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## IFMSA Policy Document Technological Innovation in Healthcare

**Proposed by the Team of Officials**

**Adopted at the IFMSA General Assembly August Meeting 2019, in Taipei, Taiwan.**

### Policy Statement

#### Introduction:

Technological innovation has had enormous expansion over the last few decades, which opens up a number of possibilities for improving healthcare. However, robust regulation and monitoring to ensure the safety and quality of health technologies has not been implemented in many parts of the world, and access to healthcare innovation can be inequitable and unevenly distributed.

#### IFMSA position:

The IFMSA believes that technological innovation can lead to better health outcomes and more efficient healthcare delivery. We believe that more investment is needed in digital health technologies and that these innovations should be equitably accessible by everyone. Implementing an ethical and regulated approach to innovation in healthcare, as well as ensuring its continued evaluation, is crucial to ensure these advances are monitored and improved upon over time. Developing safe and reliable electronic health records, in addition to taking advantage of mobile digital innovations, can significantly improve health literacy and empower patients. Moreover, promoting the engagement of youth in technological innovation, and developing healthcare students' education in digital health can facilitate effective use of health technologies. Finally, IFMSA believes that interprofessional collaboration is fundamental for the effective implementation of health technologies.

#### Call to Action:

IFMSA calls for **Governments** to:

- Increase investment in evidence-based digital health technologies, including mobile health technologies, as a means to improve populations' health
- Develop robust evaluation and monitoring systems for digital health initiatives to ensure they remain evidence based, effective and safe
- Ensure that intellectual property regulations are balanced enough to stimulate innovation while not restricting the access of patients to technological innovations that improve health
- Support and abide by international regulations relating to safety/quality of health technology
- Ensure that progress in health technology benefits all members of society, particularly those most in need, and increases access to healthcare by patients living in rural/remote areas
- Work with healthcare institutions to develop effective electronic health record systems, ensuring they promote patient privacy/confidentiality, and are secure and of high reliability in relation to system integrity and protection of intellectual property
- Ensure that patients have full access to their own electronic health records, and are empowered to engage actively in their healthcare
- Explore the implementation of transparent and participatory health technology assessment processes to guide cost-effective healthcare expenditure, where appropriate
- Facilitate health technology collaboration, both between NGOs, universities, research centres and other entities, as well as between different health and non-health professions
- Provide opportunities for youth to engage in education, training, innovation, development and implementation of digital technologies



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International Federation of  
Medical Students' Associations

IFMSA calls for the **World Health Organization (WHO) and other relevant international bodies** to:

- Formulate standardised data collection and data entry methods to ensure efficient usage of the electronic health records
- Continue to disseminate knowledge, facilitate collaboration and develop relevant guidelines or other relevant tools on the topic of health technology
- Support Member States/national governments in the development of strategies for the implementation of evidence-based, safe, and effective digital health technologies, ensuring their equitable distribution between and within countries
- Create special regulatory bodies for artificial intelligence-based health technologies
- Promote data exchange between Member States/national governments without compromising the quality, security and privacy of that data
- Engage in health literacy initiatives with Member States/national governments, supporting them in increasing the health literacy of the population through modern technologies

IFMSA calls for **universities, education institutions and medical faculties** to:

- Adequately train healthcare professionals and university teachers/professors to ensure they are ready to use and teach health technologies in an efficient way, including through continuing professional education
- Include digital health technology advancements and digital literacy in the medical curriculum
- Adopt and invest in evidence-based modern teaching tools that take advantage of digital innovations, like e-learning and advanced simulation tools
- Provide extra opportunities for students to expand their learning on topics such as artificial intelligence/machine learning and their relation to the healthcare system
- Provide research and entrepreneurship opportunities to students within the digital healthcare sector, as a means to increase engagement and workforce readiness

IFMSA calls for **healthcare institutions and systems** to:

- Adopt health technologies which have regulatory clearance to improve patient outcomes
- Develop/implement user-friendly, safe and comprehensive electronic health record systems
- Use health technologies to increase the environmental sustainability of healthcare institutions
- Provide continuing professional development opportunities for staff to develop digital literacy
- Facilitate initiatives that promote an interprofessional approach to health technology implementation in the healthcare sector
- Promote and incentivise data sharing and exchange between healthcare institutions

IFMSA calls on **healthcare professionals/workers** to:

- Be receptive towards the adoption of new technologies for healthcare, including artificial intelligence-based technology, which has substantial potential to improve patient outcomes
- Actively work with technology developers/innovators, government and research institutions to ensure that health technologies are fit-for-purpose, safe and effective
- Respect patient confidentiality when using electronic health records, and abide strictly by regulations around access to electronic health records
- Commit to improving the digital and health literacy of the general population
- Advocate for use of technology to improve healthcare access by disadvantaged populations

IFMSA calls for **researchers, innovators and financial donors/investors in health technology** to:

- Promote responsible research and innovation through an understanding of issues including, but not limited to, legal and economic frameworks, human dignity, cultural/traditional/social contexts, standards of fundraising/partnerships and adherence to ethical values
- Minimise patient accessibility barriers to evidence-based health technology innovations
- Cooperate with governments in the regulatory process of health technologies
- Improve collaboration and data sharing between institutions working in health technology



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Medical Students' Associations

- Fund and develop healthcare innovations in an ethical, responsible and equitable way, considering the needs of the population

IFMSA calls on **National Member Organisations and medical students** to:

- Continue to provide spaces for young people to develop innovative digital health initiatives
- Develop projects and activities that increase digital literacy in the population
- Support awareness/capacity building about digital literacy of medical students

## Position Paper

### Background information:

There are many terms used to describe health technology and technological innovation for healthcare. Throughout this policy, the following terms will be used:

Digital health - “A broad umbrella term encompassing eHealth (which includes mHealth), as well as emerging areas, such as the use of advanced computing sciences in ‘big data’, genomics and artificial intelligence”. World Health Organization [1]

mHealth/mobile health - “Medical and public health practice supported by mobile devices, such as mobile phones, patient monitoring devices, personal digital assistants, and other wireless devices.” World Health Organization [2]

eHealth - “An overarching term used today to describe the application of information and communications technologies in the health sector. It encompasses a whole range of purposes from purely administrative through to health care delivery.” Government of Canada [3]

Health technology - “The application of organized knowledge and skills in the form of devices, medicines, vaccines, procedures and systems developed to solve a health problem and improve quality of life.” World Health Organization [4]

Medical device - “An instrument, apparatus, or machine used to prevent, diagnose or treat disease; which also serves to detect, measure, restore or modify the structure or function of the body for a given health purpose, typically without entering metabolic pathways.” World Health Organization [4]

Health technology assessment - “The systematic evaluation of properties, effects and/or impacts of health technologies and interventions. It covers both the direct, intended consequences of technologies and interventions and their indirect, unintended consequences. The approach is used to inform policy and decision-making in health care, especially on how best to allocate limited funds to health interventions and technologies.” World Health Organization [5]

### Discussion:

#### 1. Current innovations in health technology

Presently, many health professionals face a number of challenges with regard to handling digital technologies in their practice in healthcare institutions: physicians fill an average of 20,000 forms a year, which means an average labour cost of \$20 to file each document; 75% of healthcare practices still use fax machines even though these devices are known not to be secure; in 30% of doctor visits the patients’ paper health records are lost or cannot be retrieved and patients increasingly use the internet to search for health information (54% use it to look for information about diseases while 10% do it to get a second opinion on the part of another health professional). [6]



Technological innovations in healthcare are extremely diverse. Three important categories of health technology are artificial intelligence and machine learning, electronic health records, and mHealth.

## 1.1 Artificial intelligence and machine learning

While there is no universally accepted definition of artificial intelligence (AI), the term broadly refers to computing technologies that resemble processes associated with human intelligence, such as reasoning, learning and adaptation, sensory understanding, and interaction. [7]

Healthcare, along with its huge volume of data being generated every day, is one field where there is an immense scope of application of AI. The increasing availability of healthcare data and rapid development of big data analytic methods has led to great strides in the applications of AI in healthcare. Powerful AI techniques, assisted by clinical judgement, can unlock clinically relevant information hidden in the massive amount of data. This could help in better decision-making and better patient outcomes. [8]

There are multiple AI techniques that are used in healthcare, from the classical machine learning (ML) to deep learning and convolutional neural networks (CNNs), the latter being particularly useful when dealing with complex and high dimensional structured data. [9,10,11]

With various technological advancements in AI and ML, healthcare delivery, in today's world, has become much more efficient and reliable. ML algorithms are being applied to solve a variety of unmet needs, e.g. the high cost problem of dosage issues, where findings suggest that AI could potentially save \$16 billion. The accurate dose of immunosuppressive drugs required for organ transplant patients had been successfully determined by a mathematical formula developed with the help of AI in a ground-breaking study in California. [12]

Despite the progress in the field of medical research and clinical applications with the assistance of AI, there are various hurdles in its real life application. Lack of standards to assess the safety and efficacy of AI systems in the current regulations is the first obstacle. [13] Internationally, the WHO has already created a Focus Group to establish a standardized assessment framework for the evaluation of AI-based methods for health, diagnosis, triage or treatment decisions. [14]

Data exchange is the second important barrier. The AI systems need continuous training by data from clinical studies. Since the current healthcare environment does not provide incentives for sharing data on the system, continuation of the data supply has become a critical issue for further development and improvement after deploying an AI system with initial training containing historical data. [15]

Many healthcare professionals often feel that their autonomy and authority is threatened and their expertise is being challenged by AI. However, AI poses itself as a tool to assist rather than replace clinicians. With the advent of the AI revolution, the skill set and expertise required of healthcare professionals will definitely change. In some areas, AI may enable automation of tasks that have previously been carried out by humans and this can free up health professionals to spend more time engaging directly with patients and result in improved patient doctor relationships. Acceptance and early adoption of AI, keeping in mind its shortcomings and interpreting its results by essentially correlating with clinical findings is how AI can help clinicians in improving their efficiency as well as their patient outcomes. [16]

## 1.2 Electronic health records

An electronic health record (EHR) is a digital version of a patient's health chart that makes information available instantly and securely to authorized users. This assists the healthcare providers in using evidence-based tools to make effective decisions about a patient's care. The EHR system has surpassed the standard data collection techniques at a physician's office by incorporating a much broader view of a patient's care. It also contains diagnosis, treatment plans, medications, immunization dates, allergies, radiology images, as well as laboratory and test results along with the



# IFMSA

International Federation of  
Medical Students' Associations

medical histories. This can lead to systemic automation and streamlining of provider workflow, for example, the “*information could be shared with various health care providers and organizations such as laboratories, specialists, medical imaging facilities, pharmacies, emergency facilities, school and workplace clinics; so they contain information from all clinicians involved in a patient’s care*”. [17,18]

Some of the benefits of EHR are:

- Reduces paperwork
- Gets information accurately to the authorised users
- Helps healthcare professionals to coordinate care and protect safety, through integrated scheduling systems, centralized chart management, condition-specific queries and other shortcuts
- May help to reduce unnecessary tests and procedures
- Increasing practice efficiencies and cost savings which helps to improve medical practice management
- Improved ability to meet important regulation requirements through alerts that notify physicians to complete key regulatory data elements
- Providers and patients can bring their own device into practice as a more cost-effective option
- Reduction in charge lag days and vendor/insurance denials associated with late filing. [19,20]

Some of the challenges associated with EHR are:

- Lack of standard terminology and clinical data entry and data collection issues
- Strong resistance to change by many healthcare providers
- High cost of computers and computer systems and therefore funding limitations
- Concern by healthcare providers and patients on the real-time accessibility of the data
- Concerns raised by healthcare professionals, patients and the general community about privacy and confidentiality, as well as the quality and accuracy of electronically generated information
- Lack of staff with adequate knowledge about disease classification systems
- Environmental issues including electrical wiring and supply of electricity, space needed for computers, increased amount of non-biodegradable waste, etc.
- Training health professionals to be efficient with the systems. [21]

### 1.3 mHealth

mHealth is a subset of eHealth which relates to how mobile technologies affect healthcare.

The use of a mobile phone’s small size and broad capabilities can be incredibly beneficial to healthcare, such as in monitoring health data and ensuring quick and easy access to physicians and the health system in general. According to the WHO, most countries in the world already have a number of mHealth programs, mostly related to improving communication between the citizen and the healthcare system (like telemedicine and emergency services), although innovations like decision-support systems are still not used by a majority of countries. WHO also reports that lower income countries have significantly less mHealth programs than higher income countries, as is the trend for digital health in general. Commonly cited barriers to implementing more mHealth solutions include differing priorities on the part of different health systems (as most health systems in the world are severely overburdened, it is to be expected that the financial capability to make mHealth and eHealth investments is limited), a lack of knowledge and recognition about the benefits of mHealth, and cost effectiveness barriers. Importantly, only a small number of countries conduct evaluation programs towards mHealth initiatives, which is a worrying prospect. Evaluation should be a part of any health program, and a lack of investment in this field can lead to ineffective or inefficient spending on programs which do not serve the population’s health needs. With mHealth being an emergent topic, it is likely that most countries still don’t see evaluation as a top priority. These issues could be addressed by creating integrated mHealth policy programs which focus on improving individual initiatives according to the needs of the general population, rooted in systematic evaluation. Improving equality by promoting lower income countries’ access to these technologies should also be a priority. [22]



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## 2. Challenges and opportunities in health technology

### 2.1 Ethics and health technology

Whilst innovation in health technology has facilitated significant improvements in healthcare outcomes, in accordance with the regulatory ethics paradigm, innovation engenders a number of important ethical considerations. Innovation is a result of many factors, like creativity, research and imagination. Innovation is also, to a great extent, influenced by what society thinks is and isn't virtuous and wrong - in short, it's affected by people's values at a given time. Innovation can be driven by many isolated factors, like money and power. However, the reality is more complex than that. In this context, innovation ethics looks for innovation that is driven by values. [23] But that poses many questions, like which values are relevant or not (and which values are a driving force to innovation or, on the other hand, a hindrance), how exactly we can define a researcher or innovator as ethical, and what specific challenges and issues the field of ethics in innovation is facing currently. [24]

These questions lead us, first of all, to a definition of what is ethical innovation and what it means in current society. Innovation is ethical if it is useful to basic human living, decreases inequalities and increases fairness and equity. It is also ethical if it is in line with currently accepted human values and rights, like freedom, justice and peace, and helps us facing current worldwide issues, like sustainability and environmental challenges. [25]

The divide between innovation and the old norm is very common in many communities and frequently leads to disagreements and conflicts, which means people working in innovative areas should pay a lot of attention to tradition and local values, to ensure a smoother transition. [23] That said, there are many risks to face in this area and innovators should not shy away from them. Very often innovators are met with failure, which is an inevitable part of coming up with outside-the-box solutions. There is also the risk of resistance on the part of conventional players and the possibility of not being fit to work in such a competitive and ever-changing field and giving in to burnout. Finally, there's the risk of the target audience (be it the general public, governments or other entities) using technological innovations for different goals than the one which was intended. One example is nuclear energy being used to create weapons, or government agencies spying on their own citizens using modern technology. [26]

Collaboration is a big part of innovation ethics. Currently, many of the world's cutting edge innovation projects involve partnerships around the world, like space exploration initiatives and, for example, CERN, which has engineers and researchers from around the world. [23] These partnerships are an opportunity to improve cooperation between countries of differing economic statuses, which heavily relates to innovation ethics: these kinds of partnerships allow for innovation's societal gains to be better distributed around the world and across the socioeconomic spectrum. [27]

### 2.2 Health equity

One of the principles of universal health coverage is providing quality healthcare access to all. Through the development of current technological innovations, communication technology can be used to increase economic efficiency, improve clinical outcomes, and reduce travel in underserved areas. [28]

Most countries in the world are faced with major fiscal deficits when it comes to providing healthcare. Traditional methods of medical record keeping and administrative costs are time and labour intensive, and thus, very costly in return. The profession should embrace the convenience and widespread popularity of email and smartphones with encrypted software. Technological innovations in health are mostly low-cost with high returns on investment once appropriate policies are established to protect identifying information of patients and their care provider [29]. The use of health technology will allow



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Medical Students' Associations

bridging of gaps between the healthcare systems across the world and offer greater equality in the services provided.

According to the World Bank Data, currently 56% of the world's population reside in an urban setting and that number is predicted to increase to 68% by 2050. [30] However, there is still a very significant portion of the population who live in remote areas without rapid access to tertiary healthcare. One of the major burdens of disease reported by patients is associated with extraneous costs. [31] Travel costs, accommodations, and time taken off work are all factors into the economic burden of disease. Patients report that telemedicine has become a much cheaper and safer alternative to receiving care given their geographical location and comorbidities. Technologies offer a much more effective way to monitor chronic illnesses - especially diseases without a heavy emphasis on physical exam (such as mental illness and kidney disease). Research has shown that "mobile coaching reduced HbA1C values in diabetic care over one year". [32] In addition, more research has shown that telehealth offers an inexpensive alternative to providing mental health services compared to traditional walk-ins. [33] Since populations from disadvantaged backgrounds are disproportionately affected by these chronic illnesses, health technology serves as an important opportunity to reach disadvantaged populations and offer them the care they need.

### 2.3 Safety and regulation of health technology

Health technology and particularly medical devices require regulation and countries need to adopt recommendations and participate in global harmonisation for regulatory requirements. Devices meant for global use should follow international standards like the ISO (the international quality systems standard followed for manufacturing medical devices) or IEC (International Electrotechnical Commission). [34]

There are three important phases for the regulation of a medical device during its lifespan: premarket control, sales monitoring and post-market surveillance. [34]

Pre-market control includes collaboration between the manufacturers and the regulatory authorities to decide the minimum standards and acceptance criteria for the product as well as necessary testing and clinical trials. Sales monitoring includes maintaining a mandatory database of all functional medical devices, regulations on advertisements, post sales obligations, etc. Post-market surveillance is also a neglected but an important practice which involves the education and training of users, continuous assessment and feedback and participation in international medical device alert issues. [34]

Most developing countries import a majority of their medical devices and allocation of resources for regulating and ensuring standards for each and every medical device is difficult. In such cases where a medical device has already been approved by regulatory authorities in the manufacturing country, the in-country testing may not be mandatory. However, in such cases, the registration of these medical devices and the medical device manufacturing companies must be prioritized. Sales monitoring and post-market surveillance should have an equally important place in the national medical device monitoring programmes. [34]

For governments who do not have well established rules for medical device regulation or a national policy for medical devices, governments can follow the WHO Global Model Regulatory Framework for Medical Devices including in vitro diagnostic medical devices. [35]

### 2.4 Health technology assessment

Health technology assessment (HTA) involves evidence-based policy development and decision-making, including resource allocation and policy translation of new technologies, to strengthen health systems.



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International Federation of  
Medical Students' Associations

The World Health Report 2010 indicates that up to 40% of spending on health is being wasted/used inefficiently and there is an urgent need to improve the rational use of health technology. [36] The efficient use of resources is a crucial factor in the sustainability of health technologies as we move towards attaining universal health coverage and the Sustainable Development Goals. WHO has also indicated that assessment in this field is severely lacking in many countries, leading to a lack of evidence for the implementation of policy. [37]

Multi-stakeholder engagement and analyses, especially involving patients and users of healthcare, are required at all stages of the HTA process. [38] An HTA process that includes patient perspectives provides added value to patients, policy makers and healthcare professionals alike. [39]

## 2.5 Digital and health literacy

A sufficient level of digital literacy is required to engage with health technologies, both as a healthcare professional/worker and as a patient/consumer. Additionally, the use of health technologies can allow for greater patient autonomy over their health - this means that health literacy amongst the general population is an important consideration in the development of health technologies. [40]

E-health literacy is defined as "*the ability to seek, find, understand, and appraise health information from electronic sources and apply the knowledge gained to addressing or solving a health problem*". [41]

It is crucial that healthcare workers are adequately trained in digital health topics and become proficient with new technologies. Healthcare institutions have the responsibility of training their employees and workers to develop technical skills. [42] Beyond that, institutions should provide an environment with investments in technology education and access to these learning tools provided in an equitable way. This should be reflected in institutions' strategic plans and be a long-term objective for healthcare providers. Institutions should also recognize how technology is shaping medical education and incorporate new technologies into healthcare professional training. Finally, digital tools themselves can also help find skills gaps between workers and help leaders adjust their staff training policies to better tackle individual and societal needs. [41]

A growing body of evidence points to the fact that technology literacy will be crucial in the jobs of the future, with 90% of jobs in the EU needing the worker to display at least some skill in digital topics. Studies also consistently show that more digitally-skilled workers earn more money, which means that investment in digital skills returns a significant amount of money and that countries should put this priority at the forefront of their education priorities. [43]

Healthcare institutions can also take an active role in promoting digital literacy and health literacy in their patients. This includes supporting investments in modern equipment in the healthcare setting for patients to access as well as educational programs to increase the public's literacy. Healthcare professionals can also help by increasing the patient population's awareness in digital technology by providing education and access. This can increase the general public's motivation to build their capacity in digital literacy. [44]

## 3. Role of youth in health technology

Youth (aged 15-24), as one of the biggest demographics on earth, are undoubtedly an important agent of positive change in the world. Additionally, the youth of today have a unique capacity as 'digital natives' as many have been exposed to digital technologies since early childhood. [45]

### 3.1 Youth as key drivers of technological innovation

As digital natives, youth have the potential to contribute a lot to the development of digital technologies for use in the health sector and other sectors. Indeed, youth have unique insights into



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the usability of digital and mobile technologies as compared with older generations, often have higher innate interest in these topics, and will ultimately be the future users of new technologies. [46]

Governments could benefit from the meaningful engagement of youth in the development of innovative digital technologies to harness their unique capabilities.

The International Labour Organization predicts that there will be tens of millions of jobs for people with advanced digital skills in the upcoming years, and many countries will face a significant shortfall in finding skilled workers. [47] The youth demographic is well placed to take up jobs requiring advanced digital skills in the future. However, not all youth (particularly young women) have developed job-relevant digital skills, and this should be a priority in education systems. [48]

### 3.2 Education of healthcare professionals

Digital health technologies are set to transform the healthcare sector. With regards to youth in the healthcare workforce, making sure healthcare students are prepared to face these challenges takes a bigger importance. A number of authors point to a current lack of investment in the teaching of technology topics on medical and healthcare curricula as a challenge of today's healthcare education, which means a lack of technology literacy is a growing problem in the healthcare and medical communities. [49,50] The ability to use a computer in a clinical setting and handling electronic health records are key skills that are lacking in the health curriculum. As young people are more willing to learn about innovative topics, healthcare and medical students are a key target for improving the digital capabilities of the health workforce through education.

From a different standpoint, technological innovation can also play an important role in the education of health professionals, through the use of new teaching tools, like e-learning and other advances. E-learning, according to research, can help teachers who have logistical limitations get their message across to students without having to reschedule lessons. A number of authors also point to the possibility of creating shorter and more direct lessons which students can take in more easily. [51] Other modern methods of applying technological advances to medical education, such as simulation and virtual reality, have been found to increase skill and knowledge acquisition as well as the satisfaction of students. [52]

## 4. Role of health professionals

Organizational issues play a crucial role in the digital transformation of healthcare systems. The fact that these systems are frequently complex and very large (they employ a big number of people and receive and spend vast sums of money) means that change occurs slowly, especially when investment in useful and evidence-based innovation is not a priority for the leadership of these organizations. With that in mind, there is evidence for the benefit of a strong leadership in these situations, as well as the existence of "pioneers" in healthcare organizations - people who educate their peers on these matters - that accelerate change. Evidence also shows that being clear about the pros and cons of the digital transformation when addressing health professionals' concerns is important to increase engagement and efficiency. [53] Education of healthcare professionals, as mentioned above, also plays a crucial role in these transformations.

### 4.1 Interprofessionality

Technology can play a critical role in improving interprofessional treatment and patient management. The use of modern technologies to improve communication between health workers can be a key factor in increasing the quality of care. [54] Taking advantage of electronic health records to keep healthcare professionals connected about patients' needs as well as making sure healthcare can reach people in isolated areas, through telemedicine, are useful innovations for the goal of achieving universal health coverage, [55] as more connected professionals and patients means more efficiency and less wasted resources. As such, the risk of straining professionals with too many different activities to complete should be minimized with the use of communication technology which allows better task division amongst health workers. [56] Lifelong and interprofessional learning



are also facilitated by modern technology, which can be used to continually train health professionals over the course of their lives, through the use of current training tools which use artificial intelligence to detect gaps in the training of professionals. [57]

However, modern technology also poses a number of threats to interprofessional care and communication. Many of them are related to the access, on the part of professionals, to these technologies. Many innovative tools are expensive, which can make them inaccessible to hospitals and other healthcare institutions, creating inequality between the professionals which can use them and the ones who cannot. [58] This issue leads to inefficiencies and communication gaps between health workers, which should be taken into account when planning investments in health technology. Also, as with any field, many different generations share the healthcare setting as professionals. This can create a divide as younger professionals are generally more prone to embracing new technologies. As such, a smooth transition should be facilitated, increasing the awareness of all generations toward technology, but focusing on the younger ones and using education as a tool to that end.

There is an equal importance on the collaboration between healthcare and non-healthcare professionals. Health technology is an extremely diverse field, and requires input from professionals and workers from a broad number of fields, including engineering, information technology, coding, electronics, ethics etc. Technology-related professions are entering more and more into the healthcare field, and have an extremely important role to play. With that in mind, health professional education should also address the interface between healthcare and non-healthcare professionals.

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