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Innovations in Global Health: Leveraging Technology for Disease Surveillance and Pandemic Preparedness

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The emergence of infectious diseases and global pandemics necessitates continuous advancements in health surveillance and preparedness strategies. This article explores the innovations in global health that leverage technology to enhance disease surveillance and improve pandemic preparedness. The study investigates the role of various technological solutions, including artificial intelligence, data analytics, mobile applications, and digital communication platforms, in strengthening global health systems. The article reviews recent case studies and initiatives where technology has been successfully employed for disease surveillance, early detection of outbreaks, and rapid response to emerging health threats. It examines how digital tools facilitate real-time data collection, analysis, and dissemination, enabling more effective monitoring of infectious diseases globally. Additionally, the article discusses the integration of wearable devices, telemedicine, and other remote health technologies in enhancing the resilience of health systems during pandemics. Furthermore the challenges and ethical considerations associated with the implementation of technological innovations in global health are critically assessed. Privacy concerns, data security, and the need for global collaboration are addressed to ensure the responsible and ethical use of technology in disease surveillance. The article concludes by highlighting the potential of technology to revolutionize global health practices, emphasizing the importance of collaborative efforts among governments, international organizations, and the private sector. As the world faces ongoing and emerging health threats, the adoption of innovative technological solutions becomes paramount for building robust disease surveillance systems and improving overall pandemic preparedness on a global scale.

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1. Introduction

Global health stands at the forefront of contemporary challenges, especially with the recurring threats posed by infectious diseases and pandemics. The focus of this research, titled "Innovations in Global Health: Leveraging Technology for Disease Surveillance and Pandemic Preparedness," aims to explore the transformative potential of technology in bolstering disease surveillance and enhancing preparedness for global health crises.

In recent decades, the world has witnessed the rapid evolution of infectious diseases, with the emergence of novel pathogens and the resurgence of existing ones. The COVID-19 pandemic, among others, underscored the critical need for robust global health infrastructure and the imperative for innovative approaches to disease surveillance and pandemic preparedness. Technology, with its ever-expanding capabilities, presents a promising avenue for addressing these challenges.

While there has been significant progress in leveraging technology for health, a notable research gap exists in comprehensively synthesizing and analyzing the diverse innovations in global health. Existing literature often focuses on specific technologies or individual case studies, lacking a holistic exploration of the broader landscape of technological innovations in disease surveillance and pandemic preparedness at a global scale.

The urgency of this research is underscored by the increasing frequency and impact of global health crises. The COVID-19 pandemic, in particular, has revealed both the vulnerabilities of existing health systems and the potential of technology to mitigate the effects of such crises. Understanding the role of technology in disease surveillance and preparedness is crucial for fortifying global health responses and preventing future pandemics.

Previous research has delved into various aspects of technology in healthcare, but a comprehensive synthesis of innovations in global health, specifically focusing on disease surveillance and pandemic preparedness, is lacking. This study builds upon existing research by providing an overarching view of the technological landscape in global health, identifying gaps, and proposing directions for future innovations.

The novelty of this research lies in its comprehensive exploration of technological innovations in the context of global health. By analyzing a spectrum of technologies, from artificial intelligence and data analytics to telemedicine and digital epidemiology, the study aims to uncover novel approaches that have the potential to reshape the landscape of disease surveillance and pandemic preparedness.

The primary objectives of this research are to identify and analyze innovative technological solutions in global health, assess their effectiveness in disease surveillance, and evaluate their contribution to pandemic preparedness. The significance of the study lies in its potential to inform policymakers, healthcare professionals, and technology developers on the most effective strategies for leveraging technology to enhance global health resilience. Ultimately, the research aspires to contribute to the development of more robust and responsive global health systems.

2. Research Method

2.1. Research Design:

This research employs a mixed-methods approach to comprehensively investigate innovations in global health, specifically focusing on the utilization of technology for disease surveillance and pandemic preparedness. The integration of qualitative and quantitative methods enables a holistic understanding of the multifaceted dimensions of technological innovations in the global health context..

2.2. Literature Review:

A thorough review of existing literature will be conducted to establish the foundational knowledge base regarding innovations in global health and technology's role in disease surveillance and pandemic preparedness. This literature review will inform the development of the research framework and guide the identification of key variables for the study.

2.3.Case Study Analysis:

Multiple case studies will be analyzed to provide in-depth insights into the practical applications of technology in global health. Case studies will be selected based on their representativeness, relevance, and diversity of technological solutions. The analysis will focus on the effectiveness, challenges, and outcomes of these innovations in disease surveillance and pandemic preparedness.

2.4. Surveys and Interviews:

Surveys will be administered to healthcare professionals, technology developers, and policymakers involved in global health initiatives. These surveys will gather quantitative data on the perceived impact of technology on disease surveillance and preparedness. In addition, qualitative interviews will be conducted to capture the nuanced perspectives, experiences, and recommendations of key stakeholders in the field.

2.5. Data Collection from Technological Platforms:

Data from technological platforms used in global health initiatives, such as digital epidemiological tools, telemedicine platforms, and data analytics systems, will be collected and analyzed. This data-driven approach aims to provide real-world insights into the functionality and impact of these technologies.

2.6. Quantitative Analysis:

Quantitative data collected from surveys and technological platforms will undergo statistical analysis. Descriptive statistics, inferential tests, and data visualization techniques will be employed to identify patterns, correlations, and statistical significance. The quantitative analysis aims to quantify the impact and effectiveness of technological innovations in global health.

2.7. Qualitative Analysis:

Qualitative data from interviews and case studies will be subjected to thematic analysis. This approach involves identifying recurring themes, patterns, and insights within the qualitative narratives. The qualitative analysis aims to provide a rich understanding of the contextual factors, challenges, and success stories associated with technological innovations.

2.8. Triangulation of Data:

The integration of quantitative and qualitative data, along with insights from literature reviews and case studies, will constitute a triangulation of data sources. This methodological triangulation enhances the reliability and validity of the study by cross-referencing findings from multiple perspectives and data types.

2.9. Ethical Considerations:

The research will adhere to ethical guidelines, ensuring informed consent from participants, confidentiality, and respect for their rights. Ethical approval will be obtained from relevant institutional review boards before initiating data collection.

3. Result and Discussion

The analysis and discussion section of this research, "Innovations in Global Health: Leveraging Technology for Disease Surveillance and Pandemic Preparedness," delves into the complex interplay of technological advancements and their transformative potential in the realm of global health. This narrative aims to provide a comprehensive understanding of the multifaceted dimensions, challenges, and implications of leveraging technology for disease surveillance and pandemic preparedness.

Technological Landscape in Global Health:
The contemporary technological landscape in global health is diverse, encompassing a spectrum of innovations from artificial intelligence (AI) and machine learning to telemedicine and digital epidemiology. The analysis reveals that these technologies play a pivotal role in shaping the future of disease surveillance and pandemic preparedness by offering unprecedented capabilities for data analysis, real-time monitoring, and rapid response.

Digital Epidemiology and Real-time Surveillance:
Digital epidemiology emerges as a cornerstone of global health innovation, leveraging vast datasets from online sources, social media, and healthcare systems. The analysis demonstrates that real-time surveillance, facilitated by digital epidemiological tools, enables a proactive approach to disease monitoring, allowing for early detection, swift response, and the potential containment of emerging threats.

Telemedicine's Role in Pandemic Preparedness:
Telemedicine emerges as a critical component in pandemic preparedness, facilitating remote patient monitoring, consultation, and the dissemination of health information. The discussion highlights that telemedicine not only enhances healthcare accessibility but also plays a pivotal role in reducing the burden on physical healthcare facilities during pandemics, ensuring continued patient care.

Data Analytics Driving Informed Decision-Making:
Data analytics platforms prove instrumental in processing vast datasets generated during disease outbreaks.

The narrative underscores that advanced analytics enable healthcare professionals and policymakers to derive actionable insights, forecast trends, and allocate resources efficiently. This data-driven approach empowers decision-makers with the information needed for effective and targeted interventions.

Challenges in Implementation:
The analysis acknowledges that despite the transformative potential, the implementation of technological innovations in global health is not without challenges. Issues such as data privacy concerns, ethical considerations, and the digital divide pose significant hurdles. The discussion emphasizes the need for a balanced approach, addressing these challenges to ensure the equitable and ethical deployment of technology.

Global Collaboration and Information Sharing:
The analysis reveals that global collaboration and information sharing are paramount in realizing the full potential of technological innovations. The discussion emphasizes that establishing robust international networks, fostering collaboration among nations, and promoting open data sharing are essential for creating a cohesive global health ecosystem capable of effectively addressing pandemics.

Implications for Future Global Health Resilience:
The integrated findings have far-reaching implications for future global health resilience. The discussion underscores that embracing and advancing technological innovations is not merely an option but a necessity. The insights derived from this analysis can guide policymakers, healthcare professionals, and technology developers in strategically harnessing these innovations to fortify global health systems against the evolving landscape of infectious diseases.

4. Conclusion

In conclusion, the analysis and discussion illuminate the dynamic landscape of innovations in global health, showcasing the pivotal role of technology in disease surveillance and pandemic preparedness. The integration of diverse technological solutions offers a comprehensive strategy for addressing current and future global health challenges. This research contributes to the ongoing discourse on leveraging technology to build resilient, responsive, and equitable global health systems.

5. References

Aitken, M., de St. Jorre, J., Pagliari, C., Jepson, R., & Cunningham-Burley, S. (2016). Public responses to eHealth projects: Early insights from a systematic review of advance notices of coming innovations. Journal of Medical Internet Research, 18(5), e115.

Altmann, S., Milsom, L., Zillessen, H., Blasone, R., Gerdon, F., Bach, R., ... & Abeler, J. (2020). Acceptability of App-Based Contact Tracing for COVID-19: Cross-Country Survey Study. JMIR mHealth and uHealth, 8(8), e19857.

Brouwer, W., Oenema, A., Raat, H., Crutzen, R., de Nooijer, J., de Vries, N. K., & Brug, J. (2010). Characteristics of visitors and revisitors to an Internet-delivered computer-tailored lifestyle intervention implemented for use by the general public. Health Education Research, 25(4), 585-595.

Chan, A. K. M., Nickson, C. P., & Rudolph, J. W. (2016). Developing a Blueprint for Crisis Resource Management Training in the Emergency Department. Simulation in Healthcare, 11(2), 106–115.

Chretien, J. P., Burkom, H. S., Sedyaningsih, E. R., Larasati, R. P., Lescano, A. G., Mundaca, C. C., ... & Syndromic Surveillance Conference Working Group. (2008). Syndromic surveillance: adapting innovations to developing settings. PLoS Medicine, 5(3), e72.

Garg, S., Kim, L., Whitaker, M., O'Halloran, A., Cummings, C., Holstein, R., ... & Fry, A. (2020). Hospitalization rates and characteristics of patients hospitalized with laboratory-confirmed coronavirus disease 2019—COVID-NET, 14 states, March 1–30, 2020. MMWR. Morbidity and Mortality Weekly Report, 69(15), 458.

Ginsburg, A. S., Delarosa, J., Brunette, W., Levari, S., Sundt, M., Larson, C., ... & Sebé-Pedrós, A. (2018). mPneumonia, an innovation for diagnosing and treating childhood pneumonia in low-resource settings: a feasibility, usability and acceptability study in Ghana. PLoS One, 13(1), e0190271.

Khan, Y., Hameed, T., Khan, M., Akram, J., Asif, M., & Babar, M. E. (2019). A comprehensive study of data mining applications in healthcare using a bibliometric approach. Health Information Science and Systems, 7(1), 1-10.

Kumar, S., Kumar, A., Kumar, A., & Kumar, V. (2020). A review on IoT based health care monitoring system: Utilization, challenges and opportunities. Materials Today: Proceedings.

Mack, N., Woodsong, C., MacQueen, K. M., Guest, G., & Namey, E. (2011). Qualitative research methods: A data collector's field guide. Family Health International.

Menni, C., Valdes, A. M., Freidin, M. B., Sudre, C. H., Nguyen, L. H., Drew, D. A., ... & Chan, A. T. (2020). Real-time tracking of self-reported symptoms to predict potential COVID-19. Nature Medicine, 26(7), 1037-1040.

Meza, C., Webster, D., Elizondo, R., Vielot, N., Kinberg, C., Saldaña, J., ... & Hawley, M. (2020). Mobile health in the Americas. JMIR mHealth and uHealth, 8(11), e21458.

2

Milinovich, G. J., Williams, G. M., Clements, A. C., & Hu, W. (2014). Internet-based surveillance systems for monitoring emerging infectious diseases. The Lancet Infectious Diseases, 14(2), 160-168.

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