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# Posthumous reproduction

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Posthumous births have been recognized since antiquity when a husband or male partner died from illness, from accident, or in war after conception and pregnancy had been achieved, but before the resulting birth has occurred. Legally and socially, the ensuing child has been usually considered the rightful heir of the deceased father. As an "act of fate," there are few ethical or legal problems raised by posthumous births except the question of whether starting a family was prudent if death could reasonably have been anticipated. A pregnancy may be planned as an act of love or memorial in the face of death.

Posthumous reproduction, on the other hand, first became possible only after semen could be frozen and used for artificial insemination after the donor was deceased. The legal and social status of a child born from these origins has been ambiguous at best, even if the insemination and pregnancy occur with the wife of the dead man. Since the role of assisted reproduction had not been well factored into common law or social and ethical judgments, a child born from conception and pregnancy after a man's death may not always be attributed to him for purposes of inheritance and legitimacy. This tradition has been a formidable obstacle to changing attitudes in the face of the new assisted reproductive technologies. With the advent of assisted reproduction, insemination with a dead husband's sperm might be requested by the widow to achieve a pregnancy and bear a child even if her husband died before this could be achieved by traditional conception, and they had the foresight to collect and freeze a semen sample before death. Alternatively, requests have been made to collect sperm from the terminally ill or newly deceased male for the same purpose. Such techniques as stimulated ejaculation, microsurgical epididymal sperm aspiration (MESA), or testicular sperm extraction (TSE) might be employed. In addition, specimens frozen and stored in a sperm bank for donation under usual circumstances might be used for anonymous insemination after the donor has died, in which case issues of assigning legitimacy and inheritance are different than in a husband–wife relationship; yet questions of the interests of the ensuing child remain. In some of the above illustrations, the technology may involve only the commonplace cryopreservation of the sperm and insemination, but the social issues are complex.

The advent of in vitro fertilization and the potential for cryopreservation of ova may extend the options for posthumous reproduction to the use of the cryopreserved ovum, much as for using sperm for posthumous conception, but with the added requirement of a "surrogate" uterus for gestation to achieve a pregnancy.

There is an option to obtain and store undamaged sperm from men who undergo radiation or chemotherapy for cancer, should they wish to have children in the future, and it is possible that this will be available in the future for the protection of ova as well. In the event that the man does not recover from his cancer, his germ cells would be stored and available for posthumous reproduction should his partner request this.

In addition, embryos obtained while a couple is alive can be frozen for later use by them, but could be used for transfer to establish a pregnancy after either the female or male partner or both are deceased. As with frozen ova, a surrogate uterus is required if the woman dies, and there is a desire to use the embryo to establish a pregnancy. The gamete donors and recipients also might be unknown to one another, as in the case where a couple relinquishes extra embryos for donation to others.

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This is analogous to any other designated or anonymous donor embryo transfer, except that one or both of the donors are deceased at the time.

In contrast to the ancient phenomenon of posthumous birth, the recent possibility of posthumous reproduction raises more ethical, practical, and legal questions for physicians practicing reproductive medicine and the public concerning the interests and rights of the donor(s), the gestating woman, the prospective rearing parent(s), and any children that may result.

## THE DONOR

In general, decisions concerning whether or not to have a child have been considered a private matter and a fundamental right of individual adults, but there is limited precedent on how this might be expressed or respected after one's death. If an individual designates the use of stored frozen gametes or embryos that can be used for posthumous pregnancy, either for the use of a spouse or as a donation to others, it would seem to be totally appropriate to honor this designation after their death in the absence of any adverse consequences to the living participants in the pregnancy or any expected children. The gestating woman and the rearing parent(s) must be fully informed and in agreement with the process.

Many programs for assisted reproduction have consent forms that stipulate the disposition of gametes and embryos, including disposition after death of one or both gamete donors or after a certain period of time. If donation after death is declined, this should be honored. Whether a time limit should be put on how long after death such gametes or embryos might still be used is problematic. It is not clear how the interval between death and use would affect the process and the outcome, but the general presumption is that such use should occur within an interval of no more than a few years. Programs are urged to insist that donors make their wishes known. If no decision on disposition after death has been made, one would expect that in most instances this would preclude any posthumous use.

A request by a husband or wife for use of stored gametes or embryos to override a prior denial of posthumous reproduction by the deceased spouse should not be honored. A spouse's request that sperm or ova be obtained terminally or soon after death without the prior consent or known wishes of the deceased spouse need not be honored. Such requests pose judgmental questions that should be answered within the context of the individual circumstances and applicable state laws. Many programs stipulate that unless otherwise instructed, frozen embryos will be discarded after death of either or both partners. Sperm banks are not uniform in the way they deal with saving or discarding samples from deceased donors, and a sperm bank may or may not know of a donor's death if all testing of the donor to exclude infection already has been performed.

## THE GESTATING WOMAN

In the case of a husband wanting to use frozen embryos or ova for posthumous reproduction after his wife has died, a gestational carrier is required. The woman would not be considered a traditional "surrogate" if she were planning to be a rearing parent as well; for example, if she married the man after his wife died. In other instances, all of the concerns that arise with the use of gestational carriers also would apply generally. Since surrogacy is not illegal in most instances, the fairness to and concern for the welfare of the surrogate must be a determining factor in whether the arrangement is ethically appropriate. The surrogate should be aware of the circumstances and informed that this would be a posthumous pregnancy.

## REARING PARENTS

The rearing parents may or may not be related to the deceased donor(s) and may or may not be involved in the gestation of the posthumous pregnancy. If they participate in the pregnancy by receiving the embryo as a donation and having frozen embryos transferred to the female partner, they should be aware of the deceased status of the donors of gametes and embryos.

## THE CHILDREN

The burden to a child of being a product of posthumous reproduction is not completely known. If pregnancy and birth occur within the context of marriage in which one partner has died, the burden for the child might not be much different than that which occurs with the much more common posthumous birth if the legitimacy and inheritance aspects are addressed. In the usual case of posthumous reproduction, the genetic father or mother would be deceased at the time of conception or implantation, whereas in posthumous birth, the conception takes place with both parents alive but the father having died before the time of birth. In either case, the child at birth would be subject to the burden of having lost one genetic parent. When reproduction takes place as a consequence of a loving relationship in which both partners were desirous of children, but a pregnancy is frustrated by the death of one partner, posthumous reproduction would ordinarily be well accepted both socially and culturally. The psychological impact on the child should be minimal and within the range of experiences that occurs with posthumous births over the years. There is less certainty of the impact on the child and more caution should be exercised for posthumous reproduction that occurs with the use of donated gametes from unrelated individuals who are not living and may have been deceased for several years, as may occur with the use of commercial banks as a source for sperm, frozen embryos, or ova.

## CONCLUSION

It is expected that posthumous reproduction will be employed in instances when a couple faced with the imminent death of a partner or in anticipation of radiation or chemotherapy for cancer will ask to have gametes obtained and stored. Should death occur, posthumous reproduction using the stored gametes may be requested by the surviving partner. In these and other cases of posthumous reproduction, it is the responsibility of a specialist in assisted reproduction to insist on full disclosure to all participants, to ascertain that all appropriate informed consents are obtained, and to ensure adequate screening and counseling of all concerned parties.

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