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ABSTRACT

This research report will attempt to define what Artificial Intelligence (AI) is, and how its implementation could potentially benefit our healthcare system.

Healthcare artificial intelligence (AI) is fast developing, and several AI applications have been created to address some of the most urgent issues that health organisations are currently facing. For value-based care to be achieved, health officials must be aware of the state of AI technologies, and the applications that can be made of them to increase the effectiveness, security, and accessibility of healthcare services. The aim of this article is to outline and evaluate the principles of AI technologies—such as machine learning, natural language processing, and AI voice assistants—as well as how they should be used in healthcare. Additionally, it offers helpful suggestions to assist decision-makers in creating an AI plan that will support their shift to a digital healthcare system. Moreover, the paper will provide recommendations to aid and assist decision-makers the creation of an AI plan, which can provide support in the shift towards a digital healthcare system.

INTRODUCTION

People are looking for innovative technologies every day to either help them make their lives easier or to just gain new knowledge

There are so many technologies that are being used in the modern-day healthcare sector. These technologies have helped improved the lives of both patients and members of the multidisciplinary team (MDT) such as doctors, nurses, and other members of staff. The potential of AI handling and processing large volumes of data, acquiring actionable insights, and supporting evidence-based clinical decision-making and value-based care is driving the rapid evolution of AI, within the healthcare industry. Health leaders must be aware of the state of AI technologies and how they can be applied to raise the

quality, security, and accessibility of healthcare services to assist the digital transformation of the healthcare industry. Research conducted by Copeland (2022), highlights that AI possesses the characteristics of a digital computer or computer-controlled robot to perform tasks, commonly associated with intelligent beings.

RESEARCH TITLE

According to the PowerPoint slides about research done in class, research is a systematic effort to gain, gather, and expand in depth new or acquired knowledge. It is the search of knowledge, using objective and structured methods to find solution to a problem. Healthcare delivery is changing and becoming more efficient thanks to advances in (AI) and machine learning. Health organisations have amassed huge data sets in the form of population data, claims data, clinical trial data, and health records and photographs. AI technologies are perfectly suited to analyse said data and find patterns and insights that people could not independently discover otherwise. Healthcare organisations could potentially utilise and harness deep learning algorithms from AI, to assist them make better operational and clinical decisions, increasing in turn the standard of the experiences they offer. The title of my research topic is: Transforming healthcare with artificial intelligence. To explore this research topic, there is a need for its rationale.

RATIONALE

Rationale is the reason or justification for a choice or a course of action you undertake. It is a set of statements of purpose and significance that often addresses a gap or a need. The aim of this study is to use AI and how it can help healthcare providers to contribute to the upkeep and improvement of our healthcare system. AI assists clinicians in making more educated judgements using data for anything from diagnosis to treatment. In my case some of the reasons why I undertook this research topic is that I realised that there are some gaps in the research that has been conducted. Moreover, AI has the potential of resolving some of our healthcare issues including shortages of staff. Furthermore, as highlighted by reference, this notion could potentially aid in reducing patient waiting times and enhancing hospital and healthcare system efficiency.

RESEARCH OBJECTIVES

The purpose of this study is to examine the definition, merits, and potential applications of AI. I will critically examine a few recently released articles that are pertinent and assess through secondary research using a well-organized literature review. I will also provide suggestions to improve our healthcare industry. Suggestions for improvement so that the results of this study can possibly be utilised in future research.

RESEARCH METHODOLOGY

There are three basic types of research methods: qualitative, quantitative, and mixed, as per the PowerPoint slides, we learned in class. I will be utilising a mixed technique of research for my study. This is a method which combines both qualitative and quantitative techniques. I chose the mixed method of research because in my findings, I use both numerical and non-numerical observations.

LITERATURE REVIEW

According to Sage Journals (2017), a literature review is an examination of academic sources on a particular subject. It provides an overview of what is known right now, enabling you to spot pertinent theories, approaches, and gaps in the body of prior work. During my research, a comprehensive literature review was carried out to locate some reliable sources, using the university library, dependable search engine like Google Scholar, secure websites, the British Library Catalogue, scientific direct PubMed, and many more resources.

According to the research (IBM, n.d.) Clinicians are finding it difficult to find the time to stay up to date on the most recent medical research while still providing patient-centred treatment as a result of the vast amounts of health data that are being generated and their mounting workloads. Healthcare providers could potentially quickly harvest reliable, pertinent, evidence-based information that has been carefully vetted by medical specialists by utilising

machine learning technology on the most recent biomedical data and electronic health records. Natural language processing and domain-based training are features of some AI-powered clinical decision support products that enable users to type inquiries as if they were asking a medical colleague in casual conversation and obtain prompt, accurate responses.

The ability of AI approaches to enable comprehensive health care administration is one of their outstanding features. These programmes can help administrators, nurses, and other medical professionals with their day-to-day duties. For instance, an AI system, might offer medical practitioners continuous, real-time updates on medical information from a variety of sources, such as journals, textbooks, and clinical practises. The corona virus (COVID-19) pandemic, when information interchange is constantly required to adequately control the pandemic globally, makes the importance and relevance of such applications strength even more crucial. Other applications include coordinating patient information tools, enabling suitable inferences for health risk alerts, and predicting health outcomes. For instance, hospitals and all other health services can operate more effectively thanks to AI applications for the following reasons: when need be, clinicians have immediate access to data. By

monitoring patient safety more carefully, nurses can provide medication. By talking with their medical teams while they are treating them in the hospital, patients can also stay informed and involved in their care. Thus, patients can assume a more involving role, when communicating with the medical teams involved their treatment management and care, within hospital settings.

ANALYSIS AND DISCUSSIONS

We can asrain that healthcare spending is not keeping up. Healthcare systems might struggle to remain sustainable without significant structural and transformative reform. The global economy could generate 40 million new employments in the health industry by 2030, but the World Health Organisation projects that there will still be a global shortage of 9.9 million doctors, nurses, and midwives at that time. Health systems also require a larger and robust workforce. In addition to recruiting, educating, and keeping more healthcare professionals, there will also be the need to make sure that they are spending their time on what matters most which is caring for patients. Healthcare could be transformed by AI, which could also help mitigate

and also resolve some of the issues mentioned above.

AI has the potential to enhance both the effectiveness and productivity of healthcare services. Additionally, it can make healthcare professionals' daily lives better by allowing them to spend more time caring for patients, which will boost staff morale and increase continued employment. Even life-saving medications can reach the market sooner thanks to it. Simultaneously, concerns have been voiced by other researchers regarding the potential dangers of AI as well as how it can affect patients, practitioners, and healthcare institutions.

SECONDARY DATA ANALYSIS

Based on the secondary data above, we can determine that the impact of the workforce will be much more than jobs lost or gained; the nature of the work itself will alter. According to the research Spatharou et. Al., (2020) we can determine that the chance to refocus on and enhance patient care is at the core of every transformation. Up to 70% of a healthcare professional's time is generally spent on administrative and regular chores, which AI could potentially assist eliminate or reduce. Nbn This type of AI role would not only be uncontroversial, but also at the top of most people's lists, which would hasten adoption, was a frequent theme in interviews AI is capable of more, as it can support a variety of clinical tasks and assist medical professionals in getting information that could improve patient outcomes and treatment quality.

CONCLUSION AND RECOMMENDATIONS

In conclusion, artificial intelligence is a fast-developing technology of study that presents both enormous opportunities and formidable obstacles. As this essay has shown, AI has the potential to have substantial positive effects, from better healthcare and education to higher productivity and efficiency across a range of industries.

The findings of this research have shed light on artificial intelligence's relevance and potential within healthcare and its potential effects on our health sector. However, given the limitations of the current research, the findings need to be interpreted carefully. For example, a study on artificial intelligence's abilities and knowledge of data quality has not been properly addressed. AI is the future of healthcare in some years to come, looking at how fast it is developing.

This is how much I could do. There is still a need for research to be done. For example, some could counter that artificial intelligence (AI) is merely a matter of processing power, but others think that real AI will reveal a profound grasp of how human intellect functions. Although the capabilities of AI are still in question, in a few decades AI can promise limitless opportunities for technological advancement. Even though AI's capabilities are still unknown, it has the potential to usher in an era of unstoppable technological development.

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