COMMITTEE: Artificial Intelligence

ISSUES: To what extent can healthcare systems integrate artificial intelligence into diagnostics and treatments without compromising patient safety or legal and medical liability in the event of an error?

CHAIR: Ambre MICHOUD, Antoine DASSE, and Lisa BALLREICH

PRESENTATION OF THE CHAIR



Hello, dear delegates,

My name is Antoine Dasse; I am French, I am 16 years old, and I was born in Geneva.

I am a student at the Lycée International de Ferney-Voltaire, at the Saint-Genis-Pouilly campus.

I joined FerMUN a year ago and had the opportunity to participate in my first conference as a delegate, where I represented the government of Bangladesh on the committee on the informal economy. This experience gave me a more hands-on understanding of how MUN conferences work and the issues involved in international relations.

Outside of FerMUN, I play competitive tennis and enjoy skiing. I also love to travel, discover new cultures, and connect with people from different backgrounds.

This year, I have the honor of serving as your president, alongside Ambre and Lisa, on the committee dedicated to artificial intelligence applied to medicine and its implications. This topic is playing an increasingly important role in the field of healthcare today. Whether it's improving diagnoses, aiding medical research, or facilitating the work of healthcare professionals, artificial intelligence opens up many promising possibilities. However, its development also raises critical questions, particularly on ethical, economic, and social fronts.

During this conference, your mission will be to represent your country's interests as effectively as possible, discuss issues related to this topic, and propose realistic and innovative solutions.

This research report will provide you with the knowledge you need to prepare your positions and participate fully in the discussions.

I look forward to meeting you in January, and I wish you all the best as you prepare for this conference!

KEYWORDS

Healthcare systems: According to the World Health Organisation (WHO), healthcare systems comprise all the organisations, professionals, institutions and resources that provide disease prevention, diagnosis and curative treatment, as well as health promotion.

Artificial intelligence (AI): According to UNESCO, artificial intelligence refers to computer systems capable of performing tasks that normally require human intelligence, such as learning, analysing information or making decisions.

Patient safety: According to the World Health Organisation (WHO), patient safety involves minimising the risks of errors or accidents related to care in order to protect patients.

Medical liability: According to the World Health Organisation (WHO), medical liability refers to the obligation of healthcare professionals to provide care in accordance with best practice and to accept the consequences of their actions when harm is caused to a patient, particularly in the form of injury, pain, disability, a deterioration in health or, in the most serious cases, death.

Precision medicine: According to the World Health Organisation (WHO), precision medicine is an approach that tailors prevention, diagnosis and treatment to the specific characteristics of each patient, including their genetic, environmental and lifestyle factors.

Macroeconomic level: According to the Organisation for Economic Co-operation and Development (OECD), the macroeconomic level refers to the analysis of economic phenomena at the level of a country or region, including growth, public expenditure, employment and health policies.

Intrinsic criterion: According to the Organisation for Economic Co-operation and Development (OECD), an intrinsic characteristic is a property inherent to a system, that is to say, one that is inherent to its very nature.

Representativeness bias: According to UNESCO, representativeness bias occurs when the data used to train an artificial intelligence system does not adequately represent the entire population, which may lead to inaccurate or discriminatory results.

Ransomwares: According to the French National Cybersecurity Agency (ANSSI), ransomware is malicious software that blocks access to a computer system or encrypts data in order to demand the payment of a ransom.

Deep learning: According to the World Health Organisation (WHO), deep learning is a method of artificial intelligence that uses multi-layered artificial neural networks to learn automatically from large amounts of data. In the medical field, it can be used, for example, to analyse medical images, detect abnormalities or assist in the diagnosis of certain diseases.

Care pathway: According to the World Health Organisation (WHO), a care pathway refers to the series of stages and forms of care that a patient undergoes during their medical journey, from diagnosis through to treatment and follow-up.

Interoperability: According to the International Telecommunication Union, interoperability refers to the ability of different systems, software programmes or devices to communicate with one another, exchange data and work together effectively.

Human supervision: According to UNESCO, human supervision is the monitoring of an AI system by a human in order to verify its results and intervene in the event of an error. In medicine, it enables healthcare professionals to retain control over decisions.

OVERVIEW

I. The opportunities offered by the integration of artificial intelligence into healthcare systems

A. Improving medical diagnosis

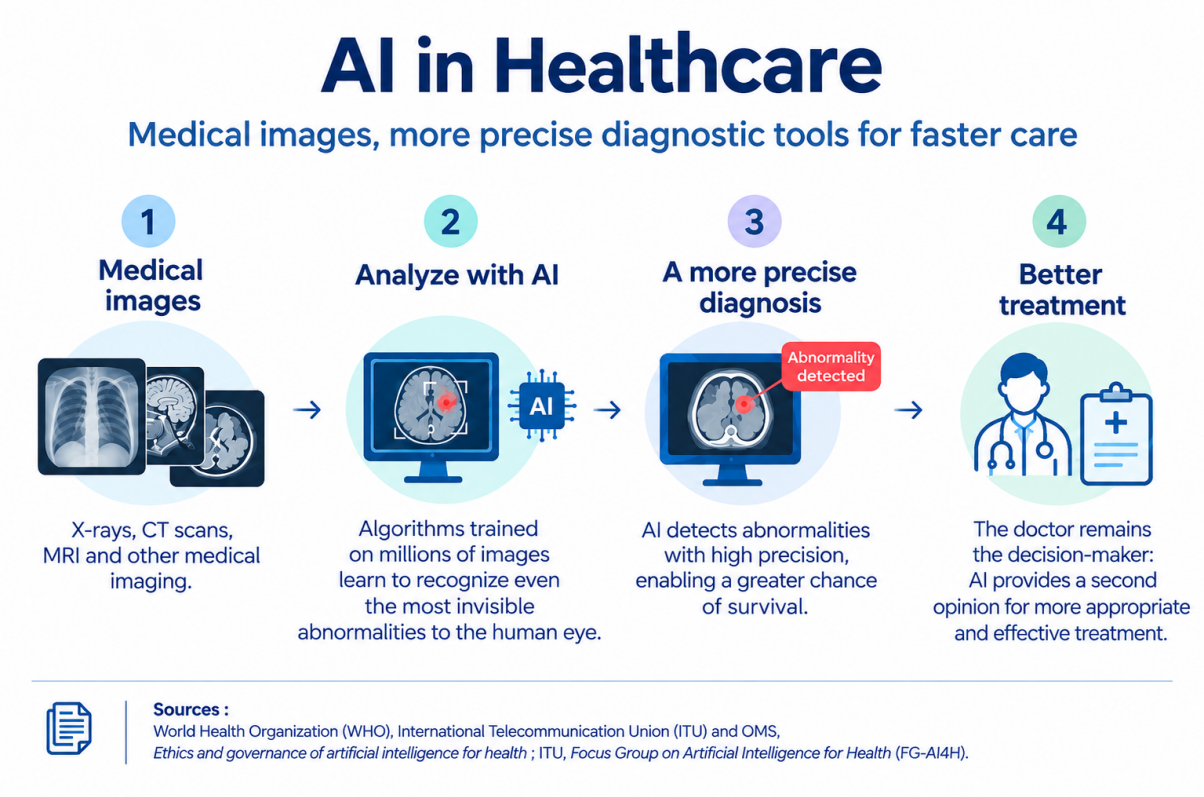


IMAGE: The key stages in using AI to improve medical diagnosis and treatment

The integration of artificial intelligence (AI) into radiology, oncology and cardiology departments marks a significant turning point in the evolution of modern medicine. Thanks to the speed with which deep learning algorithms can analyse millions of images in a matter of seconds, artificial intelligence is now capable of detecting pathological microstructures in X-rays, CT scans and MRI scans that are invisible to the human eye.

In January 2024, a study published under the auspices of the ITU highlighted how AI-based tools have made it possible to predict the development of cancer cells with an accuracy of over 94 per cent. These AI-assisted imaging systems enable abnormalities to be detected at an extremely early stage, thereby maximising patients' chances of recovery whilst significantly reducing the cost of intensive treatments to society. AI is not intended to replace specialists

but to act as a highly effective second opinion, reducing diagnostic errors linked to practitioners' fatigue or excessive workloads.

In India, for example, AI algorithms are being deployed on a massive scale in clinics to screen for diabetic retinopathy using simple photographs of the fundus, acting as an indispensable second opinion in the face of a severe shortage of ophthalmologists.

B. Optimising treatment and patient care

Artificial intelligence, beyond its diagnostic function, is transforming prescribing practices and clinical supervision through what is known as personalised medicine. By instantly linking a patient's medical history to their current biological data and the latest global scientific research, AI supports doctors in developing fully personalised treatment protocols. To highlight the impact of artificial intelligence on patient management, a genuine transformation is taking place with regard to patients with chronic conditions (a group numbering more than 15 million people in France).

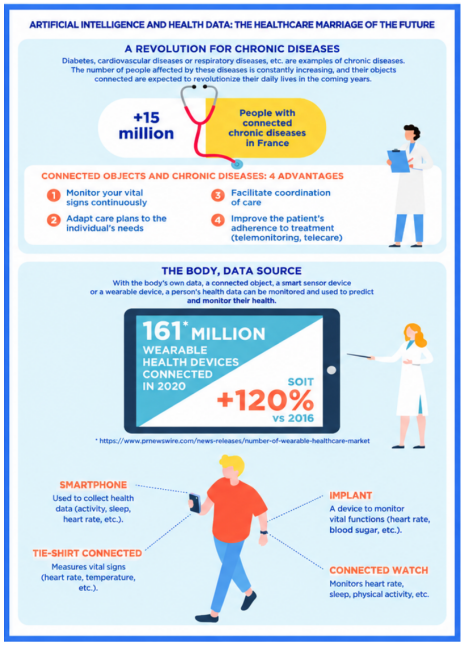


IMAGE: Pharmaceutical companies
https://www.leem.org/100-questions/intelligence-artificielle-et-donnees-de-sante-le-mariage-du-futur

In this sector, AI operates across four main areas: it helps ensure patients adhere to and monitor their treatments, simplifies the coordination of care pathways, reduces the burden on healthcare professionals, and provides essential support in the diagnosis and monitoring of complex diseases. This transformation relies primarily on large-scale data processing: the human body has become a major source of 'data' thanks to the proliferation of devices.

There were 161 million connected health devices worldwide in 2020, representing a 120 per cent surge in just four years. Whether they are smartphones, smartwatches or home biometric sensors, these tools constantly collect valuable metrics (heart rate, physical activity, vital signs) which are then analysed by AI algorithms to anticipate medical risks. This is particularly

important for the management of chronic conditions. Artificial intelligence is capable of analysing data collected by smartphones, connected devices and various health monitoring devices in order to track changes in a patient's health, detect trends and predict certain risks. This data can then enable healthcare professionals to adapt treatments more quickly and offer more personalised care.

C. The benefits of the WHO for health systems and healthcare professionals

AI therefore appears to be a macroeconomic response to the global crisis in hospital infrastructure (staff shortages, an ageing population). By automating repetitive administrative tasks (entering medical reports, triaging emergency cases, optimising operating theatre schedules, etc.), AI frees up valuable time for healthcare professionals. Streamlining workflows also helps to drastically reduce the wastage of medical resources. By helping to stabilise public health budgets, AI does so by optimising the management of medicine stocks and predicting peaks in hospital demand; it thus ensures smoother and more equitable access to care for the population.

Brazil is a perfect example of this trend: a study conducted in the country combined several government databases with artificial intelligence to optimize the allocation of healthcare system resources according to the health needs of different geographical areas. AI can therefore enable more efficient use of available resources and better organisation of care.

II. The main challenges of artificial intelligence in healthcare

A. Ensuring patient safety

In the medical sector, caution must take precedence over other fields, as even the slightest failure can result in direct and dramatic harm to human life.

The risk stems largely from the technical limitations of algorithms. A computer system may encounter a bug, suffer a network failure in the middle of a surgical procedure, or make a mistake when analysing contradictory data. If AI recommends the wrong treatment or fails to spot a critical warning sign, the patient's health is immediately put at risk. This is why artificial intelligence must, without exception, remain a support tool and not a decision-maker. A machine must never make a diagnosis or perform an operation independently: the final approval must always rest with a qualified healthcare professional.

In Japan, where medical automation is highly advanced in response to an ageing population, health authorities are specifically warning against this risk of 'over-reliance' on technology, emphasising that a machine must not prescribe intensive treatment without the critical oversight of a practitioner.

To address these risks, it is essential to clearly establish who is liable in the event of an error linked to artificial intelligence. This liability must be apportioned, depending on the circumstances, between the healthcare professional, the medical institution and the system's designer.

To avoid any ambiguity, it must be possible to trace decisions made with the aid of AI and to report incidents. Finally, human oversight must be maintained to ensure that the doctor retains control over medical decisions and that patient safety remains the priority.

B. Les limites techniques et les biais de l'intelligence artificielle

The effectiveness of artificial intelligence depends entirely on the data used to train it. The problem is that these databases often contain representational biases.
Let us imagine a dermatological diagnostic algorithm: if it has been trained almost exclusively on Caucasian skin, its performance plummets when faced with other skin types, effectively creating inequality in access to healthcare. Added to this is the ethical conundrum of the 'black box'. Many complex systems display a result without anyone – neither engineers nor doctors – being able to understand the logical reasoning that led to that conclusion. This lack of transparency prevents healthcare professionals from fully exercising their critical thinking, a risk that has, incidentally, been repeatedly highlighted at the ITU's global summits on AI.

One need only look at what happened in the United States: an algorithm widely used in hospitals systematically underestimated the care needs of African-American patients because it was based on historical medical costs, which had the effect of reproducing and institutionalising socio-economic inequalities.

C. The protection of medical data and ethical issues



Health data is among the most private and sought-after information there is. For medical AI to become effective, it needs to process billions of clinical records, which directly exposes patients to massive risks of cyberattacks and breaches of their privacy. Indeed, as the news constantly reminds us, hospitals have become the favourite targets of ransomware.

IMAGE: The 11 areas of action for ensuring ethical and responsible artificial intelligence

https://www.unesco.org/fr/artificial-intelligence/recommendation-ethics

The image above shows the strategic action areas that clearly define the directions Member States can take to promote the responsible development of AI. The ethical challenge is twofold: to ensure patients' informed consent and to protect their medical data from leaks or discriminatory use. The cyberattack on Medibank in Australia, which exposed the medical data of millions of people, highlights the significance of these risks.

III. Towards a legal and institutional framework for AI in healthcare

A. Medical liability: a need for reinvention in the face of AI

AI is upending the traditional framework of medical liability. Whereas liability used to be clearly attributed to the doctor or the healthcare organisation, it becomes difficult to pinpoint where the fault lies when an algorithm is involved in the decision-making process. If a practitioner follows an erroneous recommendation and harm results, who is liable: the doctor, the software developer or the hospital? This question is not merely theoretical: the growing use of AI in the medical field is already raising questions about the reliability of the recommendations produced and the liabilities that may arise from them. The lack of clear international case law currently leaves healthcare professionals in a state of uncertainty. In light of this, the ITU is calling for new liability regimes involving users, manufacturers and

developers, and is considering compulsory insurance to cover these risks. The Council of Europe, for its part, is calling for a strict clarification of roles, from the design of the system right through to the final clinical decision.

To address this legal vacuum, international consensus is converging on a single solution: AI must remain merely a decision-support tool, never a substitute for the clinician, who retains their autonomy and ultimate responsibility for the medical act. This requirement also stems from the fact that technology will never be able to replicate empathy, active listening and human intuition when faced with a patient's distress.

This is why the regulatory framework must enshrine the principle of 'human-in-the-loop' supervision, as emphasised in particular by the New Zealand medical councils, for whom an understanding of the patient's socio-cultural context remains irreplaceable and exclusively human.

B. Towards equitable global governance of AI in healthcare

Beyond the clinical setting, the ITU and the WHO are developing common standards to ensure the safety, reliability and interoperability of AI tools in healthcare. The challenge in the coming years will be the ability of states to sign binding treaties requiring independent technical audits prior to the marketing of any AI-based medical device. The major challenge remains to establish an inclusive global governance framework to prevent a 'digital healthcare divide' that would restrict these innovations to wealthy nations. Europe is leading the way with the AI Act, which now classifies medical AI as a 'high-risk' technology, subject to rigorous audits prior to any real-world deployment.

At an international level, the challenge is to harmonise the rules governing AI in healthcare, whilst taking into account the differences between healthcare systems. The WHO emphasises the importance of patient safety, respect for human rights and human oversight. The aim is therefore to reconcile medical progress with patient protection, so that all countries can benefit from these technologies in a responsible manner.

ITU CONVENTIONS AND MAJOR EVENTS

7 April 1948: Establishment of the World Health Organisation (WHO):

Ensures the highest attainable standard of health for all peoples and supports States in developing effective, safe and accessible health systems.

↳ https://www.who.int/fr/about/history

25 September 2015: Adoption of the Sustainable Development Goals (SDGs):

Ensures healthy lives and promotes well-being for all at every age. Artificial intelligence is now regarded as a tool that can help achieve this goal by improving diagnoses, treatments and access to healthcare.

↳ https://pactemondial.org/wp-content/uploads/2024/12/Les-17-ODD-et-leurs-169-
cibles_WEB-1.pdf

2020: Adoption of the WHO Global Strategy on Digital Health (2020–2025):

Helps countries integrate digital technologies into their health systems in order to improve the quality of care, reduce inequalities in access and strengthen the resilience of health services.

↳ https://iris.who.int/items/7d0f8ec2-c315-4992-ac15-c07c63706ce7

28 June 2021: Publication of the report *Ethics and Governance of Artificial Intelligence for Health* (WHO):

Provides a framework for the development of artificial intelligence to ensure it improves health systems whilst guaranteeing patient safety, respect for human rights, algorithmic transparency and human accountability in medical decision-making.

↳ https://www.who.int/publications/i/item/9789240029200

23 November 2021: Adoption of the UNESCO Recommendation on the Ethics of Artificial Intelligence:

Promotes artificial intelligence that respects human rights, dignity, cultural diversity and the protection of personal data, whilst reducing the risks of discrimination and algorithmic bias.

↳https://www.unesco.org/fr/articles/recommandation-sur-lethique-de-lintelligence-artificielle

↘️ 21 March 2024: First United Nations General Assembly resolution on artificial intelligence:

Encourages States to develop artificial intelligence systems that are safe, reliable and respectful of fundamental rights, whilst promoting international cooperation to reduce technological inequalities.

↳**https://www.un.org/sustainabledevelopment/fr/2024/03/21/lassemblee-generale-adopte-une-resolution-historique-sur-lintelligence-artificielle/**

POSSIBLE SOLUTIONS

↘️ Developing a common international legal framework

States could work with the United Nations and the World Health Organisation to develop common standards governing the use of artificial intelligence in healthcare systems, particularly with regard to security, accountability and transparency.

↘️ Maintaining human oversight in medical decision-making

Artificial intelligence could be used as a decision-support tool, whilst ensuring that a healthcare professional retains responsibility for the clinical assessment and the final decision.

↘️ Demand the protection of medical data

Governments could introduce stricter regulations governing the collection, storage and sharing of health data, whilst strengthening cybersecurity measures to protect patients' information.

↘️ Developing training for healthcare professionals

The creation of specialised training programmes would enable healthcare professionals to better understand the capabilities, limitations and risks associated with the use of artificial intelligence in their day-to-day practice.

↘️ Promoting international cooperation and the sharing of best practice

International organisations could encourage states to share their experiences, knowledge and innovations in order to promote safer, fairer and more effective development of artificial intelligence in healthcare.

GUIDED QUESTIONS

⬇️ How does your country define legal and medical liability when an error involves an artificial intelligence system?

⬇️ How can your country ensure that artificial intelligence improves care without compromising patient safety?

⬇️ In your delegation's view, what balance needs to be struck between technological innovation and the protection of patients' fundamental rights?

⬇️ Does your delegation envisage measures to effectively protect medical data whilst promoting research and innovation?

⬇️ What role should the United Nations, the WHO and other international organisations play in the global governance of artificial intelligence in healthcare? Is your delegation implementing the recommendations that have been issued?

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United Nations (UN), 2024
↳ **Source : ONU — Global Digital Compact**

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↳ **https://www.who.int/news/item/28-06-2021-who-issues-first-global-report-on-ai-in-health-and-six-guiding-principles-for-its-design-and-use**

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