THE BIOETHICAL BASIS OF THE DOCTOR'S ACTIVITY.
BIOETHICS OF BIOTECHNOLOGIES.

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Professional ethics - the ethical norms, values, and principles that guide a profession and the ethics of decisions made within the profession

One of the earliest examples of professional ethics is probably the Hippocratic oath to which medical doctors still adhere to this day.

The professional

↓

additional moral responsibilities

↓

capable of making and acting on an informed decision

↓

received the relevant training.

Disciplinary codes

Disciplinary codes allow the profession to draw a standard of conduct.

Professional responsibility encompasses:

- *the duties of doctors to act in a professional manner,*
- *obey the law,*
- *avoid conflicts of interest,*
- *put the interests of patients ahead of their own interests.*

Professional responsibility violations in general include:

1 – Unreasonable refuse of the delivery of health care to the patient

2 - Disclosure of confidential information

3- Low level of the quality of health care

4- Violation of the conditions of treatment

5- Causing of harm to the patient

6- Conflict of interests

Referral

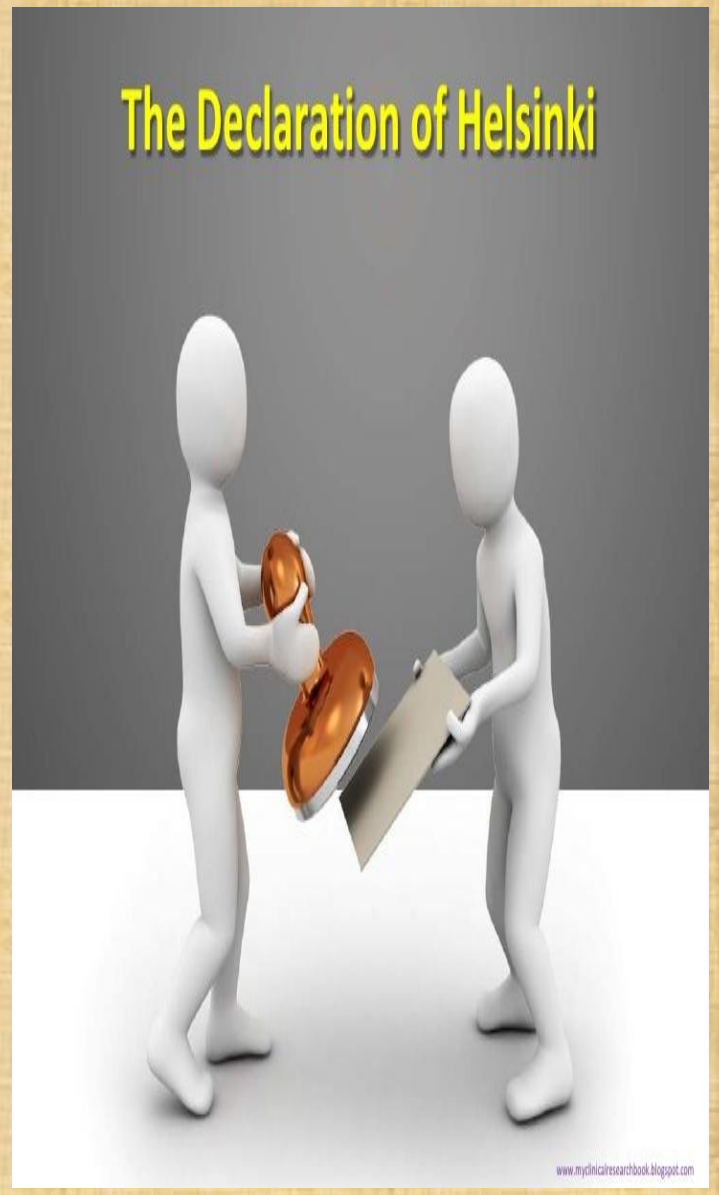
Fee splitting and the payments of commissions to attract referrals of patients is considered unethical and unacceptable in most parts of the world.

Relationships with Patients

Most ethical codes forbid doctors and nurses to have sexual relationships with patients. In avoiding such relationships the professional is acting non-maleficently.

Declaration of Helsinki

In 1964, the World Medical Association established recommendations guiding medical doctors in biomedical research involving human participants. The Declaration governs international research ethics and defines rules for "research combined with clinical care" and "non-therapeutic research." The Declaration of Helsinki was revised in 1975, 1983, 1989 and 1996, etc



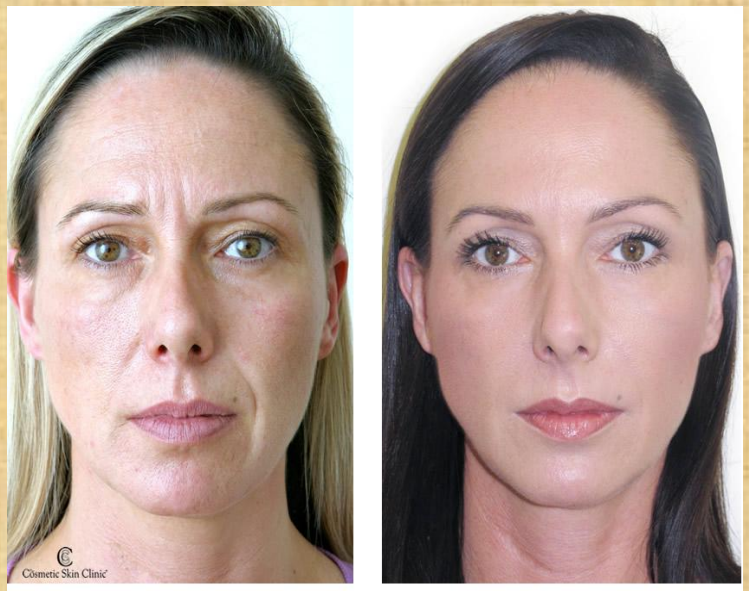
BIOETHICS IN BIOTECHNOLOGY

"Morality is a
private and costly luxury."
Henry B. Adams,

- Who should control technology?
- What should be banned or permitted and who should decide?
- Who should profit?
- Should access to novel and expensive technology be provided to those who cannot afford it?

For example, treatment with botulinum toxin (Botox) is now used to remove wrinkles from the skin of the old and ugly. Botox injections cost from $300 to $500 (more than a month's wages in many Third World nations). More than 1.6 million people received injections in 2011.

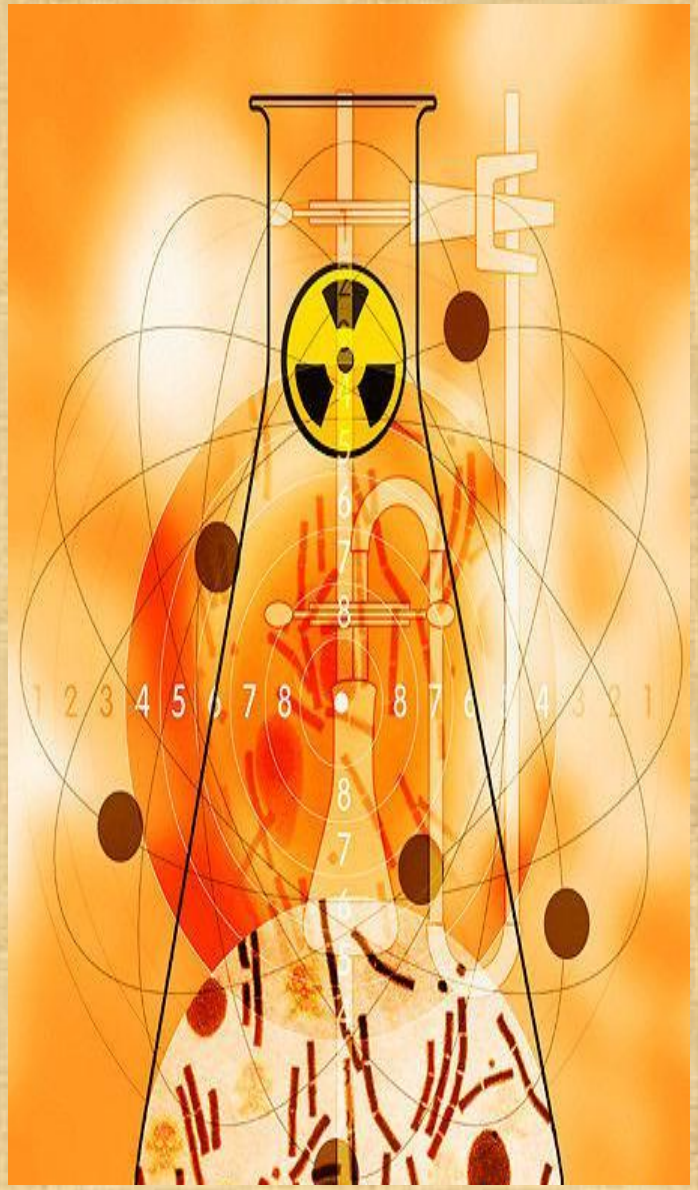
The rich have always had greater access to expensive health care, whether drugs, surgery, or simply high-quality nursing.



- *Most inhabitants of Third World nations cannot afford basic antimalarial drugs.*
- *Many do not even have pure drinking water.*
- *Mass immunization against infections with cheaper, more effective vaccines benefits poor people.*
- *Transgenic crops able to grow in poor soils and give higher yields without fertilizers may also help.*
- *But merely saving lives from starvation causes population expansion and overcrowding, thus promoting the spread of infections.*

Bioterrorism and germ warfare

- The anthrax attacks of 2001–2002 that followed the terrorist destruction of the World Trade Center in United States .
- The actual number of casualties was low, yet the associated fear was widespread and became a hot media topic.
- Guns and bombs are highly visible.
- Infectious microbial agents are invisible to the naked eye.]



- Whether or not research on germ warfare should be done is hotly debated.
- Germ warfare has been described as the “poor man’s nuclear weapon.”
- Nations too poor to develop costly high-tech weapons could throw together crude biological weapons relatively easily and cheaply.
- Germ warfare thus represents a possible means by which Third World nations could protect themselves against the rich nations invader.

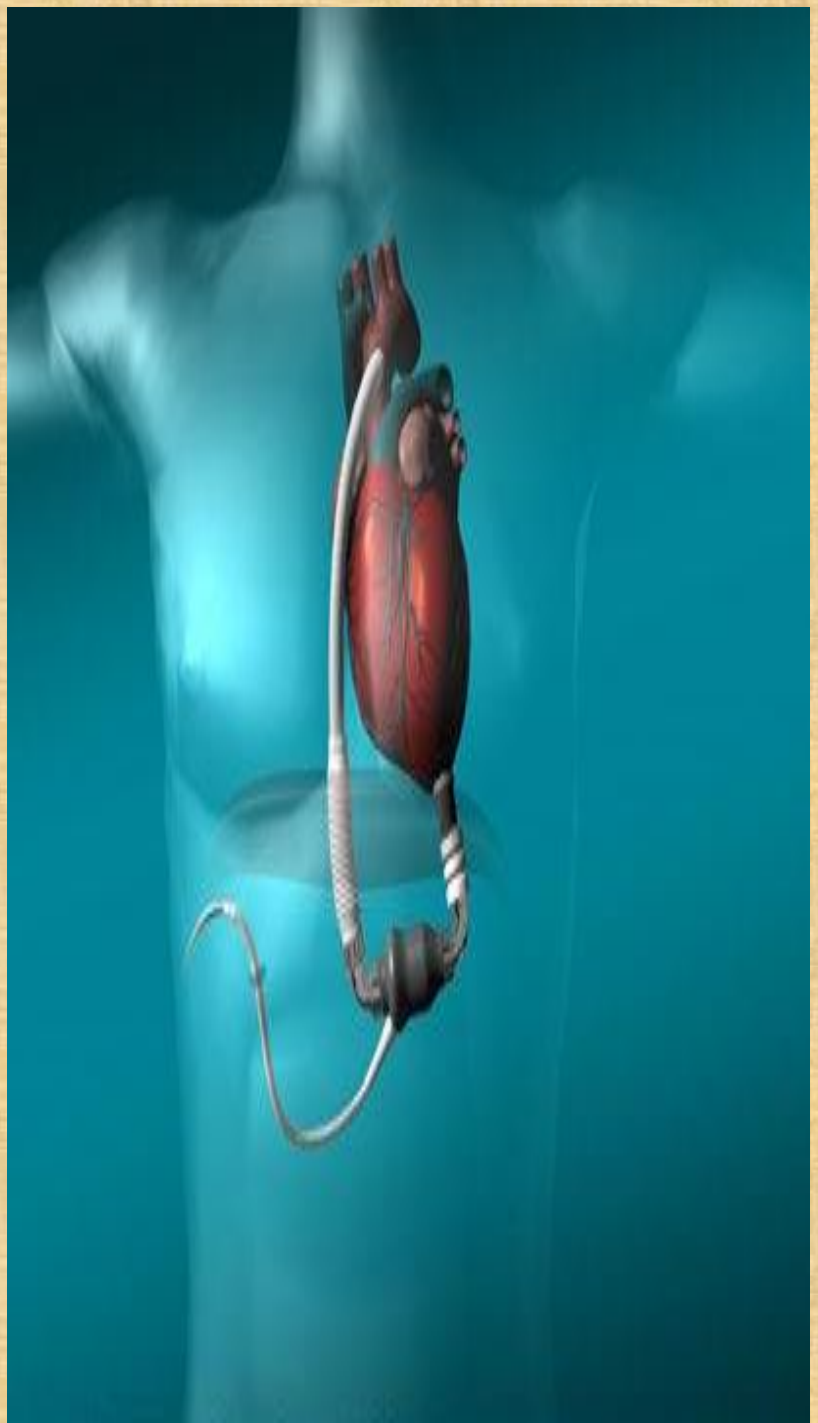
Organ Donation

- 1 donor can save or help as many as 50 people.
- Organs you can donate include
- Internal organs: Kidneys, heart, liver, pancreas, intestines, lungs
- Skin
- Bone and bone marrow
- Cornea
- Most organ and tissue donations occur after the donor has died. But some organs and tissues can be donated while the donor is alive.
- People of all ages and background can be organ donors.

Organ replacement, artificial parts, and the Bionic Man

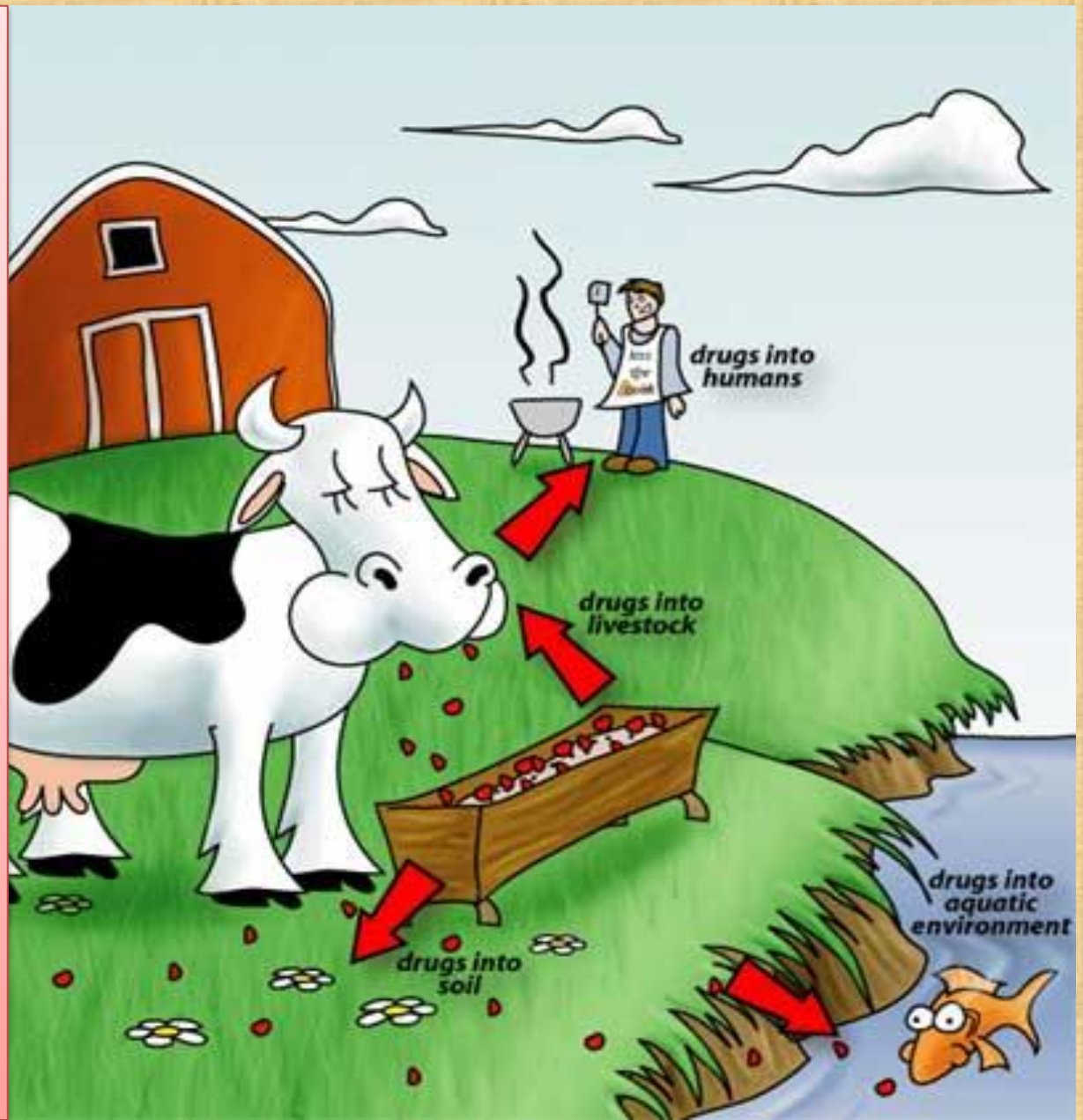
- Too few people volunteer to donate their organs resulting in a shortage.
- It has been proposed to develop human clones as a source of replacement organs.
- Artificial tissues (non-biological) are also being developed.
- Another alternative is nanotechnology, the use of engineering on a microscopic scale (miniature filtration units to replace defective kidneys, or photosensors for defective vision).

- Organs are distributed on a first-come-first-served basis combined with urgency.
- In Europe - **presumed consent laws** for organ donation (an individual is willing to contribute organs upon death, unless he or she has registered as a nondonor or there is other evidence to the contrary.

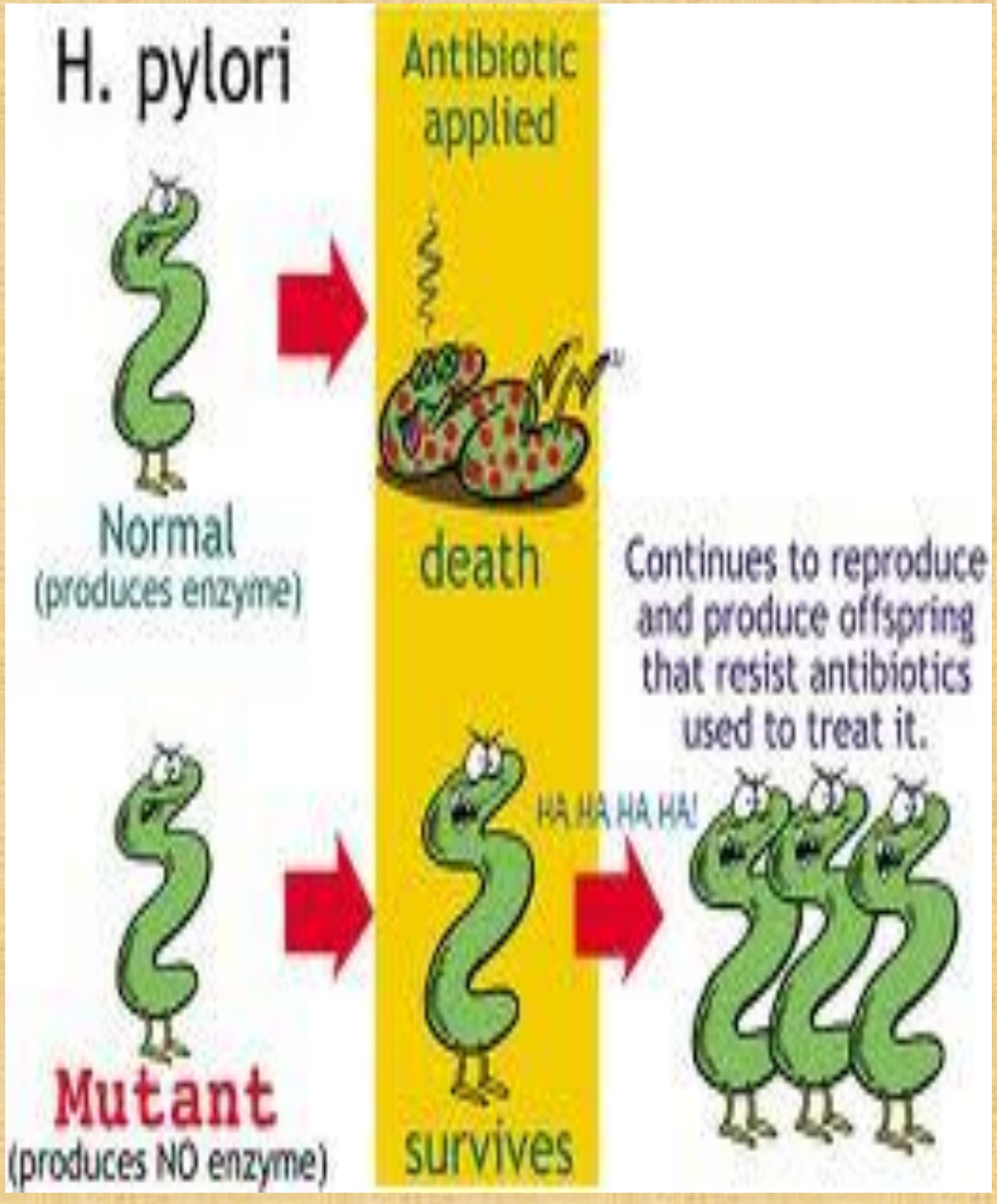


Antibiotics

- When bacteria are exposed to antibiotics, they may gain resistance. Overuse and improper use of antibiotics have led to the spread of antibiotic resistance.
- It is difficult to find effective antibiotics to treat simple infections.
- Certain antibiotics are widely used in agriculture.



- Another problem is that antibiotic treatment is often discontinued too early.
- If the infecting bacteria are not totally destroyed by completing the course of antibiotic treatment, the survivors may gain resistance and spread.
- Poorly educated patients tend to stop taking medication as soon as the symptoms disappear.
- The dosage and length of antibiotic treatment are decreased in order to save money.



Transgenic Crop plants

There are 3 main issues to consider for transgenic crops.

1 - is whether the food product is safe for human consumption.

2 - is the question of containment.

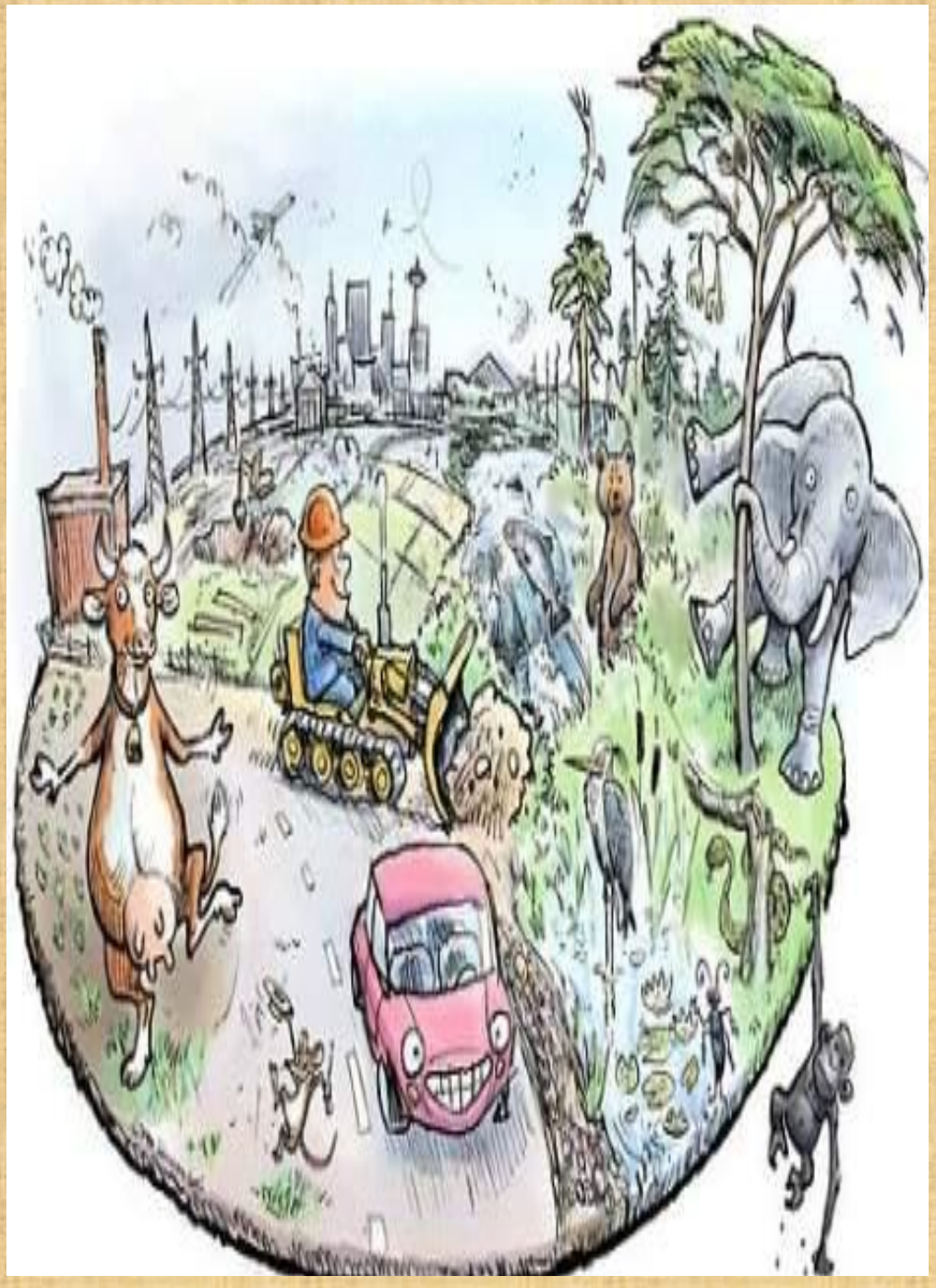
3 - is the question of hazard to the environment.

In practice, seeds from different batches of corn are impossible to keep wholly separate, and mixing of GMO with natural corn has occurred. DNA of transgenic origin has been detected in wild plants.

Loss of Biodiversity

- Humans have been replacing diverse natural habitats with artificial monoculture for millennia.
- Most natural habitats in the advanced nations have already been replaced with some form of artificial environment based on mass production or repetition.
- The real threat to biodiversity is surely the need to convert ever more of our planet into production zones to feed the ever-increasing human population.

Our planet's biodiversity is under threat from human agriculture.



Animal Testing

A generation ago, social activists demanded that medicines, cosmetics, shampoos, foodstuffs, and every other product that might come into contact with a human being should be rigorously tested for safety using animals. This led to massive government legislation mandating such testing. Today's animal rights activists are demanding less animal testing.

What is Genetic Engineering?

- **Scientific alterations in human possibilities**
  - Gene Therapy
  - Stem cell research
  - Human cloning
- **Scientific alterations in animal and plant life**
  - Modified grains tolerant of disease and drought
  - Cloned animals

Transgenic Animals and Animal Cloning

Genetic manipulations could create future organisms that are truly bizarre by today's standards.

By manipulating the homeobox genes, which control body plans and segmentation, maybe a "chickapede"—a chicken with multiple legs and body segments—

could be created.

Cloning

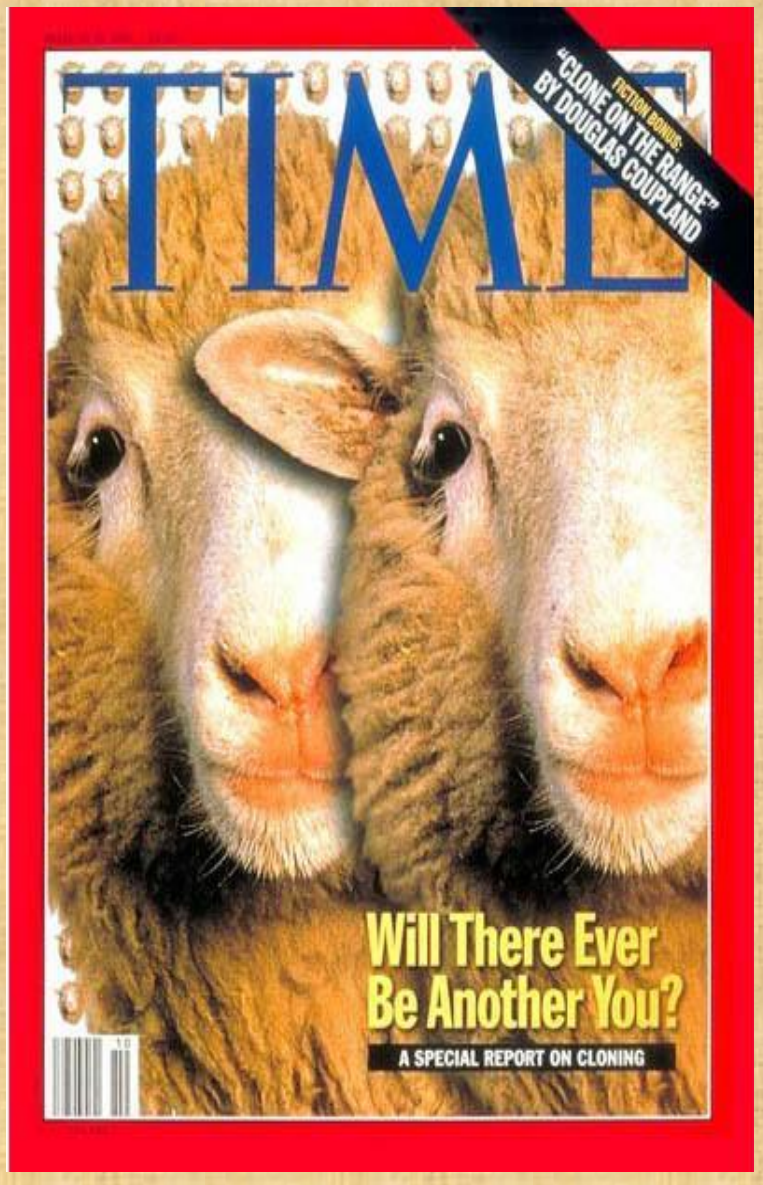
Cloning is the processes used to create an exact genetic replica of another cell, tissue or organism. The copied material, which has the same genetic makeup as the original, is referred to as a clone. The most famous clone was a Scottish sheep named Dolly.

3 different types of cloning:

Gene cloning, which creates copies of genes or segments of DNA

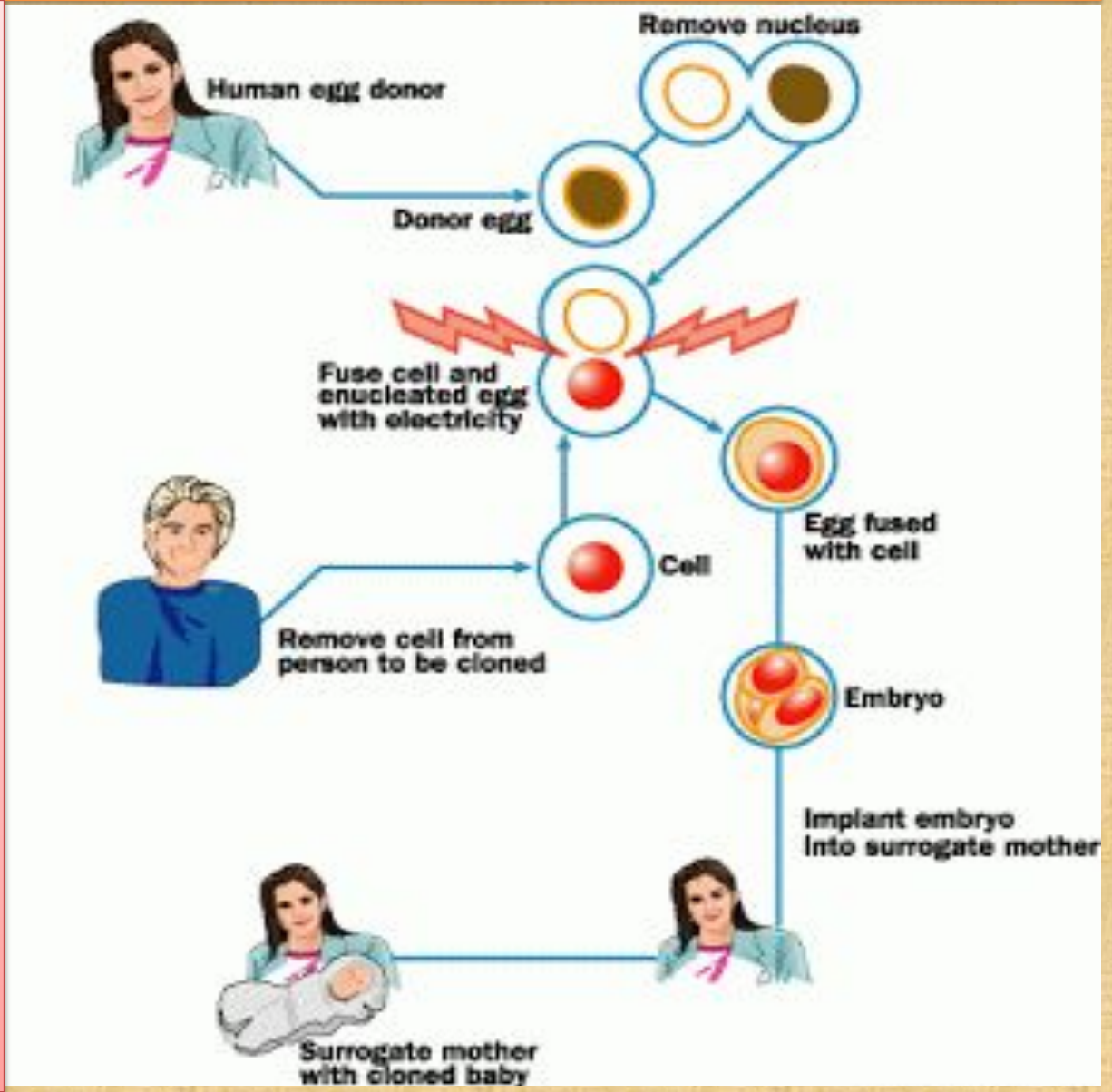
Reproductive cloning, which creates copies of whole animals

Therapeutic cloning, which creates embryonic stem cells. Researchers hope to use these cells to grow healthy tissue to replace injured or diseased tissues in the human body.



Why clone humans?

- Creating replacement tissue (spare parts)
- Producing a fully developed human being for infertile couples
- Reproducing outstanding humans in history



Moral and Legal Issues of Cloning

- Do people have a right to reproduce by any available means?
- Do other societal concerns override any such rights?
- Will there be harmful effects on the cloned twin?
- How will family relationships be redefined?
- Could persons be cloned without their consent?
- Would cloning be immoral because it is “unnatural”?

Though human cloning is unethical, cloning organs or body parts for therapeutic or medical purposes is ethical.

Furthermore, environmental and developmental influences would mean that although genetically identical, the clone would not be a true "behavioral replica." Remember that although identical twins are genetically identical—"natural clones"—they still show considerable divergence in personality, behavior, and ability.

Altering the human germline

Soon it will become possible to deduce such things as the probable future height, eye color, IQ, and beauty of the developing fetus.

Most parents would like to have smart, healthy, and attractive children, and the temptation to have abortions based on these characteristics will soon become a reality.

Genetic Testing

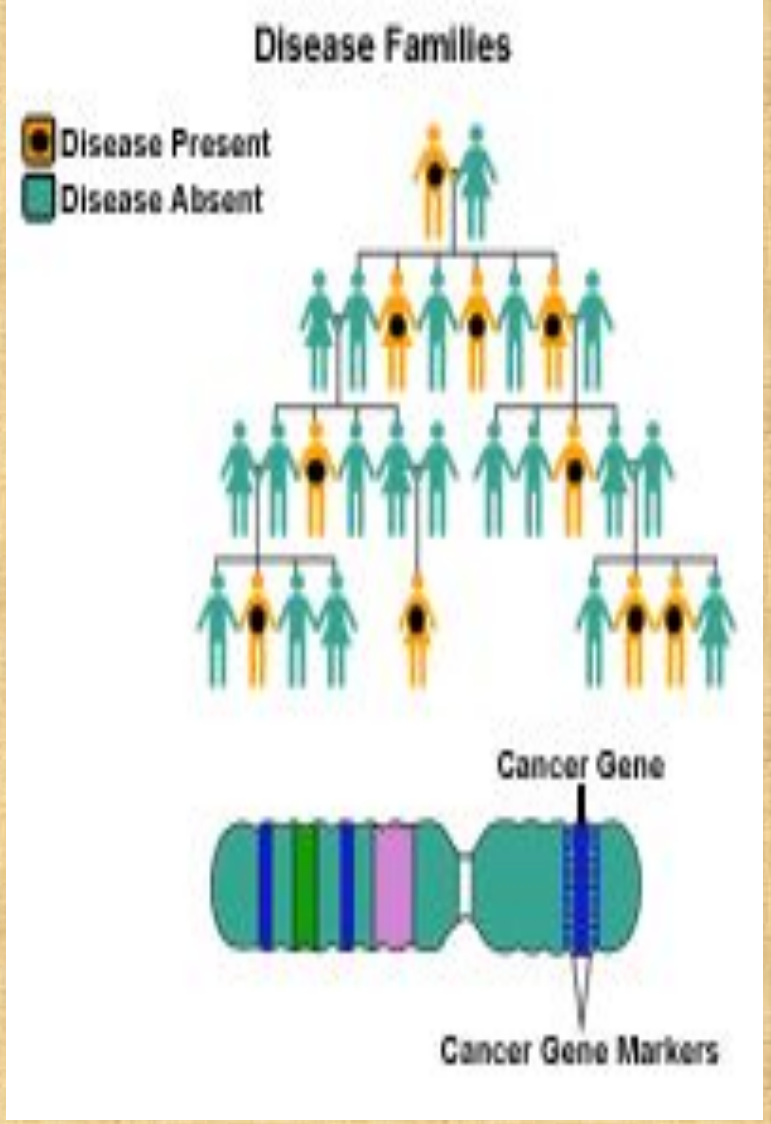
Genetic tests are tests on blood and other tissue to find genetic disorders. About 900 such tests are available.

Reasons:

- Finding possible genetic diseases in unborn babies
- Finding out if people carry a gene for a disease and might pass it on to their children
- Screening embryos for disease
- Testing for genetic diseases in adults before they cause symptoms
- Confirming a diagnosis in a person who has disease symptoms

Genetic Testing

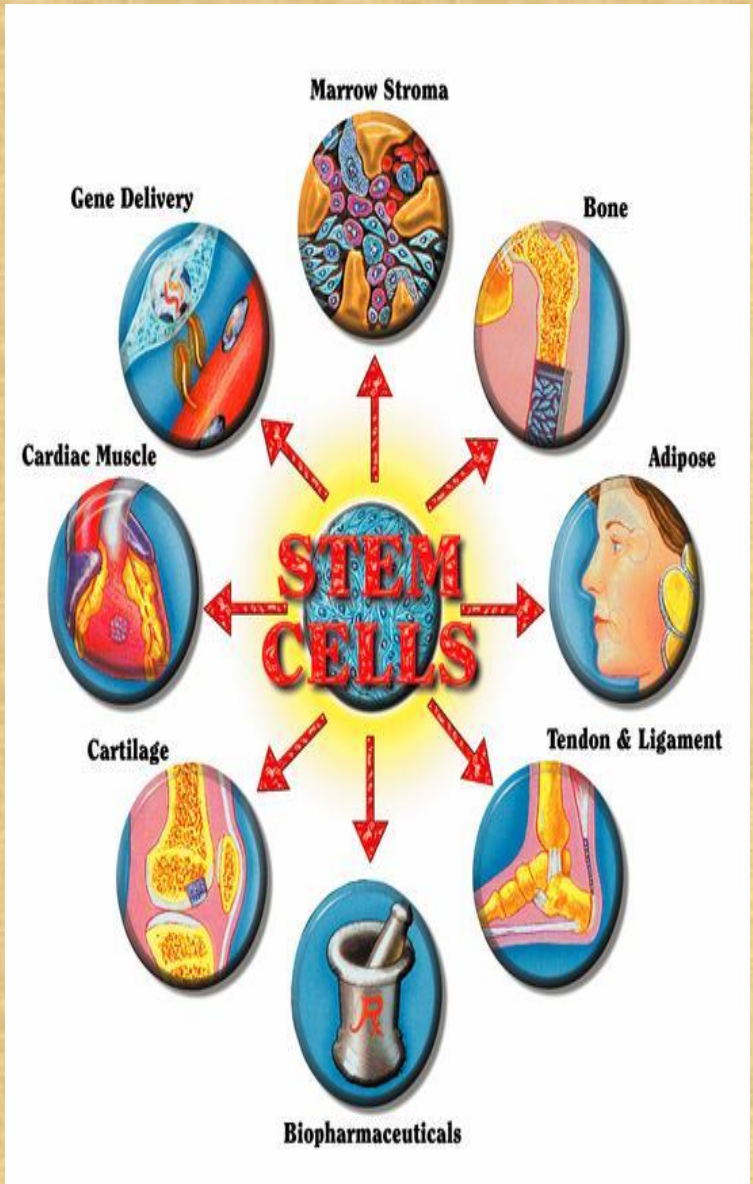
In some cases, there is no treatment. But test results might help a person make life decisions, such as career choice, family planning or insurance coverage. A genetic counselor can provide information about the pros and cons of testing.



Stem Cells

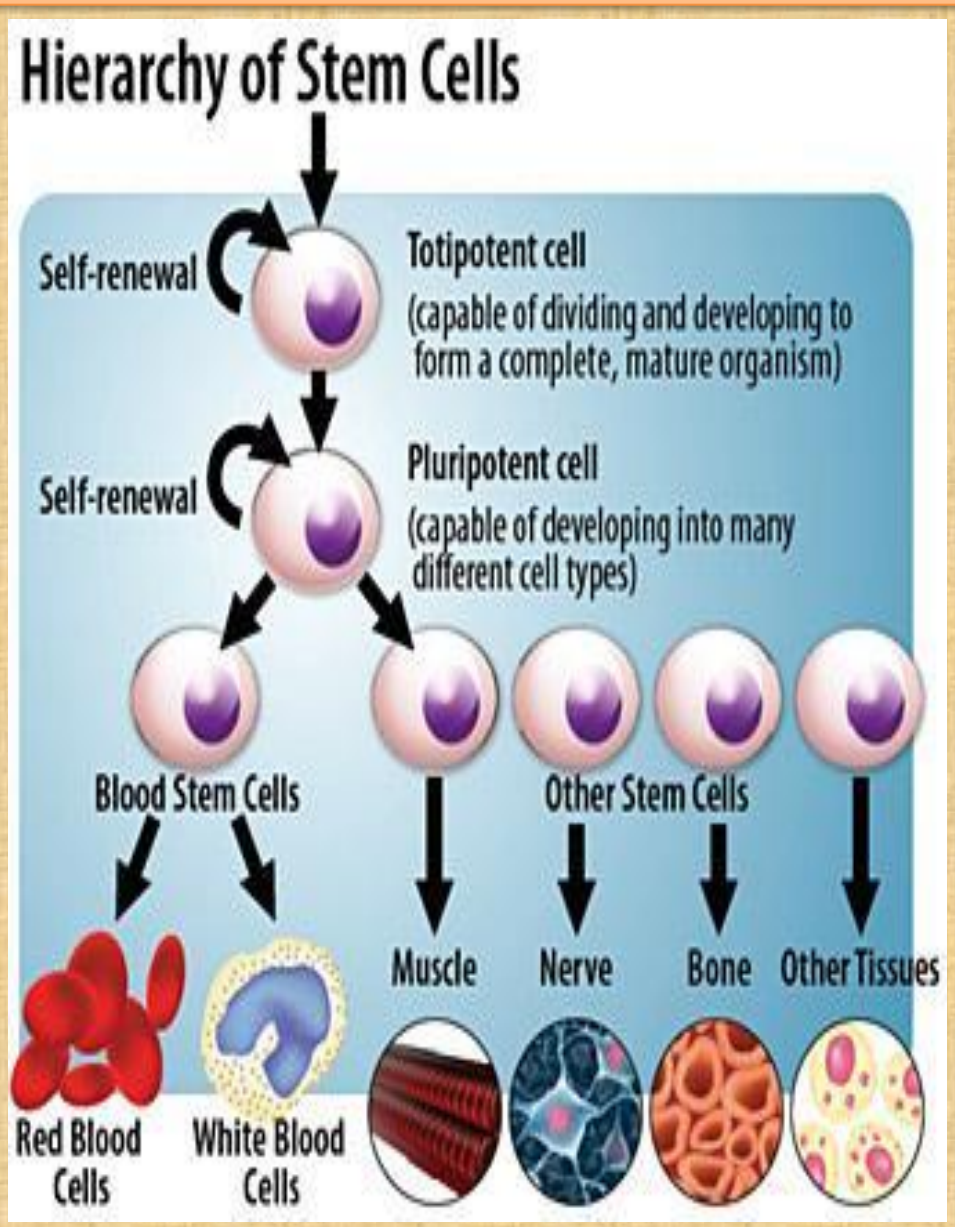
There are two main types of stem cells: embryonic stem cells and adult stem cells.

Doctors and scientists are excited about stem cells because they have potential in many different areas of health and medical research. Studying stem cells may help explain how serious conditions such as birth defects and cancer come about

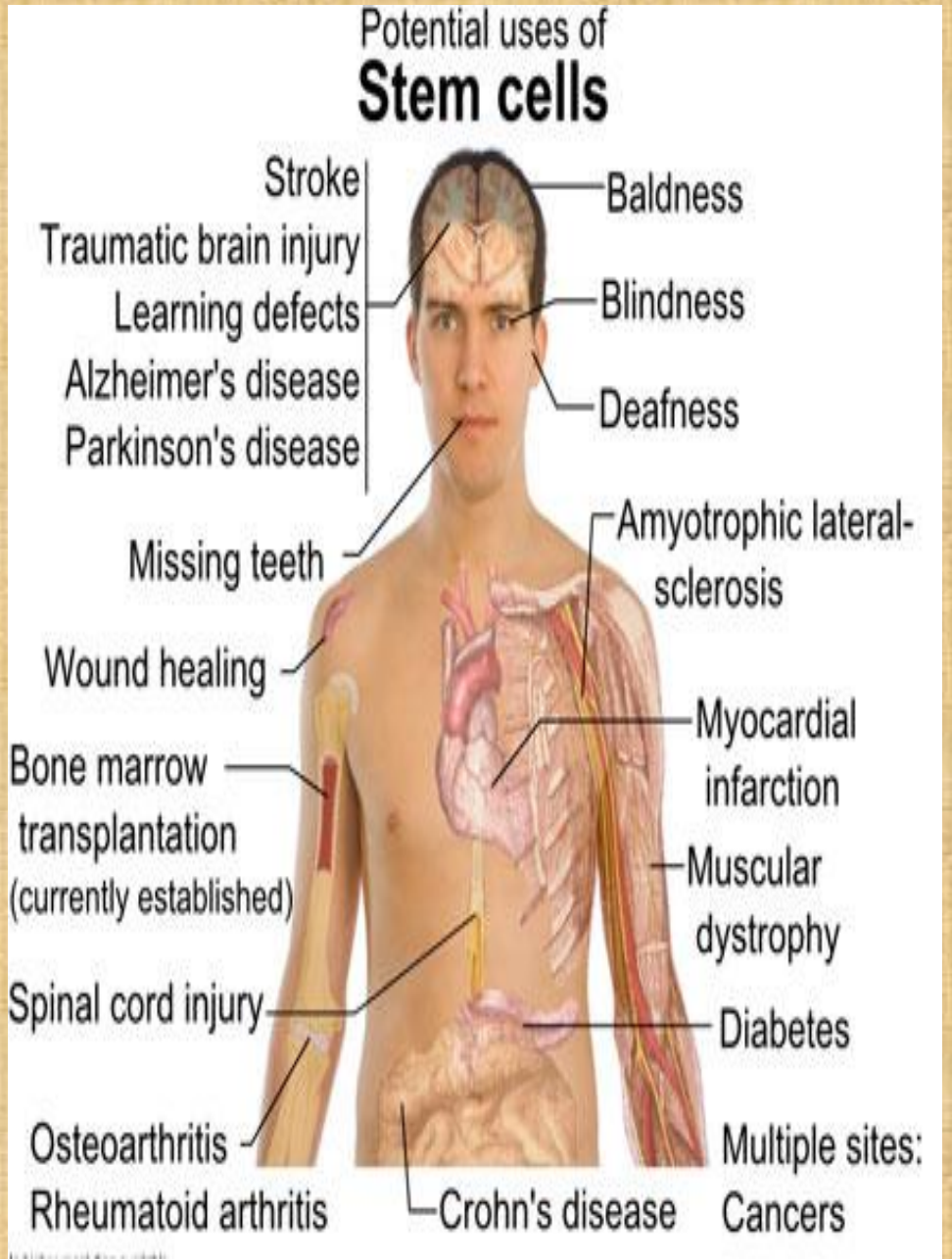


Stem Cell Research

Stem cells are the precursors to the differentiated cells that make up the body. Different types of stem cells correspond to different types of tissues. Embryonic stem cells are found in the developing embryo and retain the ability to develop into any body tissue. Embryonic stem cells can be maintained in culture and may be used to create transgenic animals by insertion of DNA.



Stem cell research merges into other areas of biotechnology. If scientists are not allowed to use existing aborted tissue, can they create their own embryos *in vitro? How far should such* embryos be allowed to develop? Should brain tissue be used, since that is where people believe our consciousness lies?



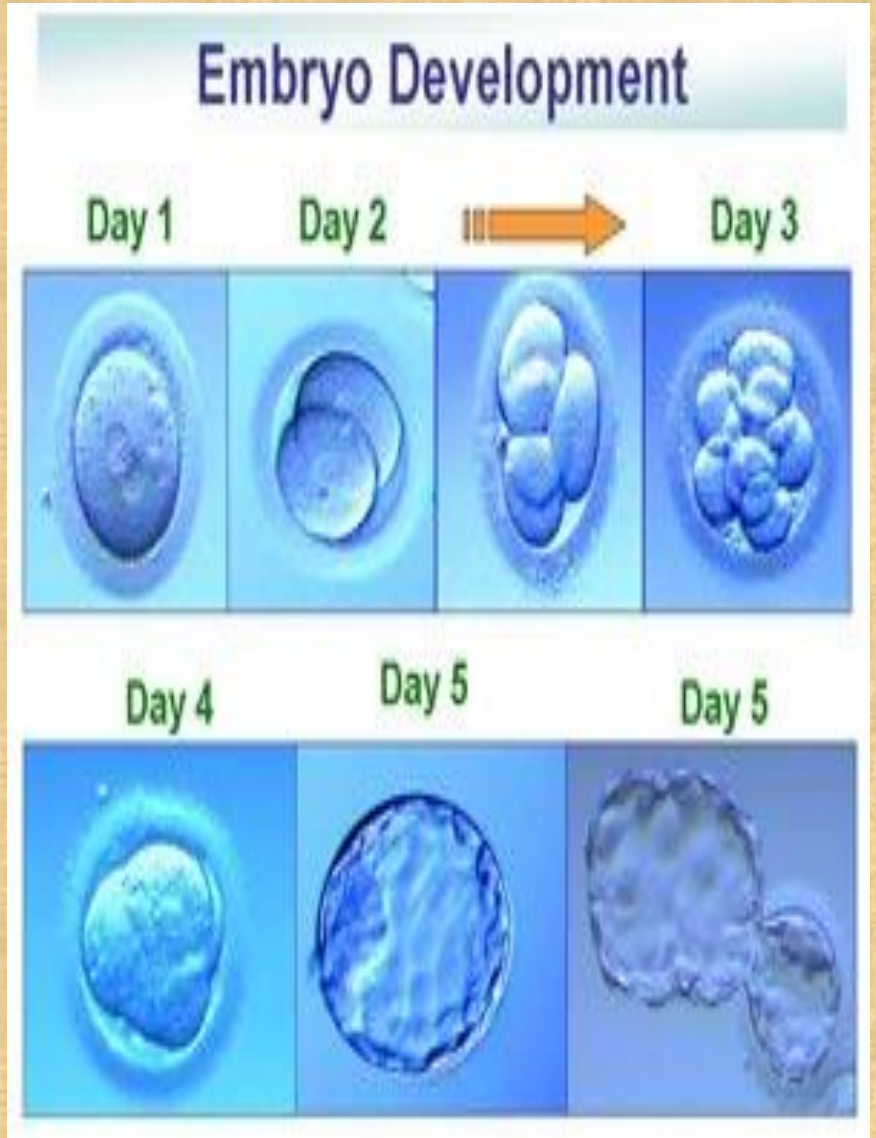
Current IVF embryo policy

- Left-over embryos

  IVF procedure generates many embryos to increase chances of success

  – Usually get thrown out or frozen

  – BUT, stem cells can be derived from these!

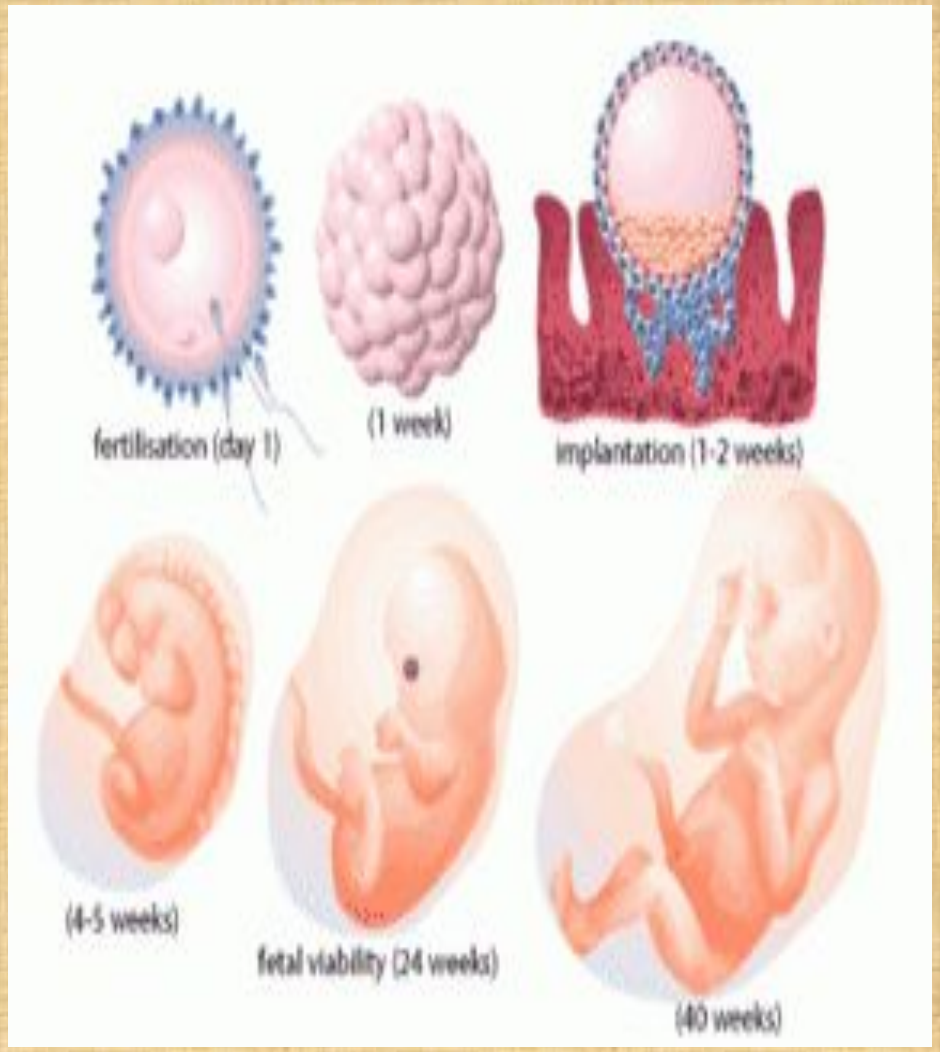


Current IVF embryo policy

- What is an IVF clinic?
  - Place where a couple can go after difficulty conceiving a child
  - Woman's eggs extracted; man contributes sperm
  - Woman's egg fertilized in-vitro
    - Outside her body
    - Embryos inserted into her uterus pregnancy

Current IVF embryo policy

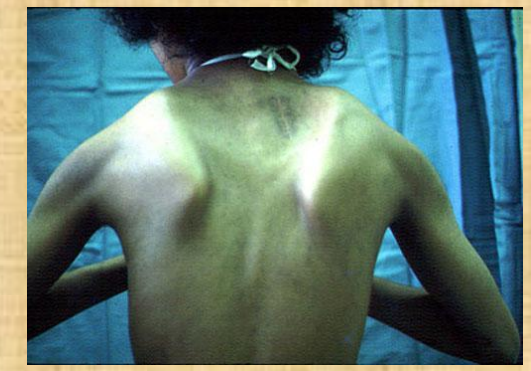
- Which is ethically "better"?
  - Throwing out an extra embryo, OR
  - Saving the embryo for adoption, OR
  - Using the embryo for biomedical research?
- How do we find a compromise?



What diseases do we do stem cell research on first?

Muscular dystrophy

likely to die by age 20



VS.

Spinal cord injuries

paralyzed, but likely to live longer

Common concerns in funding decisions

- Number of people with the disease.
- The groups that suffer from the disease.
- Severity of the disease.
- Disease mortality.
- Average age at death.
- Already available therapies or treatments.

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Privacy and Personal Genetic Information

- It may become possible to predict future health problems by analyzing an individual's DNA.
- Such information might be of interest not only to the individual but also to the health care system, insurance companies, employers, the military, and so on.
- Does the health insurance company have a right to know about your potential future health problems?

Conflict of science with traditional religion

Modern advances in biology frequently conflict with traditional morality.

For example, when vaccination first emerged, its use was widely condemned by the Christian church on the grounds that it interfered with God's will. Epidemics were seen as God's judgment on sinful man. If God intended you to live, then you would survive the epidemic, and if God wanted you to die, then being vaccinated to avoid this was tantamount to blasphemy.

Health Fraud

You have probably seen ads for miracle cures - a supplement to cure cancer, a diet to cure diabetes. Health fraud involves selling drugs, devices, foods or cosmetics that have not been proven effective. At best, these scams don't work. At worst, they're dangerous. They also waste money, and they might keep your patient from getting the treatment he really needs.

Premature babies

As science gets better and better, extremely premature babies have switched from certain death to possible struggle to survive.

The problem is that such care can be very expensive and doesn't guarantee health. A baby could survive with retardation and barely functional lungs, for instance, at the cost of several million. By contrast, that same money could have saved hundreds of fully healthy people from starvation.

(Can you imagine having to tell a parent that?)

Abortion

Whether or not it is moral, should abortion be legal? Generally prohibited but with some exceptions?

Is it at all times a free choice, or are women responding to coercion in any way?

Is it a free choice to seek abortion in desperation because of poverty, violence, or lack of support?

What should be the community and policy response to women who feel unable to give birth to their children?

And what is the role of the father in decisions about abortion?

Thank you very much for your attention