

# **BIOETHICAL FRAMEWORK**

## **Summary:**

The document explains the **Bioethics Framework** used in healthcare-related AI, focusing on ethical decision-making in medicine and biology. It introduces four key principles of bioethics:

1. **Autonomy** – Respecting patients' right to make informed decisions.
  2. **Non-Maleficence** – Avoiding harm to patients.
  3. **Beneficence** – Promoting well-being.
  4. **Justice** – Ensuring fairness in treatment and AI applications.
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## **1. Introduction**

- Bioethics: An ethical framework focused on healthcare and biological sciences.
- This session focuses on Bioethics in healthcare-related AI.
- Discussion includes a case study on this framework.

## **2. Bioethics Framework**

- A **structured set of ethical principles** guiding decision-making in healthcare and medical research.
  - Aims: Assist professionals in making morally sound choices involving health, science, and technology.
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## **Four Main Principles of Bioethics:**

### **1. Autonomy**

- Respecting individuals' rights to make decisions about their own health.

### **2. Non-Maleficence**

- Do no harm; prevent harm from AI-driven medical systems.

### **3. Beneficence**

- Promote well-being; act in the best interest of individuals and society.

### **4. Justice**

- Ensure fairness in care, e.g., by avoiding biased AI algorithms.
  - Fair and equal distribution of healthcare benefits and burdens.
  - Everyone should have equal access to treatment.
  - AI-based healthcare must ensure fairness and avoid biased outcomes.
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## **Application**

- Use AI systems to:
    - Enhance patient care.
    - Support early disease detection.
    - Create personalized treatment plans.
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## Key Questions in Bioethical Decision-Making:

When applying the **Bioethics Framework**, four essential questions should be considered:

1. Is the person making the choice informed? (**Autonomy**)
  2. Is the decision helping someone? (**Beneficence**)
  3. Is the decision causing harm? (**Non-Maleficence**)
  4. Is the decision fair? (**Justice**)
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## Applications of Bioethics Framework:

- **Informed Consent**

Ensures patients understand risks/benefits before agreeing to procedures.

- **Research Ethics**

Ensures participants in clinical trials follow ethical rules.

- **Medical Decision-Making**

Balances personal dilemmas using ethical reasoning.

- **Fields of Application**

- **Organ Transplantation**
  - **Gene Therapy**
  - **Clinical Trials**
  - **Genetic Testing**
  - **Vaccination**
  - **Emerging Technologies** like AI and biotechnology.
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### **Note:**

Bioethics framework is crucial when using **AI in healthcare** and **advanced technologies** to maintain **human rights and dignity**.

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### **Next Section:**

## 5.3 Case Study – Bioethics Framework in Organ Transplantation

Here is the **extraction and summary** of the provided page:

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### **Summary:**

The page discusses a **case study on organ transplantation** using the **Bioethics Framework** to address ethical dilemmas in medical decision-making. The framework helps determine how to allocate limited resources like donor organs fairly, ethically, and justly by applying the four principles of bioethics.

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### **Extracted Key Content:**

#### **The Case Study:**

- **Patient Jeet**, a 50-year-old man, suffers from end-stage liver disease.
- **Challenge:** Only one liver is available for transplant.
- Two other potential recipients:
  - **Mother**, 60 years old.
  - **Son**, 20 years old.

## **Ethical Dilemma:** Who should receive the liver?

- Jeet: in need and already in hospital.
  - Mother: elderly.
  - Son: young and has a longer survival probability.
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### **Applying the Bioethics Framework:**

#### **1. Autonomy**

- **Definition:** Respecting patients' rights to make informed decisions.
- **Application:** All patients involved must be given relevant information and allowed to choose.

#### **2. Beneficence**

- **Definition:** Acting in the best interest of the patient.
- **Application:** Prioritize the patient who will benefit the most and live longer post-transplant.

#### **3. Non-Maleficence**

- **Definition:** Do no harm.
- **Application:** Ensure the transplant does not cause further harm, including psychological harm due to denial.

#### **4. Justice**

- **Definition:** Fair and equal distribution of resources.
  - **Application:** Use ethical and unbiased criteria (e.g., medical urgency, survival rates) to decide who receives the liver.
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### **Conclusion:**

- The **Bioethics Framework** ensures organ allocation is based on **need and fairness**, not personal bias.
  - The chosen recipient should reflect **ethical reasoning** and **medical benefit**.
- (ii) Patient rights are protected by ensuring informed consent and respect for autonomy.
- (iii) Medical benefits and risks are balanced, ensuring ethical decision-making.
- (iv) Transparency and fairness are maintained, which promotes trust in the healthcare system.
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### **Summary:**

These points highlight the key ethical principles in healthcare decision-making:

- **Autonomy:** Respecting and informing patients.
- **Beneficence & Non-Maleficence:** Balancing benefits and risks.
- **Justice:** Maintaining fairness and transparency to build trust.