularly the case when they were able to see their embryos (this was not possible for all IVF patients). As Ina's husband Gerd explains: *'So we could see in the microscope how that really looked. Our son as cells! Or, perhaps better, as an egg, as a fertilised egg cell.'* This also shows the confidence with which couples adopted medical terminology to talk about their IVF embryo. This was a common feature in the interviews. Couples used medical vocabulary about the embryo in contexts of IVF procedures, freezing or donation, and tended to keep 'baby talk' for imagining their future child.

Several parents clearly expressed the perception that the moment of nidation (implantation of the conceptus into the uterus lining) marked a significant change between the status of 'IVF entity' and 'my baby'. Once the pregnancy was confirmed, the entity 'embryo' was thus shifted to another level in the parents' perception. Markus: *'So I think that up until the moment where we knew it was*

positive, everything still was relatively technical for us...But I think from that moment on where you knew that something was growing there, the technical side fell away.' He continues: *'So I think that then our image of it changed, it was no longer a test tube baby, it was now our baby.'*

'Imagining the frozen embryo': In discussing donation the couples had to develop a way of talking about their frozen embryo: what it might 'look like', and what kind of entity they should consider it to be. Is an embryo, during freezing and after, the *same* as a fresh one? Maria imagined her frozen embryo not as a separate entity but as somehow still continuous with the couple: *'No, no, they were not children of us, it was a part of us... that was asleep, in a manner of speaking.'* 'Part of us' suggests both a dormant body part, and a symbolisation of the relationship between herself and her partner. Katharina imagined her frozen embryo as an Eskimo, though she was very unsure of its status as a 'person': *'And we still had fertilised eggs, we called them "Eskimöli" (little Eskimos)...A mixture of maybe clumps of cells and personal relationship. So, but really still not a person, not a foetus, not at all, but a potential person, a kind of mixture, a little Eskimo.'*

'Reasons for donating': If they did not want to attempt another pregnancy, couples had to decide whether to give their frozen embryos to stem cell research or dispose of them. In order to donate, they had to see donation as morally preferable to, or at least no worse than, disposal. The commonest explanation for choosing donation was of 'getting something good' out of failure or 'rescuing' a waste. Sarah says: *'Just thawing it and throwing it away seemed ... a waste...When we [she and her husband] have already created life... , then this is maybe our act of atonement, a small way of making something meaningful out of it.'* For Sarah donation was meaningful because *'I think basic research is important.'*

None of our participants expressed resistance to the idea of disposal on the grounds of the embryo's moral status. In fact several indicated that donation and disposal are only morally possible because for them this frozen entity does not

have the same status as an embryo or foetus. Katharina points out:

'Nevertheless I could happily give them to research, and I could do that because they were not yet real people, they were not beings with souls...' She is taking the view that at some point they would become persons, but have been frozen before that point is reached. They could reach the same moral status in the end, but not while frozen.

It seems that by donating spare frozen embryos to research, interviewees could increase the *significance* of that entity (make it more precious, in the sense of valuable). By turning the spare embryo into a gift they increase its meaning. Donation gives the embryo meaningful social status as a contribution to a worthwhile endeavour, rather than being a meaningless piece of waste tissue.

In summary, Swiss couples who are asked to donate fresh embryos or their frozen 'old law' embryos, face the task of reconstructing their understanding of the embryo and their moral relationship with it in this new situation. Both the 'donated embryo' and the 'embryo donor' are new social categories for Switzerland (Scully and Rehmann-Sutter, 2006). Hence we suggest that much of the 'embryo talk' of the parents donating frozen embryos is directed at carving out these new categories. It differs from the UK data in part because of this, and in part because the donation decision is not taking place in the therapeutic context of ongoing IVF as in the UK.

IV: Comparative analysis and comment

(i) socio-cultural regulatory context:

In the UK there has been a steady expansion of treatment options in assisted conception and of reproductive and stem cell science. In Switzerland, regulation has developed more unevenly: at first permissive towards reproductive technology (though still less so than UK), then more cautious, and also cautious towards human embryonic research. The Swiss law permitting embryo donation

for stem cell research is a narrow window of 'permissiveness' for a highly specific purpose, in contrast to the broader liberality of the UK, which continues to contemplate other ways of providing the scarce reproductive resources (eggs and embryos) so central to hESC research. However, what is evident from both regulatory and cultural contexts is that the embryo has to be posited as a particular sort of entity, in order for both IVF and hESC research to expand. This is most clear in Switzerland with its five fold typology, but even in the UK the 'precious resource' that is the embryo depends on a double interpretation of that phrase, and needs to be understood alongside a third entity, the embryo as the 'start of life'.

(ii) transformation of the treatment context:

For interviewees in both countries, the social space of the clinic has been transformed from one of treatment to one of treatment-research, thereby affecting what Thompson (2005) terms the 'ontological choreography' of the clinic. For the UK interviewees this happened as part of the IVF process, for the Swiss it occurred retrospectively: frozen embryos that had been produced for treatment were now seen as potential research material. Whilst the extent and impact of the transformation differed (for the UK interviewees IVF remained the dominant 'definition of the situation') it presented all interviewees with the task of re-examining their views of their embryos, and of embryos in general. It also required them to construct new definitions of their own role, from IVF patients to also being embryo donors. None was able to articulate these transformations easily, and all struggled (to varying extents) with the conceptual, moral and social distinctions that such deliberations required.

(iii) timing and location of request to donate:

This aspect constitutes a crucial difference between the experiences of UK and Swiss interviewees. First, the request is made in a different social space for the two cohorts (the clinic for the UK, the domestic for the Swiss); second, the timing is very different, since the UK interviewees were asked during the treatment process (though not by a member of the clinical team, it should be stressed)

whereas the Swiss were asked some years after treatment; third, they were asked to donate different types of embryos (fresh / frozen); fourth, the legal and clinical definition of these embryos as 'spare' differs between the two countries; fifth, the social status of those asked to donate, at the time of the request, is very different: in the UK they are still IVF patients, in Switzerland they are ex-IVF patients. Consequently each cohort has a markedly different relationship to the personnel requesting the donation: in the UK it is a face-to-face relationship (though no interviewee suggested there was inappropriate pressure to donate); for the Swiss it is a distant, written link with known or unknown others. Thus the social context and therefore meaning of the deceptively simple phrase, 'the request to donate embryos for hESC science' constitutes a radically different experience in each country. This in turn has an impact on interviewees' deliberations.

(iv) embryos and babies:

It is clear that the UK interviewees saw a much closer overlap between embryos and babies and struggled with the consequences of this, whereas the Swiss cohort drew clearer distinctions between them. This would appear to be at least one consequence of the very different social context of the request to donate. That the two entities ('embryo'/'baby') nevertheless had to be considered in relation to each other by both cohorts (whether in asserting their sameness or their difference) is a marker of the strength of this association even in its denial, and of the dominant framing of IVF (rather than hESC research), the aim of which, after all, is to have a baby.

(v) multiple definitions of the embryo:

Both studies reveal a multiplicity of definitions, identities and meanings of the embryo held by interviewees, legislators and ethicists. Across these different discursive domains we can see differences between: 'the embryo' as an abstraction with an emblematic moral status; 'an embryo' which could be any particular embryo that results from IVF process; and 'our embryo' which is the embryo produced through IVF and imbued with particular social and moral values

by the couple being treated (because 'our embryo' might become 'our baby'). For IVF patients, the treatment process itself introduces an additional layer of variability and changing definitions of the embryo, not least between fresh and frozen embryos. Fresh embryos move very quickly through a number of physical spaces and social definitions; frozen embryos, by contrast, are fixed in a specific physical location and social identity until they are required for treatment, or hESC research. While neither set of interviewees invokes established ethical principles concerning the moral status of the embryo (although echoes of these can be heard in what some say) they do use moral framings in working their way through the variable social statuses they (and legislators and ethicists) ascribe to embryos. One strong (moral and social) framing is the wish not to see this precious entity 'go to waste'.

V: Concluding comments

Our original question was; what is an embryo? These two studies reveal that embryos are not fixed, universal biological entities but are defined by, and acted upon in relation to, their social context^{viii}; that is, by their location in time and space. This includes both *personal* time (which stage interviewees are at in their treatment process and in their parenting project) and space (whether the embryos are embodied (Haimes, 2003), in the clinic as fresh embryos or in the freezer as frozen embryos) and *socio-cultural* time and space (in relation to legislation and to past, current and projected future developments in science and assisted conception). Thus the embryo is both socially and morally positioned in relation to a number of other key spaces and places (clinics, bodies, freezers, stem cell banks, laboratories, parliamentary chambers, homes and so on), and is itself a space filled with social and moral meanings and statuses (personal, familial, clinical, legal, ethical, cultural, historical). Stem cell science adds to this diversity by increasing awareness of the fluidity of the status of the embryo by introducing further uses for it, and by reinforcing the view that it is a particularly precious resource.

Therefore, any answer to our question has to acknowledge this inextricable entangling of the moral and social status of embryos. Equally it is not possible to have an effective debate about the acceptability of embryo research if discussion is restricted to the moral status of the abstract embryo; the real physical entities that reside in the freezer, clinic and women's bodies need to be considered. The donors' perspectives show that the moral signature of the embryo can shift according to the stage in the processes (in the body, in the clinic and in the laboratory) and in specific practical and normative contexts. For the parents, the status of the embryo cannot be extracted from theory and applied to their case. For them, real embryos embody conflicting views and ambivalences that are ethically pertinent.

The request to donate embryos forces potential and actual donors to confront this question of 'what is an embryo?' They have to deal practically with the variable, multivalent embryo that straddles categories and contexts, the embryo that is both donated and frozen, as well as the embryo that might at some point in the future be the beginning of their child. It is only appropriate therefore that legislators, ethicists, clinicians and scientists should consider their views of embryos. Whilst respect for the human embryo is important, so too is respect for those human agents who have to deliberate over the provision of those embryos.

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References:

- Deckers, J. (2005) Why current UK legislation on embryo research is immoral. *Bioethics*, 19(3), 251-271.
- Deckers, J. (2007) Why Eberl is wrong. *Bioethics*, 21(5), 270-82.
- Franklin, S. (1997) *Embodied Progress*. London: Routledge.

- Franklin, S. (2006) Embryonic Economies: the Double Reproductive Value of Stem Cells, *BioSocieties* 1: 71-90.
- Gibson, S. (2007) Uses of respect and uses of the human embryo, *Bioethics*, 21(7), 370-78.
- Haimes, E. (2003) 'Embodied spaces, social places and habitus', *Body and Society*, 9 (1),11-33.
- Haimes, E. (2007) Applied philosophy, sociology and families: making connections? 'Philosophy and the family', Society of Applied Philosophy Annual Conference, UK. June.
- Haimes, E. and Luce, J. (2006) Studying potential donors' views on embryonic stem cell therapies and Preimplantation genetic diagnosis, *Human Fertility*, 9(2), 67-71.
- Jasanoff, S. (2005) *Designs on nature: science and democracy in Europe and the United States*, Princeton NJ, Princeton University Press.
- Johnson, M (2006) Escaping the tyranny of the embryo? *Human Reproduction* 21(11), 2756-65.
- Köferl P, U. (2006) Surplus embryos in Switzerland in 2003: legislation and availability of human embryos for research, *Reproductive BioMedicine online*, 13 (6), 772-777.
- Lizza, J.P. (2007) Potentiality and human embryos, *Bioethics*, 21(7), 379-85.
- Mauron, A. and Jaconi, M. (2007) Stem Cell Science: Current Ethical and Policy Issues, *Clinical Pharmacology and Therapeutics*, July 2007.
- Parry, S (2006) (Re) constructing embryos in stem cell research *Social Science and Medicine*, 62:2349-59.
- Scully, J. L. and Rehmann-Sutter, C. (2006) Creating donors: the 2005 Swiss law on donation of 'spare' embryos to hESC research, *Bioethical Inquiry*, 3:81-93.
- Svendsen, M.N. and Koch, L. (2008) Unpacking the 'Spare Embryo': Facilitating Stem Cell Research in a Moral Landscape, *Social Studies of Science* 38(1): 93-110.
- Waldby, C. and Mitchell, R. (2006) *Tissue economies: blood, organs and cell lines in late capitalism*, London, Duke University Press.

ⁱ The designation of embryos as 'spare' is a simplification of the process whereby they become available for research and is a label that requires further analysis.

ⁱⁱ Interviewees were never asked directly about their views on the 'moral status' of the embryo nor whether they thought the embryo was a human entity or the start of life, since we were interested in whether these associations arose spontaneously in the interview and if so, in what ways.

ⁱⁱⁱ There is a suggestion here of 'ethical side-effects' or 'after-effects' of donating, for some donors, which requires a much more detailed analysis.

^{iv} LSCR, Federal law on research with embryonic stem cells (Bundesgesetz über die Forschung an embryonalen Stammzellen, official abbreviation StFG).

^v LRM, Federal law on reproductive medicine (Bundesgesetz über die medizinisch unterstützte Fortpflanzung, official abbreviation FMedG)

^{vi} The UK study was funded in advance of the Swiss study. Though its design helped to inform that of the Swiss study, the two projects were funded and conducted independently of each other. To emphasise the independence of the studies we have retained their distinctive voices and methods of anonymising the interviewees.

^{vii} All interview quotes translated from German by JLS.

^{viii} A similar observation was made by Parry (2006).