MORAL, SOCIAL and ETHICAL issues for today's SALVATION ARMY
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living counter culturally

talk sheet

Gamete and Embryo Research in New Zealand

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This Talk Sheet draws upon an Advisory Committee on Assisted Reproductive Technology (ACART) discussion paper and other sources to provide information for Salvationists on the topic of stem cells taken from embryos.

Gamete (egg) being fertilised during IVF

The Use of Gametes and Embryos for Research

Around the world, scientific developments involving the use of gametes and embryos in research are taking place. These developments further our understanding of various disease states as well as our understanding of normal growth and development. New Zealand researchers would like the opportunity to contribute to this work. However, the use of gametes and embryos for research raises ethical, spiritual and cultural issues that we must also take into consideration.

Under the Human Assisted Reproductive Technology Act (the HART Act), the Advisory Committee on Assisted Reproductive Technology (ACART) must advise the Minister of Health on whether research using gametes and embryos should be allowed, and if so, whether limits should be placed on that research.

This document draws upon the ACART discussion paper. It is prepared by The Salvation Army Moral and Social Issues (Ethics) Council to provide background material that we hope will assist you in your thinking. The ACART paper presents information from a variety of perspectives: scientific, ethical, legal and policy. This Savation Army Talk Sheet deals only with the topic of embryonic stem cells. It does not include consideration of use of either adult stem cells or those taken from the umbilical cord of a normal birth infant.

Biblical Foundations

Reproductive technologies have expanded greatly in the past 30 years. There has been increased interest in the use of human gametes and embryos in research—including fundamental biological research, reproductive research, and as a source of stem cells.

As Christians, we believe that all life is sacred. Scripture tells us that God has plans for us while we are still forming inside our mothers:

> 'Even then God had designs on me. Why, when I was still in my mothers' womb He chose me and called me out of sheer generosity!' (Galatians 11:15, The Message)

> 'Before I formed you in the womb I knew you, before you were born I set you apart: I appointed you as a prophet to the nations.' (Jeremiah 1:5, New International Version)

> 'Just as you'll never understand the mystery of life forming in a pregnant woman, so you'll never understand the mystery at work in all that God does.' (Ecclesiastes 11:5, The Message)

Would God's plan be that embryos should be used to alleviate human suffering? This raises spiritual and ethical questions that may never be answered satisfactorily.

Embryo Development

The use of gametes and embryos for research raises ethical, spiritual and cultural issues that we must also take into consideration.

Human life begins from a single cell, which then divides many thousand times over to form all the different types of cells and tissues that make up the human body. Under current New Zealand law, it is an offence to do anything to cause the in vitro development of a human embryo outside of a human body beyond 14 days after its formation.

Human embryonic stem cells are extracted from the inner cell mass of the blastocyte stage, which occurs on days five to six of development. Once removed, the stem cells can be cultured to form a stable population. Embryonic stem cell lines are derived from embryos, but are not themselves embryos. Cells divide many times and very quickly in the early stages of development. As they divide, they differentiate into a vast array of different cells types found in adult humans. Some cells become skin cells; others, nerve cells, blood cells, and so on. The process of differentiation begins very early on in development.

This ability to develop such a large and diverse range of cell types means that human stem cells have the potential to form all of the 200 types of cells that make up the human body. This is why many researchers believe stem cells are crucial to our understanding of human development and disease.

Researchers do not yet know what chemical signals are used to direct embryonic stem cells to differentiate into specialised cell types inside the human body. If researchers can identify these signals, they may eventually be able to influence the type or types of cells into which embryonic stem cells mature, and then explore the possible therapeutic applications of this technology.

Because of the ethical debates associated with using human embryonic stem cells for research, efforts to create cells with the same properties that do not require the destruction of human embryos have been taken very seriously.

In the ongoing debate, it is likely that both embryonic and adult stem cells will be recognised as having contributions to make in the repair of damaged tissue.

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Scientific and Clinical Contributions of Gamete and Embryo Research

Gametes are either sperm or egg. It is believed that gametes and embryos can contribute towards scientific understanding in the four following areas:

- fundamental science
- fertility and infertility
- prevention of hereditary disease
- treatment of human disease

Contributions to fundamental science

Fundamental research investigates the developmental pathways that lead to the birth of normal, healthy babies, as well as the causes of foetal abnormalities that lead to miscarriages or the birth of a child affected by developmental disorders.

By manipulating certain genes, researchers can study their specific function, which is helpful in identifying the genetic causes of certain diseases.

Contributions to fertility and infertility

Research with gametes and embryos has contributed to advances in the treatment of infertility, increased knowledge about the causes of miscarriage and the development of more effective contraception.

Discovering ways of improving gamete and embryo quality or of selecting embryos with the greatest potential for growth may improve the chances of a successful pregnancy. Progress in this area may also contribute to a reduction in miscarriage rates.

Contributions to the prevention of hereditary diseases

Pre-implantation genetic diagnosis (PGD) is a procedure for testing the embryo for the presence of chromosomal disorders or defective genes. In this procedure, one or two cells are extracted from the pre-embryo and tested.

PGD analysis can be used to check for any abnormalities in the number of genes or chromosomes. It can also be used to detect specific genes, as may be required in disorders such as muscular dystrophy, haemophilia, cystic fibrosis, and Huntington's disease. Parents may not be aware that they carry a genetic disorder until they have an affected child. PGD can then be used to avoid the condition in any subsequent children.

Contributions to treating human disease

Most researchers see the main goal of human embryonic stem cell research as the development of new therapies through the discipline of regenerative medicine. Because human embryonic stem cells are able to give rise to any type of cell they may be able to be used to replace cells lost through injury or disease.

Some specific potential focuses of regenerative medicine are:

- regeneration of heart muscle cells following a heart attack.
- creation of replacement pancreatic cells for people with juvenile onset diabetes.
- implantation of regenerated neurons or neural support cells for the treatment of neurological conditions such as stroke, Parkinson's disease, Alzheimer's disease, multiple sclerosis and spinal cord injury.
- treatment of autoimmune diseases, where the immune system attacks healthy instead of foreign cells, such as in lupus, rheumatoid arthritis and inflammatory bowel disease. Treatment could involve replacing the defective immune system with one that does not attack body cells.

Ethical, Cultural and Spiritual Perspectives

Ethical

The earlier sections on embryo growth, development and the possibilities for research provide an outline of what can already be done, or what may be able to be done in the future. Scientific knowledge is, however, of limited use in deciding what *should* be done. This needs to be informed by a society's ethical, spiritual and cultural perspectives on gamete and embryo research.

New Zealanders will hold various spiritual and cultural values and beliefs that influence their perspectives on the use of gametes and embryos in research. Clearly, the topic of research using gametes and embryos raises complex and potentially divisive ethical and social questions.

How individuals and different communities respond to questions about embryo research depends primarily on how they view the moral status of the embryo; that is, the extent to which the embryo should be recognised as a human being (person), with all the rights and protections associated with personhood.

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Culture tray used for the growth of cells

Cultural *

From a Maori perspective, there are a number of cultural and spiritual issues to be considered. These issues will vary between different hapu/iwi (tribal groupings) and therefore debate and discussion are a valuable part of making decisions about gametes and embryo research.

Some of the concerns for Maori include uneasiness about interfering with whakapapa (genealogy/identity), scientists 'playing God', as well as the responsibility to protect future generations from any unknown risks.

For many Maori, there is a strong desire to support whanau (family) members that require assistance for their personal health and because of this, there is some openness to considering the benefits that arise from this type of research.

The decision-making process that tends to occur within our modern society promotes the right of individual choice; however, this needs to be balanced with the more traditional collective process that is carried out within a whanau/hapu/iwi base. In this way, Maori are in a better position to discuss and represent their position/s in relation to this technology.

* **Reference:** Tipene-Matua, B. (2006). *Having honest conversations about the impact of new technologies on indigenous people's knowledge and values.* Matauranga Taketake: Traditional Knowledge Conference, Christchurch, New Zealand.

Spiritual

The purpose of medical research is to alleviate suffering and preserve and enhance life. These are worthy aims, consistent with Christian ethics. However, they are not absolute as they may also come into conflict with and be subordinate to other Christian principles.

For example, medical advancement could involve possibilities that are ethically unacceptable, such as growing human beings solely in order to harvest organs for transplant. Again, huge investment in highly expensive medical treatment for the few while failing to provide affordable life-saving treatment for the many is open to ethical question—nationally and globally.

Christianity embraces a paradox in that Christians believe in a healing, redeeming God and are called upon to participate in God's work in relieving suffering, bringing healing and establishing justice. At the same time, Christians recognise that some suffering is unavoidable and that they are called to suffer with and for Christ and with and for others. Such paradoxes cannot be resolved; they must be held in tension.

Contemporary culture tends to be self-absorbed and self-possessed. The 'world's' view is that suffering is always bad and to be avoided or escaped if possible, at all costs. Self-preservation and comfort become the most important aims. Many non-Christians share the Christian ethic that places the greater good of others or of the community above merely personal interest. Christians, without falling into masochism, also believe that suffering can be vicariously redemptive. When the paradox inherent in the Christian position is not maintained, Christianity easily takes on the world's colour in the form of a prosperity gospel or the presumption that healing is always the highest good.

The Christian view is that it is more important to live and die well—that is, ethically—than to seek life and wellbeing above all else. In the world, suffering appears random, pointless and unfair. The Christian response is that while this is true, God saves us in our trouble rather than from it. God can use suffering for our own and others' good and for God's glory.

Just because it's possible, does it mean we should? And if so, to what extent?

Views Concerning the Status of the Embryo

At one end of the spectrum are those who hold to the moral principle that the use of any embryo for research purposes, including stem cell research, is unethical and unacceptable. Arguing from this perspective, the destruction of embryos in the course of research cannot be justified.

At the other end of the spectrum are those who believe that the embryo has no moral status because it is not a human being and does not possess moral personhood. Arguing from this perspective, it is unethical *not* to use surplus in vitro fertilisation (IVF) embryos for research that aims to alleviate human suffering.

Many other people adopt stances at various points between these two ends of the spectrum, considering that embryos have rights and are owed protections due to their potential to become moral persons that can be harmed and benefited, or to their shared genetic heritage. Consequently, the ethical justification of research projects using human embryonic stem cells will depend on the potential benefits of the research and the quality of the scientific questions being asked.

Potential Sources of Gametes for Use in Research

Potential sources of sperm donated for use in research include surplus sperm collected in the course of IVF treatment, sperm from donors who no longer wish to have their sperm used for reproductive purposes, and sperm donated by donors specifically recruited to donate for research purposes.

Possible sources of eggs donated for use in research include eggs that have failed to fertilise in the course of IVF treatment, surplus eggs collected in the course of IVF treatment, and eggs donated by women recruited specifically to donate for research purposes.

Gametes could also be imported for research purposes. ACART is specifically required to consult on the import and export of in vitro gametes. The main concern appears to be that the quality, safety and ethical standards that exist in New Zealand must also exist in the source country. It may be considered acceptable to allow the import of gametes for research purposes providing the researcher can provide evidence for the quality, safety and ethical standards in the source country.

Issues relating to the export of gametes are likely to be similar. In addition, Maori may have concerns about the export of genetic material.

Potential Sources of Embryos for Use in Research

One potential source is non-viable embryos that have been created through IVF for the purpose of reproduction. Non-viable embryos have no potential to develop into a living individual and no potential to implant.

Surplus IVF embryos are another potential source of embryos for research. Surplus IVF embryos are those that have been created for potential implantation into a woman but are no longer required for reproductive purposes. They are distinct from non-viable embryos in that, if they were transferred into a woman's uterus, they would have the potential to form a living individual.

Although donation to an infertile couple is an alternative for couples who have surplus embryos, most choose not to donate for reproductive purposes. It is possible to separate the decision to destroy surplus embryos from the decision to use them for research.

Embryos can also be created specifically for use in research. The ethical difference between creating embryos specifically for research purposes and the use of surplus embryos is that, with those created for research, the destruction of the embryos is premeditated, and there can be no separation of the decision to destroy the embryo and the decision to use it for research.

Surplus IVF embryos are created for potential implantation into a woman but are no longer required for reproductive purposes. In contrast, where embryos are created via IVF for research there is no intention that they will ever develop into human beings, so they are a means to an end, not an end in themselves.

Potential Purposes of Research Using Gametes and Embryos

Among those who support gamete and embryo research, it is generally considered that it can only be justified when as much information as possible has been obtained from non-human gametes and embryos.

Individuals and communities are likely to have different views on which purposes are acceptable, depending on how they view the relative harms and benefits of any research. Some individuals with life-threatening disease have spoken in support of research into curing human disease, whereas others consider that the potential benefits are so remote that the harm to the embryo does not justify such research. They may, however, be able to support research into infertility where the benefits may be more apparent to them. Whatever one's individual perspective, it will be important to consider what is best for New Zealand as a whole.

Using embryos for research into fertility and infertility may be seen as an indirect benefit to embryos as a whole. While not benefiting the specific embryo under investigation, the purpose of the research is to provide better knowledge to help in the areas of fertility and infertility.

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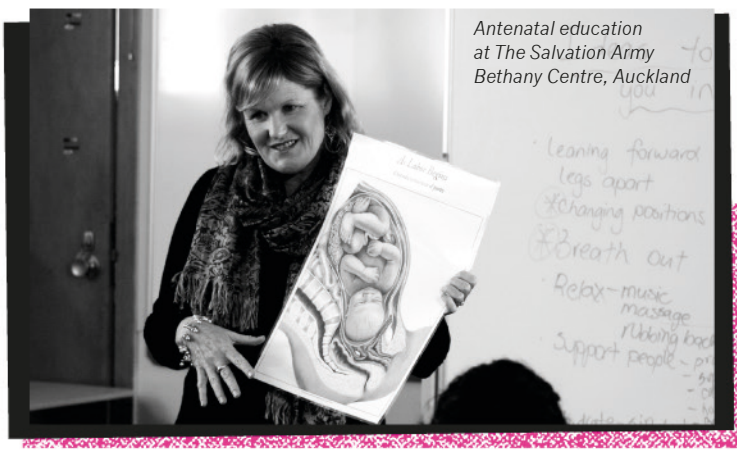

Antenatal education at The Salvation Army Bethany Centre, Auckland

Determining Policy for New Zealand

Where should the line be drawn to safeguard New Zealanders' ethical, spiritual and cultural concerns?

A number of factors are relevant to considering whether gamete and embryo research should be allowed and, if so, where the line should be drawn to safeguard New Zealanders' ethical, spiritual and cultural concerns. These factors include the extent to which decisions on future gamete and embryo research should be influenced by precedents in current policy settings and legislation that take an implicit or explicit position on the moral status of the embryo.

Under the HART Act, human reproductive research on embryos is not explicitly prohibited. However, only research using donated non-viable embryos can proceed as a guideline is in place only for research using embryos from this source

M.A.S.I.C.

Background

The Moral and Social Issues (Ethics) Council (MASIC) studies and formulates Salvation Army responses on significant moral, religious and social issues. Its aim is to help The Salvation Army New Zealand, Fiji and Tonga Territory take a proactive stance in relation to such issues, and to support Salvationist decision-making in everyday life.

MASIC 'Living Counter Culturally' Talk Sheets are intended as Internal Discussion and Resource documents for Salvationists. They provide biblical and theological reflection on the intersection of faith in the everyday world.

The 'Ethical Life'

The 'ethical life' is the Christ-like life. Through Jesus' incarnation, death and resurrection, our broken relationship with God is restored. We are then able to grow more and more like Christ, our Saviour and Lord. His words and example and the teaching of the Bible help us in this journey.

Growth in Christlikeness is expressed in the integrity of our character (who we are), in our ethics (the choices we make) and in our lifestyle (our actions). We live a Christ-like ethical life in our everyday activities when there is a clear synergy between the leading of the Holy Spirit and our own choices:

> **'Since we live by the Spirit, let us keep in step with the Spirit.' (Galatians 5:25)**

WANT TO KNOW MORE? This document has been produced using excerpts from the comprehensive ACART discussion document. For more in-depth information and other websites relating to this topic visit:

www.newhealth.govt.nz/acart

FOR DISCUSSION

WHAT DO YOU THINK?

SCENARIO A:

Following two successful IVF pregnancies, Susan and Bill were left with six unused embryos in storage. Current New Zealand policy is that embryos cannot be stored longer than 10 years. Now Susan and Bill are faced with the decision to either destroy their unused embryos or donate them for research.

1. Is a holistic approach evident? When does life begin? Should gametes be used in research? If so, should the egg and sperm be allowed to combine, thereby creating embryos? Should embryos be used in research? If so, to what extent?

SCENARIO B:

Susan and Bill decide to donate their unused embryos for research only to find they have more decisions to make. Would they like the embryos to be used to further knowledge on fertility and infertility? Or perhaps to develop new techniques for detecting genetic abnormalities prior to implantation? The embryos could also be the key to treat patients with Alzheimer's, Parkinson's disease, spinal cord injury, and a number of other diseases.

2. Which parts of research should they contribute towards? Fundamental science, fertility and infertility, the prevention of hereditary disease, or curing human diseases in general?
3. Should unused IVF embryos be destroyed, or used for research? If they are only going to be discarded, why not use them to gain knowledge?
4. Should we allow existing stem cell lines, gametes and embryo's to be purchased and imported into the country for research?
5. Do the possible benefits outweigh the end achievements?

Talk Sheets on various topics are online at: salvationarmy.org.nz/masic

For more information, contact the Chair of the Moral & Social Issues Council: email masic@nzf.salvationarmy.org

Salvation Army Positional Statements: salvationarmy.org.nz/positionalstatements