Significance of E-Healthcare for Developing the Healthcare Infrastructure

Karpagavalli S

MBA, Loyola College, Chennai, India
*Corresponding Author Email: [1] sriramkarpagavalli@gmail.com

Abstract

The development of e Healthcare application in the health sector is essential to detect the significance of eHealth care application in the health sector. Elaboration of training in the health sector is significant for managing health care practices. Improvement of healthcare practices helps to improve patient's outcomes. Patient's satisfaction and innovation of advanced technology help to develop organisational infrastructure.

Keywords

communication technology, eHeath care application, information technology, organisational infrastructure, patient's safety.

INTRODUCTION

Electronic healthcare has been identified as a rapidly evolving area, where communal healthcare, medical informatics and health care providers use communication and information technologies for the improvement of local and global health services. According to [12], the primary principles of electronic health care are improving the quality of health care, effectiveness, equal access, evidence-based medicines, online education, possibilities, expanding, encouraging, equality and ethics for improving the healthcare infrastructure. Electronic storages are essential for exchanging health files, registers, epicrisis, and other health and personal information in the health sector. There are significant benefits and challenges of e healthcare in the organisation. The **electronic health records (EFR)** worldwide market value is nearby **29 billion in 2022**, it has forecasted that it will reach at nearby **47 billion U.S dollars by 2027** [11]. Technological innovation is essential for the creation of telemedical infrastructure for improving the diagnosis and treatment process. E-healthcare helps in computerised drug ordering systems reducing the risk of nefarious drug events, with the advantages of a decision support system. The primary aim of this paper is to detect the effectiveness of E-healthcare for improving the health infrastructure.

EHEALTH CARE STRATEGIES AND IMPLEMENTATION

Implementation of e-health application strategy is beneficial for making significant changes in the health care infrastructure. According to [10], there are 73 types of implementation strategies, such as centralising technical assistance, promoting adaptability, assistance identification and many others. Before the adaptation of implementation strategy, it is essential to maintain sequence with the implementation phase, such as the implementation phase and adaptation phase. Detection of the stepwise tools for

evaluation of "evidence based technologies' ' are beneficial for making changes in health care organisation According to this journal, the specification of the e-Health application has been identified as the first stage to detect the goal of the application. The next stage is defining the problem, detection of the implementation problem helps to make changes in the e healthcare strategies. The third stage of evidence based implementation strategy is a specification of desired implementation behaviour, this stage is divided into five individual sections, such as action, actor, context, target and time. The fourth stage is choosing an implementation strategy for making changes in the healthcare infrastructure. This fifth stage is the evaluation of the implementation strategy for the execution of health care activities.

Figure 1: Hype cycle of the granter
(Source: Malik *et al.* 2018)

E-health application has been recognised as the "information and communication technologies (ICT) in developing countries. Moreover, it has identified that eHealth has that potential for improving the quality and safety of care providers. In addition to this, it is significant for improving the patient's outcomes [6]. Improvement of patient's outcome in the health sector helps to increase consumer's interaction and consumer's satisfaction as well. Both of these are required for increasing the profitability in the health sector. It has identified that structural application of e health is essential to focus on the patient's centre of care and providing

enough support to the people and health workers for better outcomes of chronic illness. According to the *United nation (UN)* and "*World Health Organisation (WHO)*", e Health is accountable to work on different challenging situations, such as consumerism, controlling and prevention of infectious disease, healthcare expenditure and many others.

BENEFITS AND CHALLENGES OF AN E HEALTH APPLICATION IN HEALTHCARE INFRASTRUCTURE

Evaluation of the e Health application has focused on the technological evolution and diversity of systems for making significant changes in the health sector. According to [5], e-Health focuses on promoting accessibility, security, interoperability, operational efficiency and many others. The eHealth system has a portrait of resolving numerous challenging situations in the health sector. Different challenging situations, such as increasing the cost of treatment, human errors in keeping health records and treatment, an outbreak of chronic disease and many others.

The "*United Kingdom's National Program for IT*" has designed a nationwide electronic patient's health record with the benefits of eHealth.

Detection of the benefits of the e Health system is essential for improving the effectiveness and efficiency of the health care organisation. According to [2], this technological innovation is required for the simplification of the administrative activities in the health sector. Moreover, e Health is required to reduce the duplication of services and optimisation of physical resources. The selected research article has identified that eHealth system is accountable for improving and exchanging health data. Sharing health records with other health care expertise is beneficial to detect the effective treatment and health care strategies for improving a patient's health status. Advanced e Healthcare system is essential for the maintenance of the patient's empowerment and patient's engagement, improving data security and patient safety, cost reduction, monitoring service quality in the health sectors and many others.
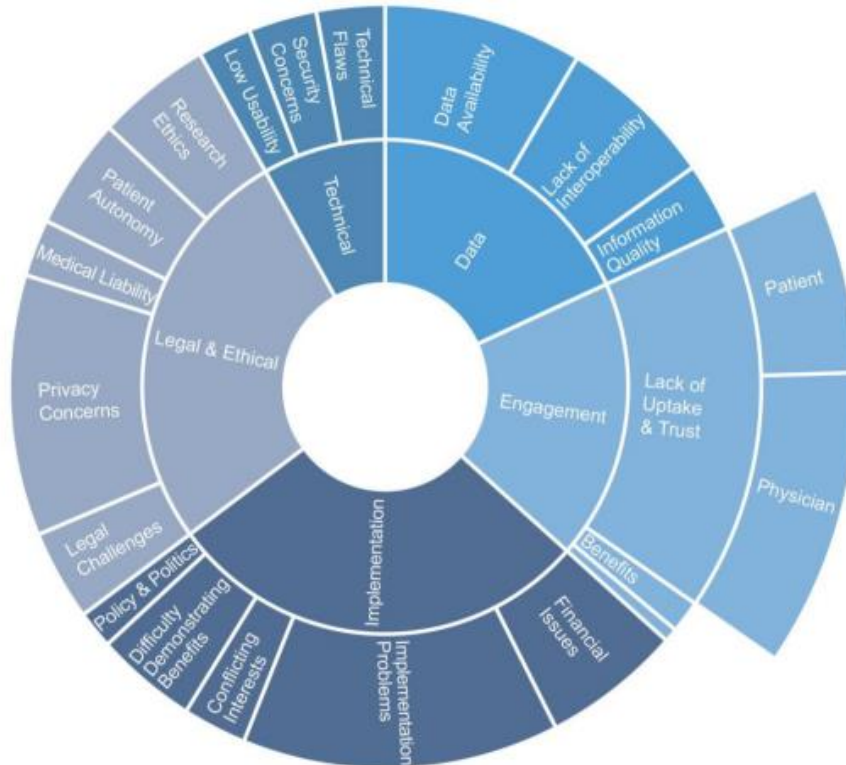

Figure 2: Sunburst diagram of e health system
(Source: Hossain *et al.*2019)

Detection of the challenges in e Health system is essential for reducing the challenging situation. According to [4], the health system is accountable for creating conflict in stakeholders requirements, difficulties to demonstrate data, government policies and ethical challenges and economic distress. In the case of e health, legal and ethical challenges have been abandoned. The ethics committee of the health sector approved that, it creates challenges to represent samples, protection of consumer's rights and consent process.

Nowadays, there are several cases of cyber hacking, which makes a nefarious impact on the patient's rights. Apart from these challenges, there are some data challenges in the e Health application. It has been recognised that decreasing information quality refers to missing data, loss of record information are the significant challenges in the health sector. In addition to this, two-thirds of the documents reported the challenges of data availability. Data availability refers to sharing data or information with other health sectors and

hospitals, which is accountable for increasing organisational threats.

METHOD AND MATERIALS

The E health system is designed to provide a higher quality of treatment facilities to the patients. According to [1], e Health system includes a patient's health records, health information, billing, treatment plan and many others. The health care authorities are intended to adopt the modernise operation for becoming more effective for the management of the organisational activities. In this research study, nearly 1,120 health workers were involved to share the impact of e Health care in the organisation. The primary data collection method has been used to collect data on patient's health outcomes, patient's satisfaction and many others. In these circumstances, archival measurement was significant to detect the pre implementation quality of the health sector. One month of training has been provided to the researcher to collect data on the effectiveness of e Health care.

The researcher has decided to install the HealthSys application in all computer systems for observation of improving health care quality. According to [8], the archival measurement of the post-implementation health care quality is essential to detect the effectiveness of ehealth system in the health sector. During the data collection session, several pieces of training were provided to the paraprofessionals,

administrative personnel and doctors for identification of the effective eHealth system in the health care organisation. During the research process, the inclusion of measurement strategy helped to reach the data analysis section. According to [7], surveys of healthcare practitioners, patient's surveys and archival logs of eHealthcare helped to detect the effectiveness of health care management strategies in the health sectors.

FINDINGS AND DISCUSSION

Significance of eHeath care for developing health care infrastructure

Healthcare infrastructure involves individual workers, facilitates or patients and infrastructure for providing a higher quality of the health security to the patients. According to [9], the healthcare infrastructure includes supporting elements and a built environment for providing a higher quality of health security to the patients. The health care infrastructure is dependent on different supporting elements, such as accessibility, communication technology, information technology, staff, sustainability initiative and many others. In the health sector, the professionals, administrative personnel and doctors have different responsibilities for management of the health care performances.
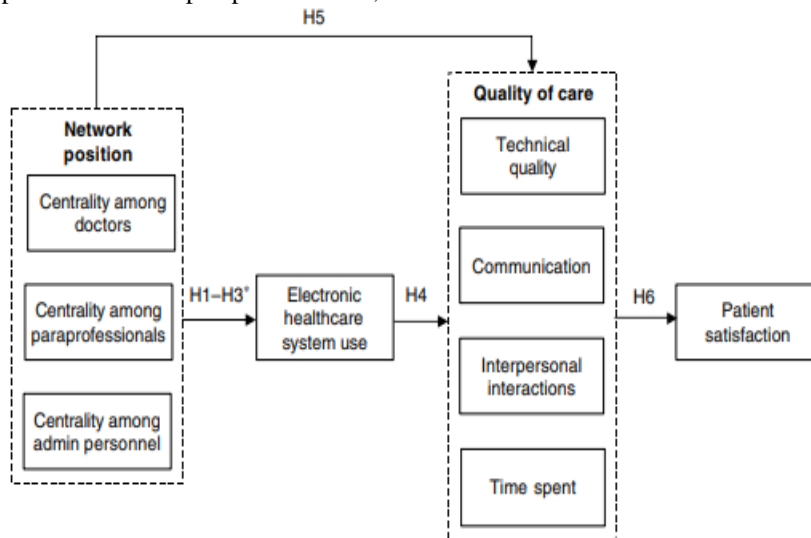

Figure 3: impact of eHealthcare system in organisational infrastructure
(Source: Ray *et al.*2019)

According to the above mentioned picture, it has been identified that eHealth care system makes an impact on the network positions and quality of care. Both of these factors are significant for developing the organisational infrastructure. It has been reported that, network position, influences centrality among doctors, centrality among admin personnel and professionalism. All individual health workers help to develop the organisational infrastructure. In addition to this, the eHealth care is significant for the quality of

healthcare. It has been reported that technical quality, interpersonal interaction, time spent and communications are essential for improving the quality of healthcare. Development of coordination between the quality of care and network position is beneficial for improving the health status of people. The current research article has identified that, quality of care and network position is significant for consumer's or patient's satisfaction, it is the primary factor for denoting the performance of health care organisations.

	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
14. Training attendance (0: no)	NA																
15. Training satisfaction	0.10	0.80															
16. Change management support	0.03	0.04	0.83														
17. Centrality (overall)	0.04	0.02	0.10	NA													
18. Centrality among doctors	0.10	0.05	0.08	0.18**	NA												
19. Centrality among paraprofessionals	0.08	0.04	0.02	0.20***	0.19**	NA											
20. Centrality among admin.	0.04	0.02	0.03	0.17**	0.15**	0.26***	NA										
21. Groupvar1 (1: doctors)	0.02	0.01	0.05	0.10	0.33***	0.15*	0.08	NA									
22. Groupvar2 (1: paraprofessionals)	0.10	0.04	0.08	0.11*	0.20***	0.40***	0.09	−0.15**	NA								
23. Electronic healthcare system use	0.07	0.19**	0.17**	0.15**	−0.37***	0.29***	0.33***	−0.33***	0.25***	NA							
24. Post-impl. technical quality	0.15*	0.15*	0.14*	0.17**	0.24***	0.26***	0.21***	0.13*	0.07	0.24***	0.71						
25. Post-impl. communication	0.12*	0.17**	0.14*	0.18**	0.20***	0.24***	0.20***	0.10	0.12*	0.22***	0.13*	0.74					
26. Post-impl. interpersonal interactions	0.14*	0.20***	0.17**	0.19***	0.21***	0.25***	0.21***	0.11	0.10	0.23***	0.14*	0.53***	0.76				
27. Post-impl. time spent	0.16*	0.12*	0.13*	0.20***	0.22***	0.21***	0.17**	0.05	0.08	0.21***	0.14*	0.15*	0.16**	0.70			
28. Post-impl. financial aspects	0.12*	0.04	0.02	0.04	0.02	0.05	0.10	0.02	0.04	0.13*	0.15*	0.22***	0.24***	0.18**	0.79		
29. Post-impl. acc/avail/conv	0.08	0.03	0.05	0.02	0.03	0.07	0.08	0.06	0.02	0.12*	0.19**	0.20***	0.21***	0.14*	0.13*	0.70	
30. Post-impl. patient satisfaction	0.20***	0.21***	0.21***	0.20***	0.25***	0.24***	0.28***	0.08	0.10	0.25***	0.28***	0.25***	0.28***	0.22***	0.14*	0.16**	0.78

$*p < 0.05; **p < 0.01; ***p < 001.$

Figure 4: Relation between eHealth system and health organisational infrastructure
(Source: Hassan *et al.*2020)

The longitudinal field study in the health sector helped to detect the effectiveness of eHealth care for improving organisational infrastructure. According to [3], the Health system has been identified as one of the effective supporting elements for the development of the organisational infrastructure. Implementation of the communication technology and advanced technology helps in patient satisfaction. Providing a higher quality of treatment and maintenance of the patient's rights and safety is significant for the establishment of a relation between e-health system and healthcare organisational infrastructure. The Entire process helped to detect the practical practising and research work hand in hand for providing a higher quality of facilities to the authority.

The individual organisational stakeholders need to take the responsibility to execute the ehealth system activities in the healthcare organisation. In addition to this, proper distribution of the organisational stakeholders, such as *ICT groups, primary health care providers, legal authorities, and data protection authority* is involved to provide support for managing health care performances. Proper execution is beneficial for reducing the challenges of eHealth system. Involvement of the evidence based practices is significant for improving the organisational infrastructure.

RECOMMENDATION AND CONCLUSION

The recommendation section will recommend some innovative strategies, which is required for the proper execution of eHeath systems in the health sector. Analysis of data and outcomes will be effective for reducing the chances of misinformation regarding the patient's health. Apart from this, setting a goal is significant to modernise the organisational infrastructure and management activities. According to the "*Institute for Healthcare improvement*," it is required to adopt a safe atmosphere for avoiding unethical network activities. Apart from this, patient centred goals and equitability is beneficial for reducing the organisational infrastructure.

Creating a trained and balanced team in the health sector is significant to protect data on the internet. Protecting patients' rights in the organisation detect the effectiveness of the eHealth system.

The current research article has focused on the effectiveness of information technology and communication technology for the development of the organisational infrastructure. The introduction has shared an overview of the e health care system, the significance and aim of this article has been discussed in this project. In this article, implementation of the evidence-based e health care application and the benefits and challenges of e Health care application as discussed in this project. The Methodology Section has provided detailed information about data collection to reach findings and analysis sections. The recommended section has discussed innovative strategies to eradicate the challenging situation for improving the organisational infrastructure.

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