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Artificial Intelligence: High-Resolution Technological Assistance in Public Health Care

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Abstract

Technology in the healthcare area is always in constant evolution, with the help of Artificial Intelligence (AI), issuing the global health that digital decisions with a practical vision of resolution, based on the computational strategic principle, leverage the wave of care innovation that evolves pillars such as virtual education through health promotion and efficient data processing. The study aims to analyze and present technological actions adapted to health management in times of pandemic, as well as their perspectives for the population and health professionals. Methodologically, the context is based on an exploratory study that evaluated the qualification of an organizational nature of a health system. It is concluded that the context in question amplifies the knowledge of health professionals and managers to an abrupt adjustment in current times. The pandemic brought as associations an evolution of residential / virtual clinical follow-up with change and adaptation based on the understanding between the team for an interaction in the new scenario of digital health.

Keywords: Artificial intelligence. Data management. Digital health

Introduction

The clinical assessment system related to data environments for probability comparisons must be precise and have coherent conditions to minimize risk. Healthcare software programs are made to compile pre-determined protocols and are considered the largest technological variable in a real/virtual environment. (Gonçalves - 2020).

Hospital computerization includes guidelines on how care teams should act in the face of changes and indicates which patients may be at high, medium and low risk. Furthermore, the responsible professionals - Rapid Response Teams (TRR) virtually monitor the average service time of the teams and their patients. [...] Therefore, it is always recommended that all cases of virtual health alerts are analyzed and validated instantly by professionals [...]. (Gonçalves -2020, p.4).

Artificial Intelligence (AI) is a branch of computer science that aims to develop and simulate human capacity in perceiving a problem, identifying its components and, therefore, solving problems in decision making. (Luiz Carlos - 2018 p.4).

Among the benefits of digital inclusion, cognitive gains have been the object of study; the learning process is linked in particular to memory, as this process involves changes in behavior due to permanent technological advancement. New information, storage and availability of access to knowledge are increasing every day among professionals from different areas. (Alvarenga - 2019, p. 388).

The current context in which we live shows how important virtual communication is, since debilitated patients and/or patients with chronic pathologies, dependent on continuous medications, need the healthcare team constantly. However, with the impossibility of access to hospital units, technology shares consultations and services online, facilitating the treatment provided to the user without loss of information.

The present study tends to share technological advances in health, its limitations and its high acceptance process by professionals and patients. The methodological tools used in this article are based on exploratory research guided by logical operators “AND” and “OR” in keywords with active search in Cape journals, such as: Scientific Electronic Library and Medical Literature.

Analysis and Retrieval System Online, The selection analyzed scientific productions from the last 5 years, using the coherence and relevance of the topic as inclusion and exclusion criteria.

The Acceptance of Health Technology in Care Management

With the emergency crisis caused by the pandemic, technological immersion practices have become more constant. The implementation of the evolution of non-face-to-face care with a focus on patient care, safety and supervision has made the mechanism of medical and management interventions more accessible. The challenges of privacy in this new phase are what still compromise some health platforms.

Cited as the biggest health challenge of the 21st century, Covid-19 impacted the human and financial capital of institutions, the need to adapt including health services, necessitating changes in the standard of care through informational means considered advanced. (Silva 2021, p.2153).

The action implemented provided an effective tool for managing clinical returns, scheduling appointments, in addition to the needs for identifying on-going medical prescriptions. (Moreira 2021, p.155).

A large telehealth service in the view of public management is a property of multiple tasks, which were allowed to rationalize spending on health resources, even if these resources are insufficient, in addition to reducing the physical circulation of people in the search for prevention in mass of Covid19. [...] Directing patients within the health systems, checking needs according to the complexity of the cases and preparing PHC, urgent and emergency services, and hospitals to receive them was the most important task of the managers' leading action of health [...]. (Silva 2021, p. 2156).

Approximately 80% of cases can be diagnosed and resolved within primary care by a good clinical doctor with adequate training and support. Through this, referral of serious or surgical cases can be prioritized, considering that delays in diagnosing and treating neurological conditions can worsen patient care and quality of life. Telemedicine may be a solution for supporting doctors in remote areas in a continental country like Brazil who have different levels of training due to the absence of any policy of continuing medical education. This could help primary care physicians (PCPs) to manage some neurological conditions in the primary care setting, as already reported in Canada by Bradi et al., where direct communication between PCPs and specialists through the e Consult system avoids 30% of referrals. (Mantese 2021, p. 300).

The needs of patients regarding health services at different levels of complexity contribute to the adequacy of technological profiles. "Virtual assistance" through health professionals has disseminated an exceptional evolution throughout the global health system that was initially temporary, but shared legal activities in an emergency and epidemiological control manner. According to Depolli 2021 (p.11), the hospital can be considered a place that promotes stress for healthcare workers, leading to various losses in their physical and psychological health, resulting from a lot of overload. However, it is suggested that practicing the profession remotely may also have complications that deserve to be discussed when compiling service results.

The Use of Digitalization in Controlling Global Health in a Pandemic Scenario

It is noteworthy that digital health, known as telemedicine, has an important role in expanding access to health services. Every professional is extremely important for the actions developed in teams, this is considered in the doctor/patient relationship. In this way, teleconsulting qualifications can translate into an improvement in active health search actions much more quickly and efficiently unbureaucratized. (Barros 2021, p. 5)
The Chinese experience in the current profile shows that digital health technologies play a fundamental role in responding to the COVID-19 pandemic. Artificial intelligence and database resources contributed to tracking cases and the country's logistics regarding the distribution of medical supplies. (Celuppi 2021, p.4).

In Brazil, data regulation is expressed in the General Data Production Law (LGPD), which, based on European regulations, constitutes a normative framework relating to the social and economic processes of digital data. This act has as its distinctive mark the use of user consent to guarantee the defense of private and fundamental rights. However, an ambiguity in this protection is identifiable, as the text of the law recognizes a (hyper) vulnerability of users (data holders) while at the same time providing conditions for data delivery to occur. The condition of holder of personal data is defined by the law in its article 5, V, as: "natural person to whom the personal data that are subject to processing refer", that is, it is the subject of law who transfers data to the controller and the operator and this condition of availability is only possible through consent, defined in art. 5th, XII, as "free, informed and unequivocal expression in which the holder agrees to the processing of their personal data for a specific purpose" (Fornasier 2021 p. 1005).

The challenges of virtual care are the population's resistance in daily practice and doubt regarding the code of ethics when it comes to professionals. Prescription through telemedicine must be studied and regulated to avoid legal damages when it comes mainly to continuous control medicines, even in the face of so much evolution, the virtual mechanism, integrated data sharing is still a surveillance criterion for all entities that use it use.

Through this service, PCPs have the opportunity to discuss cases and decide, with expert support, whether referral is necessary. In addition, they can discuss the management of clinical cases in the primary care setting, regardless of whether the patient has been referred to a specialist or not. No contact between the patient and the teleconsultant takes place during the e-Consult process. [...] It is important to emphasize that for a case to be referred, the PCP needs to send the case description through the online referral platform for reading and evaluation by the teleconsultants of the "Regula Mais Brazil" project [...]. (Mantese 2021 p. 301).

According to Celuppi et al. (2021) China developed a tool linked to the We Chat application that analyses user data and tracks close contacts of all patients, which allows for tracking and early isolation of possible sources of infection. Data from this analysis can also be merged with other data to predict epidemic trends and calculate individual and collective risks.

In the United States, telehealth was found to have played a significant role in providing services during the three phases of the pandemic:

1. outpatient home care;
2. initial hospital outbreak of COVID-19; It is
3. Recovery and treatment of cases. (Clippie 2021, p.4)

In production Ding 2021 (p.29), makes a very interesting comparison to detail the creation of artificial intelligence systems for healthcare.

The research innovation lies in the ingenious application of IoT technology in the construction of the medical information collection theory, which combines the ant colony-based KbaC clustering algorithm with technology to collect information nodes organically, takes the Each patient's health index as an ant, integrates cluster analysis technology and uses ant colony distributed survey features to gather the patient's medical information dataset.

According to Macruz - 2021, the technological revolution imposes study strategies that digitally impact the integrative purpose of the actions, the delimitation of the scope has already resolved the difficult context, but the lack of knowledge of those who use it contributes to the clinical management of data of patients.

It was identified that in the United Kingdom the National Health Service (NHS) provided telephone services for information and resolving the population's queries. In addition, the NHS also has an online symptom checker and offers other virtual resources through the NHS 111 online website (https://111.nhs.uk/). In this way, patients with mild symptoms and no complications can carry out consultations from home, and worsening cases are referred to the appropriate health service. Researchers from the United Kingdom have also developed an application based on agile requirements, using voice-based artificial intelligence, which aims to connect people, especially the elderly, with their family and friends, reducing the social, physical and mental damage caused by isolation. (Celuppi - 2021, p.3).

Final Considerations

The study contributes to reformulating the idea of speed in a digitalized world through technologies to reduce crowding in the health service. The highlight of the context is the advancement of countries to develop safe methods, and implement them according to the population's needs, without losing the assistive sense of health care.

The applications outlined in artificial intelligence are basically guidance and diagnostic tools focused on care and reporting, tracked and compiled in databases for medical/patient care information. International comparisons demonstrate the innovation of technologies in pre-clinical care, an opportune situation where the computerized telehealth process improved the impact of the pandemic on the system and the development of protocols and data covers a variety of resources to monitor in a real and intelligent way.

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