Published by :
http://www.ijert.org

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 14 Issue 03, March-2025

AI in Healthcare for Disease-X Preparedness

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Abstract –
The use of artificial intelligence and edge devices in the management of COVID19 disease is increasing. The aim of the research is to develop a strategy to prepare for and adapt to future waves of COVID19 and future unidentified events, including threat assessment and loss prediction, preparation of appropriate defenses, and teaching responses. Regional Development. Since COVID19 is a rare event, innovation is needed to establish systems and create information at all levels. For this method to be successful, it must be developed in several stages with six stages (i.e. six cycles) namely Plan, Assess, Adjust, Predict, Prevent and Protect. Processes and activities that involve using data from the COVID19 survey to prepare disclosures regarding disease X events; Using COVID19 data to measure and assess the risk of major and minor disease events using existing technologies (such as Industry 4.0, IoT) to change the reaction and supply chain; using forecasting techniques to evaluate failures and losses; use of intellectual property to protect (protect) medical systems; and using existing methods for improvement, such as Artificial Intelligence algorithms. We first conducted a quantitative survey of Web search data of the Science core collection to create a taxonomy of content related to intelligence, real-time data, and edge analysis. This leads to a large amount of data, which we first analyzed using the Research Institute's website.

I. INTRODUCTION

The motivation and research question of this study are algorithmic solutions to the world's unpreparedness for COVID-19 and other diseases. The aim of the research is to develop a strategic plan to plan for and adapt to future waves of Covid-19 and future “Disease X” events, including assessing risk and predicting losses, planning appropriate defenses and agreeing field responses.
Artificial Intelligence Future developments in healthcare. The importance and contribution of this research is a new concept that combines intelligence and realtime data, such as IoT healthcare devices. New way of thinking; public use, open-source access, and insights from smart IoT devices like Shodan. Nothing in history has killed more people than disease.
COVID19 has shown us how vulnerable and unprepared we are for the health risks we need.
There are millions of unknown diseases in the world, and the possibility of a new global epidemic is only a matter of time. There have been many recent epidemics, such as HIV and SARS but it has been more than a century since the Spanish flu, last global pandemic killed more people than the first to die in this world war. A global pandemic arguably poses the highest risk of mass destruction and chaos, even greater than nuclear war. Adapt data collection strategies and test new solutions as new metrics emerge. The world has experienced epidemics, epidemics, epidemics many times in the past. However, there is a distinction between endemic diseases that affect people or countries; endemic diseases affecting people or countries. Epidemic increase in infectious diseases that threaten to become epidemics; Epidemic diseases affecting society, population or region; and Epidemics diseases that spread across countries and continents. One of the most important differences of our society compa red to the Spanish Flu period is the rapid growth and development of technology. The emergence and evolution of digital healthcare and connected devices is a new foundation that did not exist during the Spanish Flu, but we have benefited greatly from it during COVID-19. But these technologies have cybered or digital risks,And this is something we did not consider in detail when looking for solutions to the epidemic.

1.1 Two Strategies to Prevent Global Diseases

The Covid-19 pandemic has raised existential questions and tested the limits of treatment worldwide.
The first wave explained as follows: a) The main process of quarantine and distance learned from previous epidemics;
b) digital processes based on big data analytics and (AI) and technological change to achieve healthcare. The next approach leads to a unified strategy for health systems, facilitates rapid change and encourages faster implementation of new solutions. Additional Challenge is to protect the big data that needs to be stored in the center and to create a special environment for health. Similar solutions already exist and cloud based medical platforms are already running at

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 14 Issue 03, March-2025

Amazon, Microsoft and Google. However, with the proliferation of low-cost (IoT) systems and device, risk remains at risk.
As risk superiority continues to increase, to suppress online attacks, we must move online risk analysis to the edge of the system.

2. LITERATURE SURVEY

The most urgent need for expertise in biomedicine is diagnosis. There is a lot of detail in this area. Artificial intelligence enables healthcare professionals to diagnose various diseases early and accurately. An important type of diagnostics is in vitro diagnostics based on the use of biosensors or biochips. In the medical domain, imaging serves as the predominant diagnostic tool for obtaining information.
Main applications of NLP in healthcare include creating, understanding and classifying medical and research data. As computers become ubiquitous in today's society, they are expected to become new tools in responding to global health challenges. Therefore, it is not surprising to observe the general application of AI to try to solve the important task of predicting important outcomes such as hospitalization and deaths related to COVID19. The COVID19 pandemic has spurred many studies around the world, but the findings build on what we have done in the context of envisioning the use of AI to predict important medical outcomes such as COVID-19. These algorithms use different data to classify images into different groups, which helps determine the severity of the disease and distinguish Covid19 from other diseases with similar symptoms similar to pneumonia.

2.1 AI Forecasting the Course of the Covid-19 Pandemic

Research so far has focused on the development of artificial intelligence in the diagnosis and progression of Covid19. Artificial intelligence systems that can identify facts are being developed and applied to medical records to support medical decision-making. Predictive algorithms can be trained using historical health data from COVID-19 patients to anticipate individuals who may develop severe symptoms, referred to as challenging respiratory conditions, or who may require admission to intensive care facilities. Clinical features include elevated alanine aminotransferase, body aches, and elevated heme levels. The results show that the validation and data prediction error is small compared to the corresponding accuracy. A signature protein was detected that predicted the survival of 19 patients.
Solving problems such as the spread of the disease worldwide is generally considered to be evaluated in terms of national and international interests. Sharing more information is a necessary first step to better understanding infectious diseases and developing effective models based on artificial intelligence.

3.PROPOSED ALGORITHM

To develop research and deploy deep learning algorithms to create a strategy for building a cohesive and effective intelligence algorithm. Artificial intelligence edge objects, Internet of Things and drones.The issue is that these devices have very less storage & currently artificial intelligence algorithms cannot work on them.
Diagnosis tool
Diagnosis (as Dx, Dx or Ds) is the procedure of establishing what condition or disease may explain the patient's symptoms and conditions. It is commonly known as diagnosis with incorrect history. Often, more than one medical test, for example exams, are performed within this process. Sometimes a postmortem examination is considered a medical examination.
The fact that the patient is looking for a doctor may be an indication that the diagnosis has been made. For example, during a doctor's visit, before the patient begins to complain, the doctor can begin the diagnostic process by observing the patient's progress from the waiting room to the office.

3.1.1 Disease Diagnosis and prediction

AI technologies are increasingly employed in medicine to store & obtain more precise information regarding dangerous diseases and situations. Artificial intelligence is mostly used in predictions and diagnosis as it can interact with image data from doctors
Large data transferred to wearable devices and medical records plays a main role in the treatment of these two diseases most importantly. Tools used in medicine for the performance of cognitive skills aimed at improving diagnosis, classifying diseases, making work-related decisions, running a business, providing the best treatment. Artificial intelligence is utilized for improving diagnosis and screening in a less time. Such as, the technology detects dangerous tumors, allowing doctors to detect and treat disease earlier than sending tissue samples or diagnosing the injury long-term. Algorithms based on artificial intelligence are effective tools in the treatment of diseases. Identify undiagnosed or undiagnosed patients, undiagnosed diseases, and rare diseases. Therefore, artificial intelligence contributes in disease diagnosis and provide sufficient time for diagnosis of patients early on.

3.2 Electronic Health Record Management

Most data accidents that occur in the healthcare industry are due to mismanagement of EHR data by healthcare providers. EHR is an electronic health record. This information follows the patient wherever they receive care so each doctor understands the patient's medical history, allergies, pain, and more. While this data is useful, it also
creates massive amounts of data that disrupts the healthcare industry. With artificial intelligence in healthcare services, this information can be read and interpreted faster, improving patient care and allowing doctors to better understand their patients' diseases.
The equations are an exception to the prescribed specifications of this template. You will need to determine whether or not

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 14 Issue 03, March-2025

your equation should be typed using either the Times New Roman or the Symbol font (please no other font). To create multileveled equations, it may be necessary to treat the equation as a graphic and insert it into the text after your paper is styled.

Number equations consecutively. Equation numbers, within parentheses, are to position flush right, as in (1), using a right tab stop. To make your equations more compact, you may use the solidus (/), the exp function, or appropriate exponents. Italicize Roman symbols for quantities and variables, but not Greek symbols. Use a long dash rather than a hyphen for a minus sign. Punctuate equations with commas or periods when they are part of a sentence.

Recently, cognitive studies with the utilization of the EMR data have been commonly utilized for blood pressure management. This study uses artificial intelligence to predict the risk of hypertension. Additionally, a novel machine learning was devised and implemented to forecast heart failure (HF) utilizing patient data. We developed a model to forecast the risk of heart failure through combining medical parameters, electrocardiographic parameters and test result within patients with diabetes (type 2) and validated its benefits. As mentioned above, progress has been made using EMR data in cardiovascular disease and diabetes AI research. Latest Developments.

3.2.1. Using Artificial Intelligence to Create New DrugsUsing clinical data to develop new drugs, the data process is important. Regarding EMR data, there have been numerous efforts to standardize data, including initiatives like the "EMR Certification System." However, there is currently no universally accepted model for clinical data in drug development, leading to limitations in this area. Furthermore, clinical trial information from every organization was overseen by distinct systems. Create a standardized medical trial information system that integrates national electronic medical records with clinical records to create a framework for sharing among all parties. Many studies are currently being developed to establish a nationwide clinical practice through the publication of clinical standards and data exchange procedures for new clinical trials.

	EHRM	Diagnosis tool
Definition	EHRM activity is instantaneous patient information processed in real time by the patient's physician and available to anyone authorized to view this information.	A diagnosis is an opinion about the nature of the patient's disease, obtained from analysis using reason.
What can we do	Continuing Digitization of Patient Records Data Management and Compliance Improving EHR Data Access	Telemedicine and Artificial Intelligence Telediagnosis Artificial Intelligence Integration into Wearable Devices and Sensors Precision Medicine Technology
Advantage	Getting More Patient Data and adding information about patient appointments and other information makes EHR operations time-consuming and cumbersome.	Artificial intelligence algorithms can reduce human error and bias and provide more consistent and reliable results than human experts.

Fig. 1 Comparison between EHRM and Diagnosis tool

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http://www.ijert.org

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4. METHODOLOGY

While existing systems focus on solving the problems of the COVID19 pandemic in isolation (e.g. tracking, control, prevention, vaccination), COVID19 has taught us that we need to take integration that supports and improves the entire process. We need to start creating a database of solutions that can be implemented to ensure the security and integration of the healthcare system; We need to learn from the spreading COVID19 experience. One solution involves leveraging the principles of digital modernization and advanced manufacturing (e.g., Industry 4.0) to enhance energy efficiency and promote healthy drinking habits. This includes employing cutting-edge predictive analytics powered by artificial intelligence and real-time data analysis.A standardized four-step process was used to conduct the prediction to guarantee a thorough and careful analysis of pertinent material. An exhaustive search across multiple academic databases, such as PubMed, Embase, and Google Scholar, was part of the first stage. The emphasis was on English-language publications from starting in 2019, using terms like "patient outcomes," "predictive modelling," "healthcare analytics," "artificial intelligence," and "clinical prediction." The purpose of this search was to collect original research and peer-reviewed publications that examined the application of AI in prediction situations. Creating and implementing precise inclusion and exclusion criteria was the second phase. Studies that focused on factors including predictive accuracy, patient outcomes, and decision-making processes that primarily examined AI's role in improving clinical prediction were chosen. Studies with unclear techniques, no empirical data, or those not primarily focused on clinical prediction were excluded. The final phase involved extracting pertinent data from the chosen studies, with an emphasis on the main AI approaches employed, noteworthy discoveries, particular clinical prediction applications, noted limits, and suggestions for the future.This data was then aggregated to highlight crucial areas where AI contributes to clinical prediction, identifying trends, barriers, and potential for further application in healthcare. The final step involved a thorough analysis of the collated information. This analysis aimed to clarify the roles of AI in enhancing clinical prediction, noting the improvements in prediction accuracy, efficiency, and patient outcomes.

Fig.2. A Standardized four-step

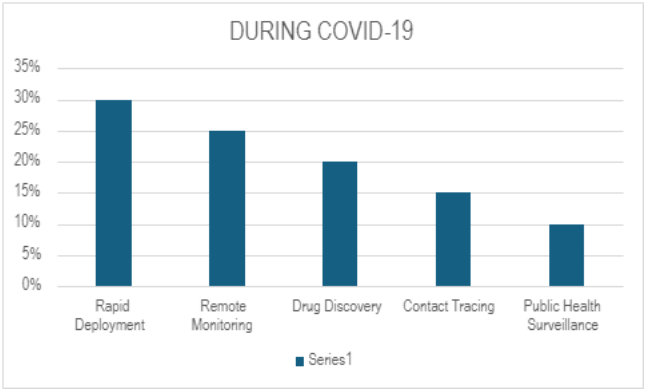

Fig.4. AI during COVID-19

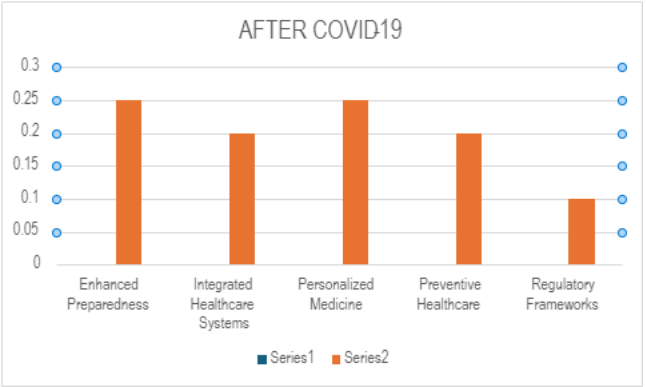

Fig.5. AI after COVID-19

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
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1: How can we get ready for future crisis of Disease X?
Key Challenge: Creating Knowledge About Alternative Therapeutic (e.g. Digital) Therapies Used During Early COVID19.New Strategies and Methods: Creating Digital Knowledge About Alternative Therapeutic (e.g. Digital) Medical Use During COVID-19 and other methods physical relationships.

2: How do we measure the risk of disease X?
Main process: Create AI that can work in medical care
Presentation: Algorithms for Prediction and Dynamic Risk Measurement with Instant Intelligence in Healthcare Systems.

3: How can we modify disease to solve disease X?
Main process: development of a modified system to ensure the safety of vaccines in case of disease, drones New ideas and methods: improving supply chain solutions Healthcare (including drones, autonomous vehicles, 3D printers) vaccine delivery systems to address shortages in critical times.

4: How can we estimate losses from Disease X?
Main method: Combined with other factors (e.g. AI cyberattacks) to estimate potential loss from virusX Using existing risks.
Evaluation standards: NIST, FAIR
This content and methods: Develop a mathematical model for estimating low and medium losses (e.g. analysis of material used data risk models) Design process: Create X Scenarios and defense strategies for intelligence cyberattacks on medical systems in the event of an attack. disease crisis

5: What can we do? Will artificial intelligence be used for cyber defense during Virus X?
Main method: Identifying future cyber-attacks in healthcare systems new concepts and methods: Development of a new smart algorithm that can prevent future cyber attacks in the system, winning the treatment working at the edge Active and visionless work

5.CONCLUSION/ RESULT

This article presents a new approach to the integration of artificial intelligence in healthcare based on the creation of consistent and effective algorithms that can perform clinical trials of medical equipment. The idea is to create and ensure independence of devices running at the edge of the network through design. This article describes a system developed with AI and devices as an anomaly precaution system. This article shows us a new approach to integrated AI into digital health systems to manage waves of COVID-19 in future and unidentified disease X.
The requirements are considered and focused on solutions based on IoT tools working at the edge of the system.
This theory can be utilized to ready for & to a variety of potential diseases to predevelop AI algorithms for future diseases X. The current trend of AI-powered medical chatbots has led to the emergence of many bots like Florence; Medical Inference; Buoy Health. Such intelligence-driven bots can use big data to create social attacks. To achieve this goal, the method requires the use of modern search tools to generate data to create a map of the stopping point in treatment. (cold chain)
Supply chain. Competing AI systems can alter attacks and victims' interactions with objects that support their narratives. operating of chatbots in this way in
The worldwide emergency can cause huge losses of life-Results will only lead to better relationships, social relationships and the health of all people if they ensure that the results, skills and training are demonstrated below and that the information used is broad and inclusive, similar to the organization to which they are applying. The question is whether regulators, data scientists, medical researchers, and doctors will prioritize integrity and ethics.
Finally, to sufficiently utilize EMR data in cl researchs, it is best to preserve the data and examine its characteristics to make it available for fresh medical investigations. Furthermore, taking into account the traits of medical treatment, researchers must conduct research within the knowledge of law and ethics when using medical data. EMR implementation can only be effective if all of them are well coordinated and work well. Information is important and will therefore help improvehealthcare services and, ultimately, the patient's well-being.

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International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
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