

Utilization of Digital Health Care Strategies at Camp Elias Angeles Army Station Hospital

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Abstract. The healthcare sector is undergoing rapid evolution, especially with the onset of the Fourth Industrial Revolution, which has introduced unprecedented advances in digitalization, Internet of Things (IoT), and artificial intelligence (AI). This transformation accelerated with the COVID-19 pandemic, challenging traditional healthcare delivery and accelerating the adoption of “digital health” technologies globally. The pandemic spurred a significant increase in telehealth usage, generating valuable data on its effectiveness, impact, and sustainability. This shift holds the potential to transform healthcare for individuals, families, and communities alike. The Philippine healthcare system, including the Philippine Army Medical Treatment Facilities (PA MTFs), has been part of this shift, striving to adapt quickly to evolving health needs by implementing digital health strategies. The pandemic underscored the need for PA MTFs to integrate technological solutions into their health services to address future infectious disease threats and enhance mission readiness. This study employed a qualitative descriptive design to assess the current implementation of digital healthcare strategies at Camp Elias Angeles Station Hospital (CEASH). Through online surveys, focus group discussions, and key informant interviews, data were collected and analyzed using thematic and gap vi analysis methods. The findings identified seven central themes, including telemedicine as the foundational digital health strategy (DHS) at CEASH, the development of electronic health records, improved patient care, enhanced accessibility and convenience, greater efficiency among healthcare workers, cost savings, and advancements in data storage and security. The gap analysis highlighted four key areas of concern: challenges in policy implementation, data security vulnerabilities, inadequate infrastructure and resources, and the need for enhanced training and capability development among healthcare staff. To ensure the successful implementation and utilization of digital healthcare strategies, this study recommends proactive measures to address these identified gaps. Kotter’s Theory of Change is proposed as a framework to facilitate these improvements, building on the progress already demonstrated by the initial adoption of telemedicine and virtual consultations at CEASH.

Introduction

Change is inevitable, especially in this volatile, uncertain, complex and ambiguous world. In the fast-changing times, improvements have been made in order to keep up and healthcare is no exception to it. Fourth Industrial Revolution (4IR) marks a significant transformation driven by advancements in technology, particularly in artificial intelligence (AI), the Internet of Things (IoT), robotics, and big data analytics. This revolution has profound implications for various sectors, including healthcare, which has experienced accelerated changes due to the COVID-19 pandemic. The integration of 4IR technologies in healthcare has enhanced service delivery, improved patient outcomes, and optimized resource management. The major innovations seen include telehealth expansion, digital health strategies, AI and data analytics and improvements in patient engagement and education. The COVID-19 pandemic necessitated rapid adaptation to telehealth services. Lockdowns and social distancing measures compelled healthcare providers to shift from

in-person consultations to virtual visits. Studies show that telehealth usage surged, with a report indicating a 154% increase in telehealth visits in the early months of the pandemic (CDC, 2020). The adoption of mobile health applications and remote monitoring tools has been pivotal. Digital health strategies enabled patients to manage chronic conditions and receive timely interventions without physical visits. The World Health Organization (WHO) reported that digital health tools became essential for maintaining healthcare continuity during the pandemic (WHO, 2020). AI technologies have played a crucial role in diagnosing COVID-19 and predicting patient outcomes. For instance, AI algorithms analyzing imaging data helped detect pneumonia caused by the virus, facilitating faster diagnosis. Additionally, big data analytics supported health authorities in tracking infection rates and resource allocation. Digital platforms facilitated better communication between healthcare providers and patients. Educational resources became widely available online, empowering patients to make informed decisions about their health. Engagement tools helped in monitoring mental health, a critical issue during the pandemic (Panchal et al., 2021). The adoption of these digital health strategies in the Armed Forces of the Philippines Health Services have been manifested. In the Philippine Army Military Treatment Facilities (PA-MTFs), the utilization of mobile apps in facilitating enhanced communication, remote check-ups; computer systems in data storage and eventual movement to electronic health records have been initiated and are continuously being maintained and enhanced.

Research Questions

1. *This research paper aims to look into the essential role of utilizing Digital Healthcare Systems at Camp Elias Angeles Army Station Hospital. It specifically seeks to answer the following:*
2. *Describe the digital telemedicine practices of the healthcare workers at Camp Elias Angeles Army Station Hospital.*
3. *Determine the perceived advantages of digital telemedicine at CEASH.*
4. *Identify the gaps in the practice of telemedicine.*
5. *Propose a plan of action on the use of telemedicine at CEASH.*

Assumptions of the Study

The study being conducted therefore aims at covering this hitherto unexplored area by comprehensively investigating the indispensable role of DHS within Camp Elias Angeles Army Station Hospital likewise other Philippine Army Medical Treatment Facilities (PA MTFs). It will bring out the current state of DHS use, identify gaps or difficulties, get feedback from some stakeholders including healthcare workers as well as decision makers hence bringing out what specific digital health needs and requirements are there for the Philippine Army. This research paper also intends to develop recommendations on how to build a comprehensive DHS program that supports PA's operational objectives; enhances effective infectious disease surveillance; provides for telemedicine; and enhances overall mission accomplishment capabilities of its medical services.

Methodology

This study utilized a mixed quantitative and qualitative descriptive design as this aims to describe the status of implementation of digital health strategies used at Camp Elias Angeles Army Station (CEASH) Hospital. A qualitative descriptive design is an approach that focuses on understanding phenomena through the collection of non-numerical data. It emphasizes exploring individuals' perspectives, experiences, and meanings often employing methods such as interviews, focus groups and observations. (Creswell, 2013). In order to determine the process flows in Camp Elias Angeles Station Hospital, documentary analysis and archival review was used as basis for the development of interview guide to collect data. Key informant interviews and focus group discussions were conducted in order to gather data to better describe the implementation of digital health strategies, determine existing themes, gaps and challenges. The study identified the baseline knowledge of key persons in the DHS and concept of DHS operators, which were further used in the analysis. The study further illustrated the different characteristics and attributes that impact the essentials of DHS in the current unit and in the Philippine Army as a whole. The study was conducted at Camp Elias Angeles Station Hospital, 9th Infantry Division, Philippine Army, Pili, Camarines Sur.

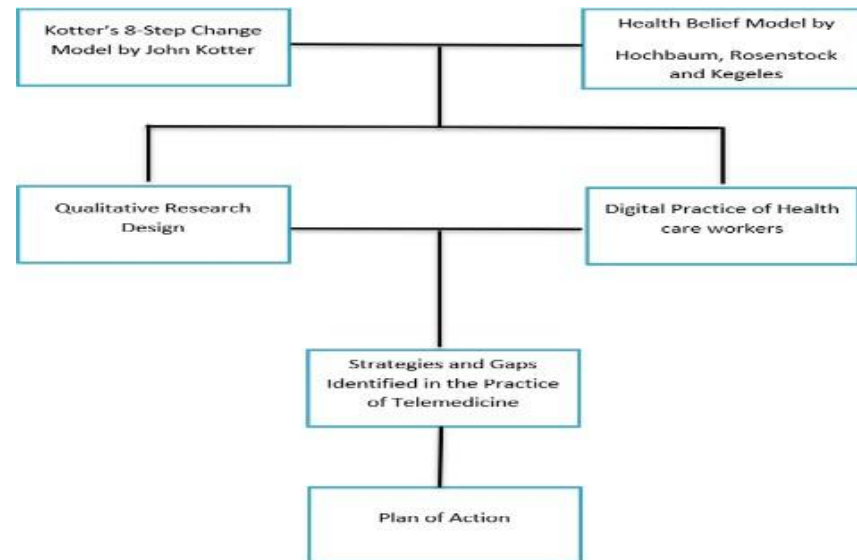


Figure No. 1. Kotter's 8-Step Change Model

These is a framework developed by John Kotter in the 1990s to guide organizations through successful change initiatives. The model emphasizes the importance of a structured approach to change, consisting of eight sequential steps. Initial step is creating a sense of urgency which involves highlighting the need for change to motivate stakeholders. It's about making the case for change compelling enough that people feel it's urgent. In implementing digital health strategies, organizations can present 32 data on current health outcomes, inefficiencies in patient care, or the competitive landscape of digital health innovations. For instance, showcasing statistics about patient wait times or telehealth adoption rates can create urgency (Kotter, 1996).

Results and Discussion

The data is collected through open surveys to the staff of CEASH to determine their perception and experience about digital health strategies. A total of 31 responses were collected which aid in the pool for validation through focus group discussion and key informant interviews. The study had a total of 6 participants who have worked in the institution for not less than 3 years for the focused group discussion. This is to ensure that data collected through interviews cover their experiences and observations from the time of the pandemic to post pandemic. The participants were composed of 5 nurses and 1 registered medical technologist. The researcher also had 3 key informants in the fields of cybersecurity, administration and clinical practice (medicine).

Profession	Frequency	Percentage
Nurse	24	77.42%
Physician	2	6.45%
Medical Technologist	1	3.23%
Enlisted Personnel	4	12.9%
Total	31	100%

Table No. 1. Demographic Profile of the Respondents based on Profession (N=31)

CEASH is in the starting point of implementing digital health strategies. The utilization of telemedicine through virtual consultation which started in the pandemic time enabled the unit to adapt to the needs of the fast-changing healthcare system. This is being done by use of mobile phones and different messaging apps tin order to conduct virtual consultation, transfer of information and forms in a digital platform. This implementation has brought about numerous advantages and identified threats as perceived by the participants. Telemedicine allows for improved patient care by having enhanced communication with patients leading increase patient engagement in their care. Patients can easily report their symptoms to healthcare providers and even allow requests from laboratories, reading and even issuance of prescription. 79 Communicating in the digital platform decreases their hesitation which makes assessments easier for the health care provider. Accessibility and convenience were also identified as influencing factors in implementation of digital health strategies. In the information age, access to any type of information and needs are easier. Since CEASH caters for patients

and especially as a military treatment facility, troops deployed in far flung areas must also be served when health needs arise. The results showed how the implementation of virtual consults benefit the troops deployed far away from the camp. This enables time and cost savings, prompt decision making for referrals and even the activation of emergency responses. Since accessibility is highly dependent on connectivity, a barrier is identified with internet connection and signal which would hinder the access to healthcare systems.

Conclusion and Recommendations

The use of computers and other digital-related equipment across the medical units must be implemented and incorporate the requirements of DHS. The Digital Healthcare Systems must be utilized across the different Military Treatment Facilities. Further, recommend utilization of DHS among Philippine Army troops in companies, battalions and brigade for adaption of monthly virtual consultations and / telemedicine / online check-ups to have access on healthcare needs in any geographical missions. The medical practices that contribute to the usability and adaptability of the Digital Health Strategies (DHS) must be properly and regularly implemented through Creation of Policy of DHS across the PA MTFs. Hence, incorporating DHS doctrines and policies in MTFs in Philippine Army can be advantageous to develop far advanced diagnosis and early treatment to troops specially in remote areas with convenience and efficiency virtually in the New Normal.

The findings of the study made way to the understanding of how CEASH navigates its way towards implementation of digital health strategies. Through the conduct of this research, themes were extracted, strengths and gaps were identified. The themes enable us to understand and answer the initial objective of determining the extent of implementation of digital health strategy. It was clear that the unit is still in the initial stages of implementation with strengths and gaps. Despite the lack of infrastructure and guidelines, the unit was able to cater and move towards DHS initiatives, especially brought about by the COVID-19 pandemic. The gaps identified will enable the organization to have better awareness and preparedness towards moving forward with digitalization. It will enable the leaders and administrators to have foresight, draft and implement policies and guidelines, propose budgetary plans and build the capabilities of the personnel who will be working on the system to successfully implement the digital health strategies fit for the unit.

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Competing Interests Statement

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this article.

Data Availability Statement

Data sharing is not applicable to this article as no new data were created or analyzed in this study; all data used were obtained from previously published sources as cited in the reference list.

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Appendices

No appendices are attached to this study.