

## Storage and disposal of embryos and gametes

*Patients must be aware of their rights and responsibilities*

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Freezing of sperm and preimplantation embryos is a technique used routinely in livestock industries, laboratory animal breeding, and genetic conservation, and more recently it has been used to aid the conservation of endangered species. In human infertility, freezing sperm ensures the safe, effective use of sperm for insemination. It also enables men who are about to undergo treatment which affects sperm production—involving drugs, chemotherapy, or radiotherapy—to store sperm for later use. Embryos are frozen for patients undergoing in vitro fertilisation, either to improve the chance of conception or to allow for planned use in the future. Freezing spare embryos allows replacement of an optimum number to avoid the risk of multiple birth and avoids the waste of discarding potentially viable embryos produced as a result of superovulation.<sup>1</sup>

But the ability to freeze embryos has presented us with important dilemmas, especially over the question of their future use or misuse. Legal disputes can arise when partners separate or divorce or when one or both partners die. A recent survey of attitudes to the posthumous use and storage of sperm and embryos reported in this issue by Corrigan *et al* (p 24) illustrates the confusion about such situations in the medical, legal, and political profession.<sup>2</sup> In the 15 years since embryo freezing was developed there has been little progress in resolving the conflicts, which will occur with increasing frequency as the number of frozen embryos continues to rise. Patients may ignore, forget, or simply not care about these embryos, and doctors either remain unable to do anything about it or give up caring about the problem.

Meanwhile, politicians and lawyers are establishing an astonishing array of time limits and regulations for the storage of embryos that bear little relation to patients' needs.<sup>3</sup> For example, the introduction in Britain of a 10 year time limit for the storage of frozen embryos<sup>3</sup> bears little relation to the reproductive lifespan of a woman: for those women who undergo in vitro fertilisation towards the end of their reproductive life span 10 years is too long, while for much younger women it is too short. It also overlooks the fact that after this time it is exceedingly difficult to locate most of the couples concerned and obtain up to date instructions about what to do with their embryos. The new Infertility Treatment Act 1995 in the Australian state of Victoria also has similar provisions, with the possibility of an extension if there are reasonable grounds. Irrespective of the time limits applied, eventually more and more couples will have separated, one or perhaps both may have died, or they may never be located. In such cases the instructions obtained at the time the embryos were frozen ought to be respected.<sup>4</sup>

Since embryos in vivo are generally considered to be part of a woman's body and subject to her decision about whether

development continues, it is difficult to understand why this decision should not remain the woman's after a period of "suspension of development" by freezing. If she wishes to have these embryos replaced in her womb, as originally intended, before or after her partner's death, logic suggests that these wishes be respected. No medical, political, or legal institutional ruling should override them. A recent judgment in the Australian state of Tasmania has taken this proposal even further by recognising that children born from a frozen embryo after their genetic parents have died have a right to inherit.<sup>5</sup> Similarly, if the husband is the sole survivor, his instructions should be respected, whether his decision involves another infertile woman, a new partner, or embryo donation. Both cases represent a continuation of a process that was initiated before storage.

The availability of large numbers of frozen embryos for which the owners cannot be found or for which no clear instruction has been given about disposal may tempt storage units to offer them to other couples. This should be possible only under strict circumstances. It is thus essential that informed consent is obtained for donation of embryos to other couples, as it should be for the donation of embryos for research purposes and for disposal after a time limit that has been agreed by the couple. If the instructions are clear and no other instructions are received they ought to be acted on.

Would such conflicts be avoided if only eggs were stored? Unfortunately the question is hypothetical, for human eggs cannot yet be frozen efficiently. Even in the best published results, the probability of a pregnancy that has been established using thawed frozen eggs going to term is 1% or less.<sup>6</sup> This has not stopped some clinics advertising egg freezing services, and one clinic in Melbourne offers this service to young women diagnosed with cancer. Given that the prospects of conceiving with the few eggs collected is negligible, and that it raises completely unreasonable expectations of fertility protection and adds to the store of frozen gametes that will probably never be used, this practice is unwarranted. The success rates of egg freezing will need to be improved by more than fivefold or 10-fold, and the risk of possible transmission of the cancer explored more fully, to justify the development of such a service, which is unlikely in the near future.

With allegations about unscrupulous behaviour involving embryos,<sup>7</sup> unfounded claims about the efficacy of frozen gametes, and inappropriate rulings about the storage and disposal of both, it is important that the patient's interests should be protected. Couples and individuals who use gamete and embryo freezing services must be made fully aware of their rights and responsibilities to issue clear instructions, especially with respect to disposal of frozen embryos and gametes. In particular, it should remain a woman's right to determine whether the stored gametes are used

in her insemination or the stored embryo will continue to develop to term in her body or that of another woman.

ALAN TROUNSON  
Deputy director

KAREN DAWSON  
Research fellow

Monash University Institute of Reproduction and Development,  
Monash Medical Centre, Clayton,  
Victoria 3168, Australia

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## Career preferences of doctors

*Medicine is no longer staffed by men working full time in one specialty for 40 years*

See p 19

Where do our young doctors think they are going? Do they actually end up there? These questions have been posed by the Medical Careers Research Group in a series of cohort studies of British medical graduates since 1974. The career preferences of graduates from 1974, 1977, 1980, and 1983 were examined about a year after qualification,<sup>1</sup> and the results are compared with those from the 1993 cohort in a paper in this edition of the *BMJ* (p 19).<sup>2</sup>

Planning the medical workforce has been a recurrent theme in Britain for over 50 years,<sup>3</sup> with successive governments seeking to forecast demand and supply in the labour market for doctors. Britain now has a Medical Workforce Standing Advisory Committee, which has published two reports.<sup>4,5</sup> And yet crucial questions still remain unanswered as the experts juggle figures and try to establish how many doctors we need to train to maintain some kind of equilibrium.

In the meantime the world moves on. Not only is the NHS of 1996 completely different from that of 1948, but so are the needs and demands of the public, the potential skill mix needed to match these requirements, and, perhaps most importantly, the profile of the medical profession itself. Half of the doctors graduating from our medical schools are now women, and their career paths are likely to be quite different from those of most male doctors of their own generation, let alone those of even 20 years ago.<sup>6</sup> And yet the medical career structure remains much the same as 50 years ago.

What do these cohort studies tell us? The latest one reports that only 26% of the 1993 graduates wanted to enter general practice, compared with 45% of the 1983 graduates.<sup>2</sup> The decline in interest among the men (from 40% to 17%) was even greater than among the women (52% to 34%), and this means that general practice was attracting twice as many women as men. Hospital medicine was much more popular among the 1993 graduates than among the 1983 graduates, with surgery continuing to be unpopular among young women in spite of schemes designed to attract them.<sup>7</sup>

But how useful is this information? These cohort studies<sup>1,8</sup> and other research show that young doctors change their minds time and time again. In our most recent study of 1986 British medical qualifiers,<sup>6</sup> we found that by the time we interviewed them four years after registration only 60% of the men and less than half of the women were still in the same specialty they had chosen at registration. Intended specialties, even at registration, are clearly not much of a guide to what actually happens.

Many of these doctors are not going to end up in hospital medicine, simply because there is no room for them all, and far more will enter general practice than these figures indicate. But what will have happened to them in their early years of postgraduate training? Will they be wise in trying to start careers in which many will not succeed? Will the men elbow

out the women in specialist hospital training? What will happen to those who want more flexible training posts, a group which includes increasing numbers of men? The implications of the Calman report are far reaching here.<sup>9</sup> The associate postgraduate deans have continued to draw attention to the problems associated with flexible specialist training, but who is listening?

The Medical Careers Research Group's papers contain matters of grave concern, even if the authors seem reluctant to draw out the important policy messages of their findings. The recruitment problems in general practice have major implications at a time when a "primary care-led NHS" is generally accepted to be a good thing. The present problems may simply reflect a cyclical fashion, or they may have deeper roots. The demand for radical changes in the organisation of general practice, with far more opportunities for part time principals and more flexible conditions of working, has been well demonstrated in research in recent years,<sup>10,11</sup> and yet the major policy changes have centred on the development of general practice fundholding rather than on who is actually going to deliver the services in the future.

There is no room for complacency. The exodus from medicine may not have happened yet,<sup>8</sup> but there are plenty of indications that a radical assessment is needed of how we are to make use of the talents of the brightest and best of successive generations of young people who enter medicine. Assumptions still predicated on a medical workforce made up of men working full time mainly in one specialty for 40 years are hopelessly misguided, and it is time that the medical profession and the government woke up to this fact. A strategic overview is urgently required of what we need from tomorrow's doctors and how we should plan to achieve it.

ISOBEL ALLEN

Head of social care and health studies

Policy Studies Institute,  
London NW1 3SR

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