THE CLONING WARS

INTRODUCTION

Today we look at a contemporary ethical issue that confronts not only the health care professions, but society worldwide.

Bursting into the headlines in 1998, stem cells have claimed a higher profile than any other medical advance. The controversy surrounding them has only served to heighten the interest of the media. This is a typical contemporary ethical issue – complex, and difficult for all but the scientific community to come to grips with. It is in fact a spin off of a technology that is out-pacing ethical reflection, and raising entirely new questions for society to grapple with. In this hypothetical we will first step back a little in time. then travel forward to the present and beyond.

First though, we’ll see a short visual presentation that clarifies the nature of stem cells, their sources and the technology used to obtain them

1. **Power Point presentation** (4 mins).

CONTENT

*Stem cells have been heralded as the gateway to 21st century medicine. We are told that one of the most exciting possibilities in human therapeutics is that stem cells – embryonic or adult- may compensate for cell loss in disease and bring functional recovery*

**WHAT ARE STEM CELLS?**

*Put simply, Stem cells are the body’s master cells that can develop into other cells and tissues. They are immature cells that still have the potential to develop into many other kinds of cells (pluripotent) Unlike specialized cells, they have the capacity to proliferate - keep on multiplying. This makes them ideal for replacing cells lost and damaged by disease. It is understandable that research scientists, biotech companies and sick people are so passionate about having the freedom to develop them. Stem cells can be derived from both embryonic and non embryonic (adult) sources.*
Embryonic Stem Cells are currently obtained from surplus 5-7 day old embryos. This is not cloning, and it is argued that researchers could achieve their ends without cloning techniques. However many believe that cloning or Somatic Cell Nuclear Transfer (SCNT) technology could produce cells that would eliminate rejection and need for life long use of anti rejection drugs since it would produce tissue perfectly matched to the patient.

In Somatic Cell Nuclear Transfer (SCNT), the nucleus from a cell in a person’s body (somatic cell) is removed and inserted in a donated ovum from which the nucleus has been removed. The cell is stimulated with a short electrical pulse, and then develops into the blastocyst (early embryo) from which stem cells can be removed. The process has been called therapeutic cloning, though as yet these cells have never been used for therapy on human beings. They are identical with those of the donor of the somatic cell, so if the embryo was allowed to develop and implanted in a uterus it would be an exact genetic copy of the individual who donated the cell. This is known as reproductive cloning. Dolly the first cloned sheep was produced in this way.

Embryonic stem cells created through techniques, such as SCNT, can facilitate the creation of disease-specific stem cells which will assist in investigating cause and cures. There is also the prospect that SCNT will facilitate the creation of embryonic stem cells that match a patients DNA thus, eliminating the problem of immune rejection in potential transplantation therapies.

Non embryonic stem cells

It was thought that adult SC were only capable of making cells for one particular tissue, but has been discovered recently that non embryonic sources for stem cells such as the tissue of adults or from cord blood, can be pluripotent, ie. have the capacity to differentiate into a variety of specialized cells. They are already being used therapeutically.

Proponents say that they will revolutionise medicine. Others say there are serious ethical concerns in relation to the technology used to create them.

Introducing...”The Cloning Wars”. An NCF Hypothetical

2. Introduction to panel members
**Professor Eric Stammbach**, Professor of Experimental Science and Director of Centre for Neuroscience, University of Hamburg. Author of Transplantion of Embryonic dopamine neurons for Advanced Parkinsons Disease. (Michael Harpur)

**Pauline Hewson** - President of the national Nurses For Life organization and senior lecturer at the Australia Pacific College of Nursing. (Penny Sewell)

**Katrina Ramshaw** - Christian politician and Federal Minister for Health (Jill Leonarder)

**Bishop Russell Bartlett** – Bishop of North & West Region of the Diocese of Melbourne, and Chairman of the Anglican Ethics Committee. (Paul Christianson)

**Dr Alice Cheney** – Researcher and strong proponent of embryonic stem cell research, Director of the National Stem Cell Centre (a collaborative initiative uniting many of the country's leading academic researchers to develop innovative therapeutic products to treat a range of serious injuries and debilitating diseases). (Wendy Reading)

**Amanda Ryan** – Ethicist and author. Director of Centre for Bioethics, Northern Territory University (NTU) Advisor to the Senate on ethical issues. (Patricia Lockwood)

### 3. Panel Dialogue  *(Panel member's answers in italics)*

It is October 2006 and Federal politicians are preparing to debate a bill that proposes reforms that could liberalise stem cell research in Australia. Cabinet has decided that there will be a conscience vote on this issue

A Government committee led by former judge, John Lockhart. sat for six months prior to recommending the reforms which effectively allow human cloning. They recommended lifting the ban on cloning human embryos - A procedure that just three years before was unanimously voted against by federal politicians
In August 2006 the federal health minister accused enthusiastic advocates of stem cell research, of over-peddling hope to vulnerable people.

Dr Cheney, many scientists claim that the proponents of embryonic stem cell research have created expectations that may never be met and that the hype has been running far ahead of the research. Would you agree with that?

The research techniques in question, such as somatic cell nuclear transfer or SCNT as it is known, have the potential to lead to cures and treatments for a range of conditions. Many people believe, myself included, that would be unethical not to invest in research which offers hope to so many sufferers.

Pauline Hewson, Nurses for Life support adult stem cell research but oppose embryonic stem cell research that may eventually save many thousands of lives. Why is this?

Because it involves the destruction of life, ie. the human embryo. In the case of cloning, human life is created in order to destroy it. We are also concerned about the possible misuse of this technology since it is only a short step from cloning for therapeutic reasons to reproductive cloning. It is exactly the same technique that is used.

As nurses of course we want to see lives saved and sick people made better, but we believe there are ethical ways to do this through using alternative technologies.

The media consistently imply that embryos – obtained either by cloning or “spare” embryos from IVF programs - hold the key to the future, but Professor Stammbach, are there other good alternatives to using human embryos?

Adult stem cells (known also as Somatic cells) can be harvested from various places including, placenta, bone marrow, skeleton muscle, skin, and fat tissue. Bone marrow stem cell transplants have been used for many years.
Q. Scientists pushing for the right to create embryos seem to be claiming that the potential of embryonic stem cells is far greater. Is this true? Are adult stem cells as effective for therapy as those obtained from embryos?

*Well so far only adult cell therapies have been successful. Research using stem cells not derived from human embryos has confirmed that these adult and post-natal stem cells have vast biomedical potential to cure diseases such as diabetes, Parkinson's, heart disease and other degenerative diseases. The biomedical potential is as great as or greater than the potential offered by human embryonic stem cell research.*

**Dr Cheney** you have been quoted as saying, “If we are not allowed to go ahead with this research using Somatic Cell Nuclear Transfer (SCNT) we will never be able to understand the basic causes for diseases such as Diabetes and Cystic Fibrosis”

What opportunities for research does the cloning technique offer that other methods don’t?

*For one thing it will provide a far quicker way to carry out the necessary research. SCNT is not just for therapy it is a way to begin to understand the nature of these and many other diseases – to know what went wrong in the first place.*

So there are two aims for this process of cloning – producing stem cells which may be of benefit for therapy, and understanding the molecular basis of the disease as well?

*That is correct.*

**Amanda Ryan** Your particular research interest is diabetes. How are embryonic stem cells going to help young Australians with type 1 Diabetes?

*I concur with Doctor Cheney in that we need to know why... Why the Pancreatic cells don’t work properly in type 1 Diabetes... and SCNT is one of the very best and most promising ways to study the disease.*

*By developing embryonic stem cell lines many many people including children with diabetes will ultimately benefit but you need time and patience to overcome the problems and we need to make sure that no unnecessary blockages are put in the way for that to occur. When*
weighing up the ethical concerns we need to keep clearly in mind the benefits to be achieved by allowing SCNT technology to proceed, i.e. Very primitive human life VS living human beings whose lives can be transformed or saved.

In June this year an Australian Democrats Senator put forward a private member's bill containing the recommendations of the Lockhart review, which urged the government to lift a ban on cloning for the production of stem cells for research purposes.

Katrina Ramshaw, as Federal Minister for Health you have been receiving much attention from the media, especially in relation to the bills currently before parliament on this issue. Would you explain to us the nature of these bills and what it is hoped to achieve?

One of the bills amends the Prohibition of Human Cloning Act 2002 and the Research Involving Human Embryos Act 2002 to provide for: medical and scientific research using stem cells, including techniques such as somatic cell nuclear transfer; and development of techniques for the training, research and improvements in clinical practice in assisted reproductive technology. This was tabled in the Senate in June this year.

Meanwhile Senator Patterson a former Health minister has also tabled a bill titled Prohibition of Human Cloning for Reproduction and the Regulation of Human Embryo Research Amendment Bill 2006. Amongst other things this bill makes it an offense to create a human embryo for a purpose other than achieving pregnancy in a woman...

Dr Cheney, doesn’t this Bill rule out cloning techniques such as SCNT for therapeutic reasons?

No, the bill states that it is an offence to intentionally create a human embryo by a process other than by fertilization by a human sperm, or develops an embryo so created if the creation or development of the human embryo by the person is not authorised by a licence. The offense carries a maximum penalty of imprisonment for 10 years. The purpose of this bill is to repeal the banning of cloning by the 2002 bill, but put in place strict safeguards.
The bill also carries a plethora of other prohibitions, including cloning for the purpose of human reproduction, placing a human embryo clone in the human body or the body of an animal; developing a human embryo outside the body of a woman for more than 14 days; collecting a viable human embryo from the body of a woman; placing of a human embryo in the body of an animal; commercial trading in human eggs, human sperm or human embryos; creating or developing a human embryo containing genetic material provided by more than 2 persons.

Amanda Ryan, for most lay people such a list alarms rather than reassures us. As an ethicist does it concern you that this technology carries with it the potential and indeed the ability for misuses of this kind?

Of course it does. However I understand that both private members bills give very thorough consideration to this. There is a comprehensive list of prohibited practices and these mostly carry a sentence of 10 years imprisonment.

In September an article posted on the Sydney Anglican website urged Christians to say no to changing the law for Stem Cell research. I quote, “A battle is underway to overturn legislation preventing the cloning of human embryos in Australia. Sydney Anglicans are lobbying hard to ensure the ban stays in place.”

Bishop Bartlett, how do you feel about the developing technology for regenerative medicine, and what are some of the concerns you have at this stage?

Well on the one hand we are told that so-called ‘therapeutic cloning’ and subsequent stem cell research holds the promise of cures for many debilitating and even fatal diseases. On the other side we have the conscious destruction of human embryos.

Concerns I have are firstly the creation of human life in order to destroy it, and then the potential for the exploitation of women, particularly with pressure to supply the eggs needed for such research and techniques. I believe these issues raise grave concerns for society as a whole, not only for Christians.
Well Cabinet has now voted to ignore the recommendations of the Lockhart committee to end the ban on therapeutic cloning, but Prime Minister John Howard has bowed to backbench pressure and later promised a conscience vote on any legislation to come before parliament.

Katrina Ramshaw, how well have members of parliament and the senate been briefed on the facts surrounding this complex and controversial issue?

The number of people giving lectures and forums seems to be growing all the time. I’m aware of four different seminars held in Parliament House over the past couple of weeks. There’s Emeritus Professor of Medicine T John Martin from Melbourne Uni, Professor of Medical Genetics Bob Williamson from Melbourne Uni, Prof James Sherley from the Centre for Cancer Research, Massachusetts Institute of Technology, Boston, and Fr Frank Brennan, the Jesuit lawyer.

Having been given all this information, what is the position of the coalition regarding a change in the 2002 legislation?

We now have available, legally, embryos from IVF treatments for research, but allowing the creation of embryos purely for the purposes of destroying them in the name of research is a very big step, which we don’t think that it’s appropriate to make at this stage.

Professor Stammbeck is money that should be used for adult Stem Cell research likely to be diverted into therapeutic cloning if the private members bill is successful?

Many scientists such as myself are afraid that is just what may happen, but here in Australia I understand there is not only considerable progress being made in adult stem cell research, but in funding also.

I hear that Australia will soon have the world’s first dedicated adult stem cell research centre owing to a grant of a $22million to Griffith University in Queensland. It is here that researchers have made some exciting discoveries of late, including the fact that cells from the nose can be grown into nerve, heart, liver, kidney and muscle cells.

Amanda Ryan, what difference do you feel this makes in the push to permit cloning of embryos for research and therapy. Couldn’t the difficult
ethical issues be avoided, if adult stem cells can provide treatment that is more successful?

*It is certainly true that adult stem cell research is proving promising for progress in regenerative medicine, and avoids certain medical and ethical problems associated with destructive embryonic stem cell research. However we must be certain that by prohibiting another promising alternative – embryonic stem cell research – we are not limiting or delaying successful therapies that will save many thousands of lives. The question arises, is it unethical to restrict or prohibit it?*

Let’s move on now to December 2006 when the “Prohibition of Human Cloning Reproduction and the Regulation of Human Embryo Research Amendment Bill 2006” is narrowly passed by Federal Parliament after a great deal of debate both in the Senate and the House of Representatives.

It is heralded as a victory for the advancement of medicine by some, and by others as a watershed in our thinking and treatment of others, especially the weak and vulnerable in our society. Nonetheless, after the initial headlines and a few reports on the reactions of various politicians and church spokesmen, the media quickly drops the issue.

Just 5 months later in May 2007 Victoria becomes the first Australian State to pass legislation mirroring the Federal Therapeutic Cloning laws. The new law narrowly passed in the Upper House means that scientists will be allowed to clone human embryos for medical research through somatic cell nuclear transfer. The State Minister for Health sees this as “a very significant moment for Victoria in their long history of leadership in medical research” One month later a similar bill is passed by parliament in NSW
Katrina Ramshaw as Federal Minister for Health how do you respond?

I’m certain that it will indeed bolster Victoria’s position as a leader in the field here in Australia and potentially worldwide. It is highly likely to attract new people, and keep those already working in the field. However we shouldn’t lose sight of the fact that it is a momentous decision that has been made here. As both the Bishop and Ms Hewson pointed out earlier, we have in effect creating a class of human beings to be used for the benefit of others. Along with many others I am not comfortable with that.

Bishop Bartlett do you still feel the same, now that it is clear that we seem well on the way to a wide acceptance of SCNT here in Australia and elsewhere?

Well yes I do ... In passing this law and allowing creation of, experimentation and destruction of embryos we have made a number of changes to the ethical basis of our society and the moral rules and precepts by which we live. I feel it has major significance for the kind of society we will become.

It is now October 2009. The great debate is now more than three years behind us. To everyone’s surprise bills proposing the liberalization of stem cell research in Queensland and Western Australia are defeated by a narrow margins. The scientists residing in those States are bitterly disappointed and vow to fight on for the right to clone embryos for research. Some of them move interstate or overseas. Others still concerned about the ethical problems and potential misuse of this technology breath a sigh of relief.

But since 2007, unexpected advances have been made by researchers using spare embryos obtained from IVF programs and SCNT. They have demonstrated that the unwelcome side effects
such as rejection and tumour formation can be greatly reduced if not eliminated. Moreover they are presenting many case studies of successful treatments and cures achieved through the use of embryonic stem cells. The media have been quick to publicise these dramatic stories but even now are remarkably silent about the significant advances also taking place in adult cell research.

So **Professor Stammbeck** do you still believe that more money should be spent on the work with adult stem cells, even though there has been so much advance in embryonic stem cell research and therapies?

> Yes because I believe that the ethical problems can be avoided by spending more time and money on adult cell research, and also because it has as predicted proved to be an ever more promising path for regenerative medicine. The interests of science, medicine and a morally healthy community will be best served if this is given the highest priority for funding

**Dr Cheney**  Does the recent progress in embryonic stem cell warrant the greater share of funding?

> Now that we have solved some of the medical problems associated with using embryonic stem cells and demonstrated that degenerative diseases could be better understood and successful treatments are being achieved, I cannot see any reason not to go ahead as quickly as possible in that direction. This will require a great deal more funding. If so many people can benefit more quickly, the creation and destruction of primitive human life is a small price to pay.

**Pauline Hewson**, Has this made any difference to your thinking?

> No because for me the issue is primarily the sanctity of all human life. An embryo is an embryo, no matter how it is made - whether by natural conception, by IVF, or by cloning. The cloned embryo, even though created 'sexually', is no different in itself to one created 'asexually' by 'egg and sperm', and could, like cloned animals, be brought to birth. The dignity of human beings is being eroded by creating human beings to be laboratory research material
Bishop Bartlett: Now that embryonic stem cells are a proven source of successful therapies, can it still be denied that it would be unethical not to proceed with cloning techniques?

*I cannot help but come back to the fact that cloning creates a human embryo solely for research, with its destruction intended - and that is wrong. We must not create one life in order to destroy it for the benefit of another life. This may be a utilitarian view but it violates the Biblical ethic, and dehumanises the embryo.*

*Another ethical concern is that cloning requires the harvesting of hundreds of eggs per clone. Our culture is materialistic, so it seems to me inevitable that exploitation will occur. Commercialising women's ovaries and as latest research shows- risking their health, is exploitation The other alternative to this that is proposed, is the use of other animal eggs and production of human –animal hybrids and that also raises serious ethical issues.*

A final word from each of you. What do you want to see happen when the parliaments in Queensland and Western Australia vote for the second time on this controversial issue?

[Suggestions below can be expanded on if you wish, but keep as brief as possible in consideration of a limited time frame]

Dr Cheney?

*I have a lot of respect for the religious views of other people even if I don’t fully agree with them, but it seems in Queensland and Western Australia we are seeing lobby groups with an agenda that is entirely based on the religious views of a minority. I really think that the views of the Australian people and the majority of the scientific community are in danger of being disregarded as these bills are debated once again.*
Pauline Hewson?

In accordance with the purpose of Nurses for Life which is to uphold and defend human life in all stages of development. I have to hope sincerely that the bills in those States are defeated. Our organization will be doing all in its power to raise the consciousness of the nursing profession and the community to protect all life from conception to natural death. For us that means saying no to cloning of human life for research and destruction.

Amanda Ryan?

As an ethicist I have given considerable thought to this very complex and important issue. I have come to believe that the ethical considerations of creating and using very early human life, i.e. embryos, to speed the progress of understanding disease and finding effective therapies for treating them, are overridden by the good that is achieved. In other words I do not believe we should any longer stand in the way of developing this technology. However I believe there are boundaries, and that all stem cell research should adhere strictly to the regulations that have been put in place.

Bishop Bartlett?

I am concerned about how those regulations can realistically be monitored. If they are not- where does it end? What will be next? Growing cloned embryos to 3 months or 6 months so we can harvest organs?"

This is not a simple debate with simple answers from the Bible, but nevertheless there is good reason (Biblical, scientific, and philosophical) to understand the embryo as a human individual. So I have to ask, what sort of society do we want to be? Do we value the smallest members of the human family? Ethics is all about how we treat each other. Will we use each other for our own gain? Will the strong and the influential always dictate what is right and wrong? Will we ask ‘who is my neighbour?’ and having recognised them, even when
others would walk by on the other side or ignore them as nothing, will we stoop down and give them respect and protection?

Katrina Ramshaw?
Regardless of what has happened and is happening today, I believe it would be better to avoid the difficult ethical issues and the potential for misuse that this technology is opening up. In the past Australia was way ahead in adult stem research and successful therapeutic treatments for a number of diseases. This was made possible by putting the brakes on SCNT and spending our resources in this area. I would like to see this happening now. I am also concerned about what any other course may do for us as a society, regardless of what the rest of the world has decided. I would like to be part of a society where all life, even early life is respected and valued.

4. CONCLUSION (directed to audience)
The embryonic members of our society, once hidden away in secret, with those first moments and months of life inaccessible, have now become public property - the source of debate, confusion, of hope and despair.

Are we ready to make the monumental choices before us as individuals and as a society as we consider the best and wisest way ahead for this technology? These issues are complicated and difficult – Many people believe we must recognise this and tread carefully, seeking understanding before making changes. This is the heavy burden on those deliberating on behalf of the people of Queensland and Western Australia. If you were a member of parliament in either of those States, how would you vote, and why?

Margaret G. Hutchison

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Hypothetical