

Issue-issue biotika dalam dunia medis (1)	<ul style="list-style-type: none"> • Bayi tabung • Transplantasi organ
Issue-issue biotika dalam dunia medis (2)	<ul style="list-style-type: none"> • Aborsi • Euthanasia
Issue-issue biotika dalam dunia medis (3)	<ul style="list-style-type: none"> • Operasi plastik • Transgender
Issue-issue biotika dalam dunia medis (4)	<ul style="list-style-type: none"> • Stem cell Pembuatan vaksin dan vaksinasi
Etika penelitian dengan menggunakan organisma hidup	Prinsip dan pemikiran dasar dan peran komisi etik
UTS	
Senjata biologis	Senjata biologi / kimia dan penangkalannya
Kloning	
GMO	Transgenik organisme prinsip dan konflik nilai
Issue-issue dalam etika lingkungan dan kaitannya dengan kebijakan pembangunan	Nilai yang harus dibayar akibat polusi, pencemaran dan kerusakan lingkungan
Metodologi dalam penelitian bioetika	Sistematika penelitian serta contoh-contohnya
Tugas presentasi	Mempelajari kasus-kasus bioetika yang terjadi di lingkungan sekitar
Tugas presentasi	Mempelajari kasus-kasus bioetika yang terjadi di lingkungan sekitar

Bioethical issues of organ transplantation and in vitro fertilization

What is organ donation?

- ▶ Process: tissues or organs are removed from a live, or recently dead, person to be used in another.
- ▶ Donor gives the organs
- ▶ Recipient gets the organs
- ▶ People of all ages can become donors
- ▶ Organs can also come from animals (xenotransplantation)



Types of donors

- ▶ **Dead donors**
 - ▶ Almost all organs can be donated by someone dead but the organs have to reach the recipient within a few hours after the donor's death.
 - ▶ Brain death
 - ▶ Donation after cardiac death (DCD)
 - ▶ Tissue donation
- ▶ **Live donors**
 - ▶ Related and unrelated
 - ▶ Case:
 - **Buying and selling of organs**
 - Unfair pressure on economically disadvantaged
 - Wealthy people have unfair access
 - Donor and recipient safety



Informed Consent

- ▶ **Diagnosis**
- ▶ **Nature and purpose of treatment**
- ▶ **Risks and benefits of treatment**
- ▶ **Alternatives**
 - ▶ Risks and benefits
- ▶ **Risks and benefits of not having treatment**



Guiding Principles in Medical Ethics

- **Autonomy**
 - The right of individuals to self-determination
- **Beneficence**
 - Physicians should act in the best interest of their patients
- **Non-maleficence**
 - Physicians should not cause harm to their patients
- **Justice**
 - Fairness and equality



WHO Guiding Principle 1

- ▶ **Autonomy**

 - ▶ Cells, tissues and organs may be removed from the bodies of deceased persons for the purpose of transplantation if:
 - ▶ (a) any consent required by law is obtained, and
 - ▶ (b) there is no reason to believe that the deceased person objected to such removal.
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WHO Guiding Principle 2

- **Beneficence**

 - Physicians determining that a potential donor has died should not be directly involved in cell, tissue or organ removal from the donor or subsequent transplantation procedures; nor should they be responsible for the care of any intended recipient of such cells, tissues and organs.
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WHO Guiding Principle 3

- Autonomy, Non-maleficence, Justice
 - In general living donors should be genetically, legally or emotionally related to their recipients.
 - Informed, voluntary consent
 - Professional follow up ensured and organized
 - Selection criteria
 - Non coercive
-



WHO Guiding Principle 4

- Non-maleficence
 - Minors and legally incompetent people
 - No cells, tissues or organs should be removed from the body of a living minor for the purpose of transplantation other than narrow exceptions allowed under national law.
 - Specific measures should be in place to protect the minor and, wherever possible the minor's assent should be obtained before donation.
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WHO Guiding Principle 5, 6, and 8

- Beneficence
 - Cells, tissues and organs should only be donated freely without any monetary payment or reward of monetary value.
 - The prohibition on sale or purchase of cells, tissues and organs does not preclude reimbursing reasonable and verifiable expenses incurred by the donor, including loss of income, or paying the costs of recovering, processing, preserving and supplying human cells, tissues or organs for transplantation.
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WHO Guiding Principle 7

- Non-maleficence
 - Physicians and other health professionals should not engage in transplantation procedures, and health insurers and other payers should not cover such procedures, if the cells, tissues or organs concerned have been obtained through exploitation or coercion of, or payment to, the donor or the next of kin of a deceased donor.
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WHO Guiding Principle 9

- Justice
- The allocation of organs, cells and tissues should be guided by clinical criteria and ethical norms, not financial or other considerations.
- Allocation rules, defined by appropriately constituted committees, should be equitable, externally justified, and transparent.



XENOTRANSPLANTATION



AIDS patient
Jeff Getty received a baboon bone marrow transplant in 1995 (2 WEEKS)
STILL ALIVE



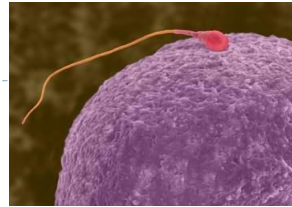
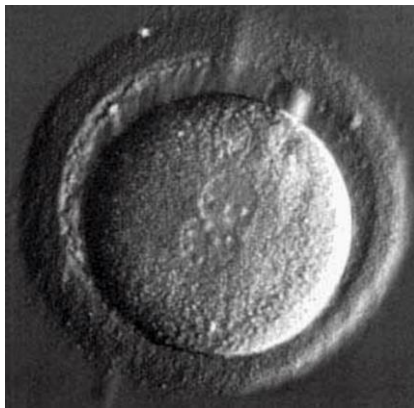
Human Reproductive Technologies (HRT)

▶ Types of HRTs:

- ▶ Assisted hatching
- ▶ Intracytoplasmic sperm injection (ICSI)
- ▶ Preimplantation genetic diagnosis (PGD)
- ▶ Artificial insemination by husband (AIH)
- ▶ Artificial insemination by donor (AID)
- ▶ *In vitro* fertilization (IVF)
- ▶ Egg donation
- ▶ Embryo donation
- ▶ Surrogacy



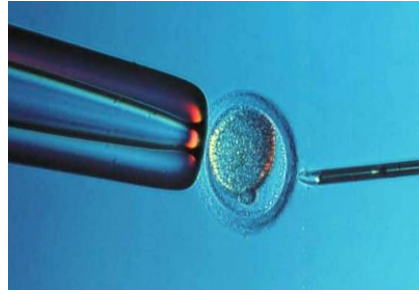
▶ Fertilization



- ▶ 2 Pronuclei (2PN)
- ▶ 1 day after egg retrieval



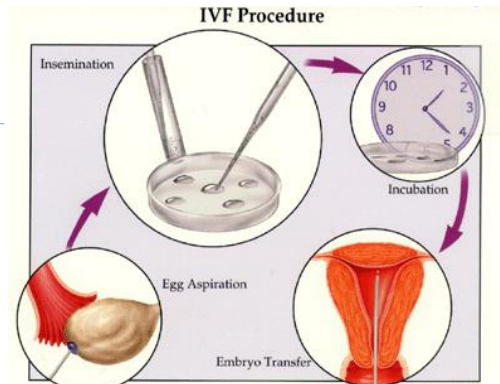
Assisted Hatching



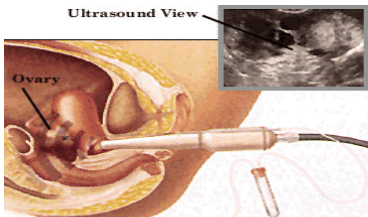
Intracytoplasmic Sperm Injection (ICSI)



In Vitro Fertilization (IVF)



In IVF, eggs are harvested from the woman's ovary and fertilized in the laboratory with sperm. The embryos are then transferred into the uterus.

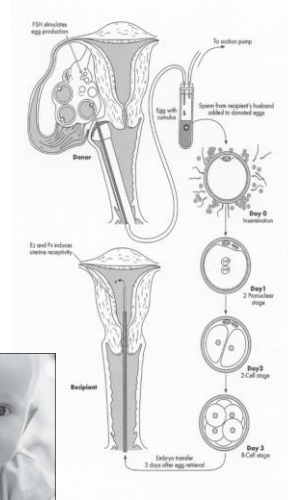


Using ultrasound to view the ovary, the physician inserts the needle that runs alongside the ultrasound probe through the wall of the vagina into the ovary and removes the egg for use in IVF or GIFT.



Egg donation

- ▶ IVF for two
 - ▶ Known/anonymous donor
- ▶ <35 years old
- ▶ Donor
 - ▶ Standard controlled ovarian hyperstimulation
 - ▶ Egg retrieval
- ▶ Recipient
 - ▶ Embryo transfer



Give The Gift Of Life...
And Make A Difference

EXCEPTIONAL DONORS

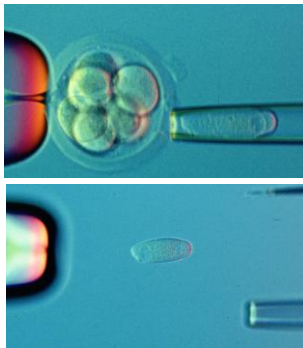
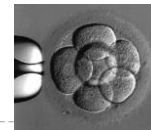
Exceptional Donors, Inc. was founded to help couples struggling with the pain of infertility in the Portland, Oregon area and throughout the United States. Egg donation is a wonderful way for families to grow. And we can help. Allow us to assist you as you begin your journey toward becoming a parent.

We are always searching for exceptional donors. If you are between 19 and 34 years of age, healthy, intelligent, athletic, artistic, musically talented, attractive, or possess other exceptional qualities, you could be a candidate for our program.

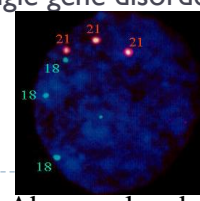
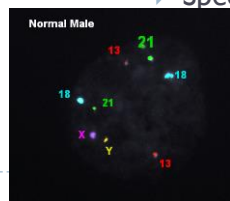
We offer \$5,000 compensation for first-time donors, and more for subsequent donations.

Call 866.296.1015 or visit www.exceptionaldonors.com to learn more about becoming an exceptional egg donor.

PGD – Timing of Biopsy



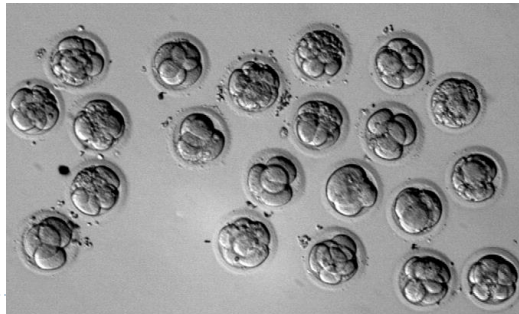
- ▶ Biopsy of a single cell can be performed from an 8-cell embryo after 3 days of culture in the laboratory
- ▶ Fluorescence in situ hybridization (FISH)
 - ▶ Aneuploidy/translocations and determining gender (5-10 chromosomes)
- ▶ Polymerase chain reaction (PCR)
 - ▶ Specific single gene disorders



Abnormal embryo (triploid)

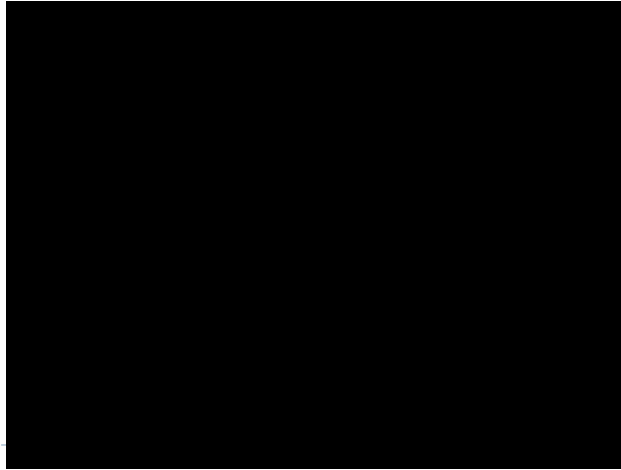
What Happens to the Other Embryos?

- ▶ Which embryo is disease-free?
- ▶ Freeze Embryos
- ▶ Donate For Research/Stem Cells
- ▶ Embryo Adoption
- ▶ Discard



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- ▶ Ethical considerations :
 - ▶ Procreation rights of infertile couples
 - ▶ It is unnatural
 - ▶ Inequality and exploitation
 - ▶ Selling babies
 - ▶ The moral status of extra embryos left over from IVF
 - ▶ Definition of parent-child relation
 - ▶ Integrity of the family
 - ▶ Best interests of the child
 - ▶ Gender selection
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- ▶ **Prenatal Screening**
 - ▶ Sex selection: Gender discrimination and imbalance of sex ratio unless it is done solely for therapeutic purpose.
 - ▶ Discrimination: Lives of the disable are not worth living.

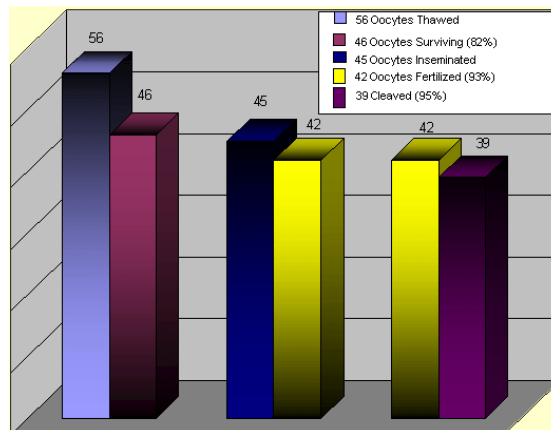


Pregnancy in the Sixth Decade of Life: Obstetric Complications

- ▶ **Pre-eclampsia**
 - ▶ 35%
 - ▶ Background Incidence 3-10%
- ▶ **Gestational Diabetes**
 - ▶ 20%
 - ▶ Background Incidence 5%

Future considerations

- ▶ **Oocyte cryopreservation**
 - ▶ “Pausing the biological clock”
- ▶ **Cytoplasmic transfer**
 - ▶ Donation of enucleated oocytes
- ▶ **Reproduction without gametes**
 - ▶ Use of nuclear material from somatic cells
 - ▶ Donated or synthetic cytoplasm
 - ▶ Reconstituted oocytes



Fertility Preservation Options

	Age	Average Cost	Time Requirement	Success Rate
Embryo Freezing	After Puberty	\$7,800; \$350/year storage fees	2-4 weeks	~40% per 3 embryos transferred under 35; lower in older women
Egg (Oocyte) Freezing	After Puberty	\$8,000; \$350/year storage fees	2-4 weeks	Experimental; ~3% per egg frozen
Ovarian Tissue Freezing	Before and After Puberty	\$12,000; \$350/year storage fees	Outpatient Surgical Procedure	Experimental; no live births to date
Ovarian Transposition	Before or After Puberty	Unknown	Outpatient Surgical Procedure	~50% for ovarian function, pregnancy rates unknown
GnRH Analog Treatment	After Puberty	\$500 per dose	1 dose per month in conjunction with chemotherapy	Experimental; study results vary: some show no benefit, others show success
Donor Eggs	Varies, usually 18-25+	\$14,000-\$20,000	2-4 weeks per cycle	ART with Egg Donation, 40-50%
Surrogacy	Varies, usually 18-25+	\$10,000 - \$100,000	Varies	Similar to IVF, 20-30%
Adoption	Varies, usually 18-25+	\$2,500 - \$35,000	Varies Greatly	Not Applicable