



Ethical Use of Generative AI in Healthcare

For Prelims: Ethical Use of Generative AI in Healthcare, [World Health Organization \(WHO\)](#), [Generative Artificial Intelligence \(AI\)](#), Large Multi-Modal Models (LMM).

For Mains: Ethical Use of Generative AI in Healthcare, Awareness in the fields of IT, Space, Computers, robotics, nano-technology, and bio-technology.

[Source: DTE](#)

Why in News?

Recently, the [World Health Organization \(WHO\)](#) has released guidance on the ethical use and governance of **Large Multi-Modal Models (LMM)** in healthcare, acknowledging the transformative impact of [Generative Artificial Intelligence \(AI\)](#) technologies like ChatGPT, Bard, and Bert.

What are Large Multi-Modal Models (LMM)?

- LMMs are models that use **multiple senses to mimic human-like perception**. This allows [AI \(Artificial Intelligence\)](#) to respond to a **wider range of Human communication**, making interactions more natural and intuitive.
- LMMs integrate multiple data types, such as images, text, language, audio, and other heterogeneity. This allows the **models to understand images, videos, and audio, and converse with users**.
- **Some examples of multimodal LLMs include** GPT-4V, MedPalm M, Dall-E, Stable Diffusion, and Midjourney.

What are the WHO's Guidelines Regarding the Use of LMMs in Healthcare?

- The new WHO guidance outlines **five broad applications of LMMs in healthcare**:
 - **Diagnosis and clinical care**, such as responding to patients' written queries;
 - **Patient-guided use**, such as for **investigating symptoms and treatment**;
 - **Clerical and administrative tasks**, such as documenting and summarizing patient visits within electronic health records;
 - **Medical and nursing education**, including providing trainees with simulated patient encounters, and;
 - **Scientific research and drug development**, including to identify new compounds.

Note

[Indian Council of Medical Research](#) issued **ethical guidelines for AI** in biomedical research and healthcare in June 2023.

What Concerns has WHO Raised about LMMs in Healthcare?

- **Rapid Adoption and Need for Caution:**
 - LMMs have experienced **unprecedented adoption, surpassing the pace** of any previous consumer technology.
 - LMM is known for their ability to mimic human communication and **perform tasks without explicit programming.**
 - However, this rapid uptake underscores the critical importance of carefully weighing **their benefits against potential risks.**
- **Risks and Challenges:**
 - Despite their promising applications, LMMs pose risks, including the **generation of false, inaccurate, or biased statements** that could misguide health decisions.
 - The data used to train these models can **suffer from quality or bias issues**, potentially perpetuating disparities based on **race, ethnicity, sex, gender identity or age.**
- **Accessibility and Affordability of LMMs:**
 - There are broader concerns as well, **such as the accessibility and affordability of LMMs, and the risk of Automation Bias** (tendency to rely too much on automated systems) in healthcare, leading **professionals and patients to overlook errors.**
- **Cybersecurity:**
 - **Cybersecurity** is another critical issue, given the sensitivity of patient information and the **reliance on the trustworthiness** of these algorithms.

What are the Key Recommendations of WHO Regarding LMMs?

- **Called for a collaborative approach** involving governments, technology companies, healthcare providers, patients and civil society, in all **stages of LMM development and deployment.**
- Stressed on the need for **global cooperative leadership to regulate AI technologies** effectively. Governments from all countries must cooperatively lead efforts to effectively regulate the development and use of AI technologies, such as LMMs.
- The new guidance offers a **roadmap for harnessing the power of LMMs in healthcare** while navigating their complexities and ethical considerations.
 - In May 2023, the WHO had highlighted the **importance of applying ethical principles and appropriate governance**, as enumerated in the **WHO guidance on the ethics and governance of AI for health**, when designing, developing and deploying AI for health.
- The **six core principles identified by WHO are:**
 - Protect autonomy
 - Promote human well-being, human safety, and the public interest
 - Ensure transparency, explainability, and intelligibility
 - Foster responsibility and accountability
 - Ensure inclusiveness and equity
 - Promote AI that is responsive and sustainable.

How is Global AI currently Governed?

- **India:**
 - **NITI Aayog**, has issued some guiding documents on AI Issues such as the National Strategy for Artificial Intelligence and the **Responsible AI for All report.**
 - Emphasises social and economic inclusion, innovation, and trustworthiness.
- **United Kingdom:**
 - Outlined a light-touch approach, asking regulators in different sectors to apply existing regulations to AI.
 - Published a white paper **outlining five principles** companies should follow: **safety, security and robustness; transparency and explainability; fairness; accountability and governance; and contestability and redress.**
- **US:**
 - The US **released a Blueprint for an AI Bill of Rights (AIBoR)**, outlining the harms of AI to economic and civil rights and **lays down five principles for mitigating these**

harms.

- The Blueprint, instead of a horizontal approach like the EU, **endorses a sectorally specific approach to AI governance**, with policy interventions for individual sectors **such as health, labour, and education**, leaving it to sectoral federal agencies to come out with their plans.

▪ **China:**

- In 2022, China came out with some of the **world's first nationally binding regulations targeting specific types of algorithms and AI.**
- It enacted a law **to regulate recommendation algorithms with a focus on how they disseminate information.**

UPSC Civil Services Examination, Previous Year Question (PYQ)

Q1. With the present state of development, Artificial Intelligence can effectively do which of the following? (2020)

1. Bring down electricity consumption in industrial units
2. Create meaningful short stories and songs
3. Disease diagnosis
4. Text-to-Speech Conversion
5. Wireless transmission of electrical energy

Select the correct answer using the code given below:

- (a) 1, 2, 3 and 5 only
(b) 1, 3 and 4 only
(c) 2, 4 and 5 only
(d) 1, 2, 3, 4 and 5

Ans: (b)

Q2. Consider the following pairs: (2018)

	Terms sometimes seen in news	Context/Topic
1.	Belle II experiment	Artificial Intelligence
2.	Blockchain technology	Digital/Cryptocurrency
3.	CRISPR-Cas9	Particle Physics

Which of the pairs given above is/are correctly matched?

- (a) 1 and 3 only
(b) 2 only
(c) 2 and 3 only
(d) 1, 2 and 3

Ans: (b)

Mains:

Q.1 What are the areas of prohibitive labour that can be sustainably managed by robots? Discuss the initiatives that can propel the research in premier research institutes for substantive and gainful innovation. **(2015)**

Q.2 "The emergence of the Fourth Industrial Revolution (Digital Revolution) has initiated e-Governance as

an integral part of government". Discuss. (2020)

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