International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 06 Issue: 07 | July - 2022 Impact Factor: 7.185 ISSN: 2582-3930

The Role of Technology in the Fight against COVID-19

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ABSTRACT:-

Technology has played a crucial role in responding to the novel coronavirus (SARSCoV-2) and subsequent COVID-19 pandemic. The virus's mix of morbidity and transmissibility has challenged officers and exposed essential limitations of the normal public health equipment. However, throughout this pandemic, technology has answered the decision for a brand new kind of public health that illustrates opportunities for increased gracefulness, scale, and responsiveness. However, technology has helped rework the general public health landscape with new and refined capabilities - the effectuality and impact of which can be determined by history. Technologies like chatbot and virtualized patient care supply a mechanism to sorting and distribute care at scale. computing and superior computing have accelerated analysis into understanding the virus and developing targeted medicine to treat infection and stop transmission. New mobile contact tracing protocols that preserve patient privacy and civil liberties were developed in response to public issues, making new opportunities for privacy-sensitive technologies that aid efforts to stop and management outbreaks. whereas a lot of progress remains required, the COVID-19 pandemic has highlighted technology's importance to public health security and pandemic readiness. Future multistakeholder collaborations, together with those with technology organizations, square measure required to facilitate progress in overcoming this pandemic, setting the stage for improved pandemic readiness within the future. As lessons square measure assessed from this pandemic, public officers ought to contemplate technology's role and still obtain opportunities to supplement and improve on ancient approaches.

Keywords: technology, public health, population health, COVID-19, SARS-CoV2, infectious disease

INTRODUCTION

In baseball, each team options a probability to induce and defend. This technique alternates back-and-forth until a winner emerges. Similarly, publicly health the game is performed as a series of ''cat and mouse'' sequences. A string of unexpected events and responses, and easily once the disease is believed to be contained, new occurrences place the response on the defensive. The world is Janus-faced with the foremost vital public health battle in contemporary history.

COVID-19 and thus the virus that causes it, SARS-CoV-2, have ravaged the world's population, leading the World Health Organization to declare COVID-19 to be a virulent sickness on March eleven, 2020. Since its discovery, COVID-19 has affected over 16.5 million people, killing over 650,000 .The perspective given here is from associate degree odd – but what has clothed to be a vital – seat: technology. though technology is associate degree unconventional participant among the traditional public health sphere, it's clothed to be one of the star players, if there are any, for ''Team Humanity.''

In Dec of 2019, a cluster of cases of severe pneumonia of ''unknown'' etiology were rumored in urban center,China. The cause was later known as a novel coronavirus labeled ''severe acute metabolism syndrome coronavirus-2'' (SARS-CoV-2).The novel virus was discovered to possess a singular mix of attributes that continue to surprise and confound researchers and public health officers.Practically speaking, this meant that it had been plausible – not like with previous generations of coronaviruses – that symptomless human to human transmission was pronto occurring, making public health steering even harder to form.

Methodology

The impact of heightened public concern along with a readily transmissible respiratory pathogen necessitated that health systems adjust their underlying processes for screening and triage. Providence, a large multistate, multihospital health system with a big presence within the Greater urban center, Portland, and Los Angeles/Southern California regions, applied a synthetic intelligence (AI)-based ''chatbot'' technology developed by Microsoft to handle rising patient considerations concerning the virus. The chatbot used it's linguistic communication process capabilities to screen patients for COVID-19 symptoms and/or exposures by asking a series of queries supported the most recent Centers for malady Control & interference (CDC) pointers. Patients with symptoms and/or exposures were later on directed to Providence's telehealth portal for clinical analysis and possible testing. The larva was facilitating undefeated and efficient population-level care coordination. This enabled high-risk and/or symptomatic patients to receive a timely remote clinical analysis, while not increasing the danger of virus transmission to different patients or extending the wait times for those with symptoms. Anecdotally, users rumored overpoweringly positive and immediate results. One health system rumored up to a four-hundredth reduction in decision volumes following introduction of the larva and sorting system. This framework was with success replicated at different health systems and government agencies including the authority – every with differing criteria and variations of football play mechanisms to suit distinctive infrastructure wants. As of period 2020, there square measure over 2100 COVID-19 health care bots victimization this framework, reaching over 43.5 million users across twenty six countries.

Some new technology applications such as mobile COVID-19 contact tracing apps and chatbots have been recently developed to fight this pandemic. Applying these technologies can help reduce the impact of the coronavirus pandemic on people, organizations, and society. Effective and innovative use of emerging technologies can help identify community spread of the coronavirus, monitor the condition of the infected patients, improve the treatment of COVID-19 infected patients, and help develop medical treatments and vaccines

Approach

Planning and preparation unit of measurement immensely important, but mitigation tools and techniques are required to contain infection unfold. two important public health tools which will potentially contain outbreaks unit of measurement exposure notifications and contact tracing. Exposure notifications can enable you to apprehend if you've been in shut proximity to someone infected with COVID-19, and decision tracing helps verify and notice individuals international organization agency area unit in shut contact with Associate in Nursing infected person and international organization agency presently might likely be infected likewise. The term contact tracing has come to hide a broad range of solutions, from manual contact tracing performed by public health departments and trained professionals to automated systems that involve proximity awareness. Researchers have developed and written ''privacy-sensitive protocols and mechanisms for mobile contact tracing'' that strives to balance the necessity to defend civil liberties, whereas still retaining the pliability to contact trace. The group has protocolized a third-party free approach that excludes trustworthy third parties (TTPs) from the strategy of aggregating data.Their approach permits users to retain privacy through the generation of hashed IDs (pseudonyms) that unit of measurement broadcast and turned oft and keep regionally. If a user tests positive, he/she can voluntarily prefer to publish that knowledge on a public server, that allows for the reconstruction of those broadcast signals and permits other users to credit their exposures.40 Using this protocol, researchers from the University of Washington in conjunction with a bunch of volunteers developed Covid Safe, Associate in Nursing application that performs user-controlled contact tracing whereas not a TTP. the applying permits for symptom trailing usefulness that prepares users for a case management interview with a public health official (contact tracer) and improves the accuracy of their responses through local aggregation on their device. This ''opt-in'' approach bridges the quality public health instrumentation with a technology that improves accuracy and efficiency of stories, while not rejection the rights of users to their own data.40 Major mobile operational systems, iOS and golem, jointly declared in Gregorian calendar month 2020 that they'd unhitch a set of application programming interfaces (APIs) that utilize Bluetooth signals to perform mobile contact tracing. The ''Exposure Notification'' Apis enable proximity-based contact tracing whereas protecting the privacy of end users. The Apis contain safeguards to create certain that location data unit of measurement not collected, and identities do not appear to be shared with users or technology companies. This serious effort toward maintaining privacy provides a thoughtful and property opt-in approach that may influence be impactful on the overall public health response to COVID-19

As lessons from the present pandemic square measure assessed to each enhance current actions and inform future pandemic preparedness, it's necessary that public health officers consider the subsequent technologies as a part of a comprehensive response:

Chatbot Framework: Early within the pandemic, hospital systems became overcome with capability and inquiries. Screening Associate in Nursing sorting bots became an important tool to perform these activities at scale. Ultimately, the technology freed hospital capability, reduced call centre wait times, Associate in Nursing provided an simply accessible manner for patients to receive unjust recommendations. in a very similar capability, chatbot technology provided economically good} and efficient means that to recruit subjects for COVID-19 analysis studies and donation efforts.

Virtualized Patient Care: throughout the pandemic, ambulatory care was delivered just about, for the foremost half. This was preponderantly within the kind of telehealth visits. Looking forward, it's seemingly that virtual care are going to be adopted in alternative forms like active and passive remote patient observance, virtual misestimation, and virtual ICU care.

AI and Performance Computing: Technology, and in particular AI and machine learning, performed on massive supercomputers, has the potential to greatly accelerate the pace of drug and vaccine discovery.

knowledge Platforms: Central to the power to manage this and future pandemics is that the development of open, secure, and climbable knowledge platforms. These platforms should change peer-to-peer exchange of data related to the virus and its impact on clinical parameters, resource availableness, utilization, and access to other relevant knowledge sets. Platforms ought to apply commonly agreed-upon ability standards and be on the market to researchers and clinicians round the world.

Contact Tracing and Associated Tools: Manual contact tracing may be a well established technique for managing outbreaks. Technologies will facilitate the management of knowledge, coordination with alternative contact tracers, and facilitate infected people recall WHO and once they met others. Proximity awareness technologies bluetooth low energy, global positioning system software) also can be helpful for mobile contact tracing, but require that safeguards be firmly applied to protect privacy and civil liberties

CONCLUSION:-

The virus's distinctive mix of unwholesomeness and transmissibility have created containment efforts difficult and public health measures tough to form. till a vaccine is developed, the battle can persist. Technology organizations and public health agencies ought to still seek opportunities to supplement ancient approaches, improve tools and workflows, and enhance interoperability. The result are going to be a lot of thoughtful and coordinated response to current and future public health emergencies. Technology will be useful in addressing rising needs that arise from an epidemic. However, its correct use requires careful governance with attention on finding the balance between public health, social wants, economic recovery, and individual rights. whereas public health officials still adapt their responses to deal with evolving challenges display by COVID-19, technology, and all the resources it brings in touch, stands able to meet the challenge

ACKNOWLEDGEMENT

I have a great pleasure to express my gratitude to all those who have contributed to and motivated me during my project work. I want to thank my teachers, and friends for motivating me.

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