

FACTORS INFLUENCING THE IMPLEMENTATION OF E – HEALTH : A SYSTEMIC REVIEW

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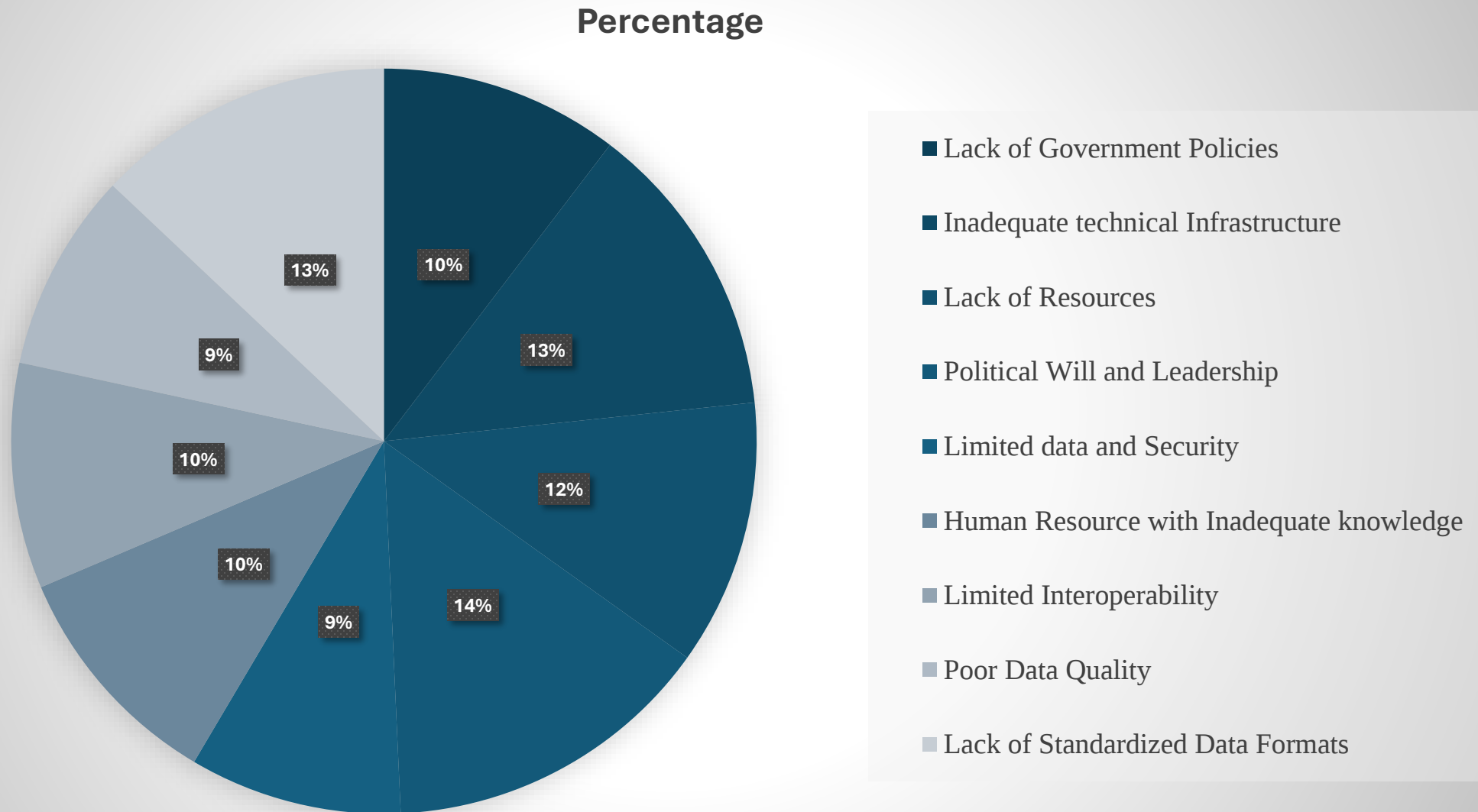
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INTRODUCTION -

E- Health - E-Health refers to the use of information and communication technologies (ICT) in healthcare to improve the quality of healthcare services, enhance patient care, and promote health and wellness. It encompasses a wide range of applications and services that leverage technology to support the healthcare system, including the following key aspects: Telemedicine, Electronic Health Records (EHRs), Health Information Systems, Mobile Health (mHealth), Health Informatics, Telehealth, Wearable Health Technology, Patient Portals, E-Prescribing, Health Analytics.

These technologies can help patients and formal and informal caregivers communicate and share information, despite conflicting evidence about their efficacy in improving health and other outcomes. The public uses wearables and other e-health goods and services, such health applications, to keep track of their food and activity. These technologies can also be used to track other wellness and health parameters, albeit there isn't much proof of their effectiveness. To fully realize the potential advantages of e-health technologies, the assessment emphasizes how critical it is to handle both their opportunities and difficulties.

FACTORS INFLUENCING IMPLEMENTATION OF E - HEALTH



METHODOLOGY -

Type of Research –

The research design is Descriptive Cross – Sectional Study

Sample Size -

- Based on the selection criteria, articles published between 2010 and 2023 that were accessible on Medline, PubMed, Research Gate, and Google Scholar were screened and chosen.
- The workings of Digital Health Interventions served as the foundation for 30 eligible articles.

RESEARCH QUESTION -

Which technological advancements are most important for the effective execution of e-health efforts in various healthcare contexts and settings?

OBJECTIVES -

1. The goal of research on the variables affecting e-health implementation through a systemic review is to thoroughly identify, dissect, and summarize the complex components that affect the incorporation and successful integration and implementation of e-health initiatives in various healthcare environments.
2. To help healthcare organizations successfully plan, deploy, and maintain e-health systems and ultimately enhance patient outcomes and healthcare delivery, the research intends to offer actionable insights and evidence-based suggestions.

SYSTEMIC REVIEW -

<i>INCLUSION CRITERIA</i>	<i>EXCLUSION CRITERIA</i>
English language.	Non-English language.
Systematic reviews: In these cases, relevant works were identified through an organized search of bibliographic and supplementary databases; publications that did not follow a particular standard were excluded using open methodological standards; and the findings were presented precisely.	Secondary analysis used pre-existing datasets to showcase the overall findings of individual research projects.
Narrative reviews: Appropriate literature will be deliberately chosen from the field of research, and theoretical or topical criteria will be utilized to include works based on kind, relevance, and perceived significance. The goal of these reviews is to summarize, debate, and critique findings.	Editorial discussions arguing for a certain field of research or tactic.

LITERATURE REVIEW -

<i>Name of Study</i>	<i>Salient Features</i>
Digital Transformation in Healthcare: Technology Acceptance and Its Applications (Greece, 2023, Angelos I. Stoumpos, Fotis Kitsios, Michael A. Talias)	According to the World Health Organization, telemedicine presents great potential for lowering diagnostic variability, enhancing clinical management, and enhancing the delivery of healthcare services globally. According to the World Health Organization, telemedicine enhances cost-effectiveness, quality, accessibility, and efficiency. By removing barriers to the physical distance between patients and healthcare providers, telemedicine can benefit historically underserved populations.
Implementation of digital health interventions in Rehabilitation: A scoping review (Australia, 2023, Louise Pearce, Nathalia Costa Catherine Sherrington Leanne Hassett)	For digital interventions to be successfully included into rehabilitation therapy, their implementation must be well thought out and customized. Future rehabilitation research should prioritize employing implementation science methodologies to study and evaluate implementation while testing the efficacy of digital therapies to keep up with the rapid advancement of technology.
Meaningful patient and public involvement in digital health innovation, implementation and evaluation: A systematic review (UK, 2022, Rebecca Baines, Hannah Bradwell ,Katie Edwards, Sebastian Stevens, Samantha Prime , John Tredinnick-Rowe, Miles Sibley, Arunangsu Chatterjee)	Although progress has been made over the last ten years, there are still a few obstacles that prevent patients and inventors from working together to improve the quality, frequency, and duration of PPI in digital health innovation. Certain hindrances and facilitators, including the significance of data security and privacy, seem exclusive to PPI in the realm of digital innovation. Given the benefits and consequences of digital health, more should be done to support innovators and patients in getting actively involved in these breakthroughs from the beginning.

<i>Name of Study</i>	<i>Salient Features</i>
Influence of Factors on the Adoption and Use of ICT-Based eHealth Technology by Urban Corporate People. (Dhaka, Bangladesh, 2022, Masuda Begum Sampa, Md. Nazmul Hossain, Md. Rakibul Hoque, Rafiqul Islam, Fumihiko Yokota, Mariko Nishikitani, Akira Fukuda, Ashir Ahmed	Based on the overall impact, it seems that increasing the impression of a PHC system's utility is the first step towards enhancing its usage. This is followed by raising health awareness and the notion of using the system, both of which were expected to have a positive and initial influence on use behavior.
Digital healthcare: the future (London, UK, 2022, Charles JT Butcher, Wajid Hussain)	The COVID-19 pandemic is driving a digital revolution in healthcare that will change many of the basic components of medical treatment. We are aware that there may be numerous detours and bumps in this path to advancement.
Dyadic digital health interventions: Their rationale and implementation (USA, 2021, Kelly M Shaffer, Lindsay S Mayberry, Emily Georgia Salivar, Brian D Doss , Amanda M Lewis, Kimberly Canter)	While most behavioral and psychosocial digital health interventions have been created with the requirements of the person in mind, targeting days two interdependent people can more thoroughly address the needs of both parties and their relationship.

RESULTS -

Problems with enrollment and involvement in digital health: An analysis of the papers and articles included in the evaluation revealed four primary categories as well as several subcategories relating to barriers and facilitators to Digital Health Interventions' registration and engagement. The major categories were –

- **Personal Intervention and Motivation**
- **Personal life and values**
- **Engagement and enrolment approach**
- **Quality of the Digital Health Interventions**

Category – 1 Personal Intervention and Motivation -

- People who are personally motivated to regain their health and who want other choices and influence over the process are more likely to sign up for and take part in DHIs.
- Others joined DHI because it was more flexible in terms of where and when they could get healthcare services and health information.
- For several others, a hurdle was their lack of knowledge about DHIs or their inability to understand how technical advancements may help them with their health.
- Several people decide against using technology because they believe it to be only entertaining or a hindrance to daily life.
- Some individuals chose not to enroll in the technology because they believed DHIs to be gloomy and would act as a constant reminder for those who did not meet their health objectives.
- Another difficulty was that many people already employed alternate methods of managing their health, such as keeping track of physiological indicators and lifestyle choices on paper-based systems or soliciting help from close relatives, friends, peers, or medical experts.

Personal Agency and Motivation	Barrier	Facilitator
Motivation	Indifference of motivation to understand health	Motivation to improve health conditions.
Awareness and understanding	Unaware or clueless of how a DHI could be helpful	Ability to understand a DHI
Personal Agency	Alternative way of managing illness and documentation	Capability to manage personal health information



Personal Intervention and Motivation

Category – 2 Personal life and values -

- People who believed the technical advancements were useful, could be adopted to suit their necessities, or were easy to incorporate into their daily lives choose to enroll.
- Several individuals valued the privacy provided by online health services since it let them feel more at ease and avoided the embarrassing situations they occasionally ran into in real life.
- The safety and security of personal health information worried a few participants because it may be bargained in an online environment. It might mean that personal data could be inadvertently or maliciously disclosed to friends, family, employers, or coworkers, or that it could be used by the government authorities or private companies to transgress citizens' morals.
- Insufficient digital literacy posed a noteworthy obstacle to DHI participation and enrollment, as individuals with minimal or no technological background found it challenging to engage in the program.
- In a few instances, this problem was worsened by the fact that some people found it difficult to communicate with DHIs because English was not their first language.

Personal Life and Values	Barrier	Facilitator
Personal Lifestyle	Busy lifestyle and engaged routine	DHI do not affect personal lifestyle
Skills and Equipment	Insufficient digital knowledge	Good digital literacy and good connectivity
Security and Privacy	Privacy and security concerns	Understands the privacy and security



Personal Life and Values

Category - 3

Engagement and Enrolment Approach -

- When people received direct assistance or personal suggestions from friends, family, or peers, they were more likely to collaborate and embrace technology; while those who did not receive adequate support were shown to be unable to do so.
- People may have had a limited understanding of the potential benefits of DHI due to the engagement techniques' inadequate use of public health education.
- Low levels of engagement seem to be the outcome of people not being extremely driven or interested in signing up for technology.
- Some people would not join DHIs because they lacked the backing of respectable medical professionals or healthcare organizations, believing that the technology could only be of limited utility if their doctor or nurse did not advocate for its usage.
- Low levels of engagement seem to be the outcome of people not being extremely driven or interested in signing up for technology. The recruitment approach presented another difficulty because some used technical language and didn't explain why the technology was vital to people or how to join up.

Engagement and Enrolment Approach	Barrier	Facilitator
Direct Support	Inadequate support from family and friends	Adequate Support from family and friends
Personal Advice	Insufficient/lack of trusted advice	Suggestions from family and friends
Clinical endorsement	Lack of clinical/healthcare endorsement	Clinical endorsement for DHI



Engagement and Enrolment Approach

Category – 4 Quality of the Digital Health Interventions

- Patients and the public can be engaged in and enrolled in DHIs is the amount of information and communication made possible by technological advancements.
- Some participants seemed to be driven to sign up because they could quickly and easily access the social support, they required to manage their illness by using technology.
- Others chose digital products or services because they provided a constant, direct channel of communication with their healthcare practitioner; as a result, they became members of DHI.
- Furthermore, because users believed computerized technology to be faster and easier to use, it tended to encourage enrollment when combined with other programs and devices.
- Some, on the other hand, felt that because technology could not replicate the nuances of human interaction, they would receive worse care when using this kind of electronic medium.
- Certain digital amenities and products would not be used by consumers without a licensed health professional's guidance. Another concern was identity fraud when patients attended virtual sessions with clinicians they had never met in person and were not sure whether to trust the advice given.

Quality of Digital Health Interventions	Barrier	Facilitator
Quality of Digital Health Information	Poor Quality Information	Previous bad experience of service without DHI
Quality of Digital Health Interaction	Lack of trust in Digital Health Interaction	Honest interactions with healthcare provider online
Usability	Complex Registration in DHI	DHI is easy to use and enroll

Quality of Digital Health Interventions

DISCUSSION -

After complete analysis of reviews, following were the factors obtained that were impacting the implementation of e-health:

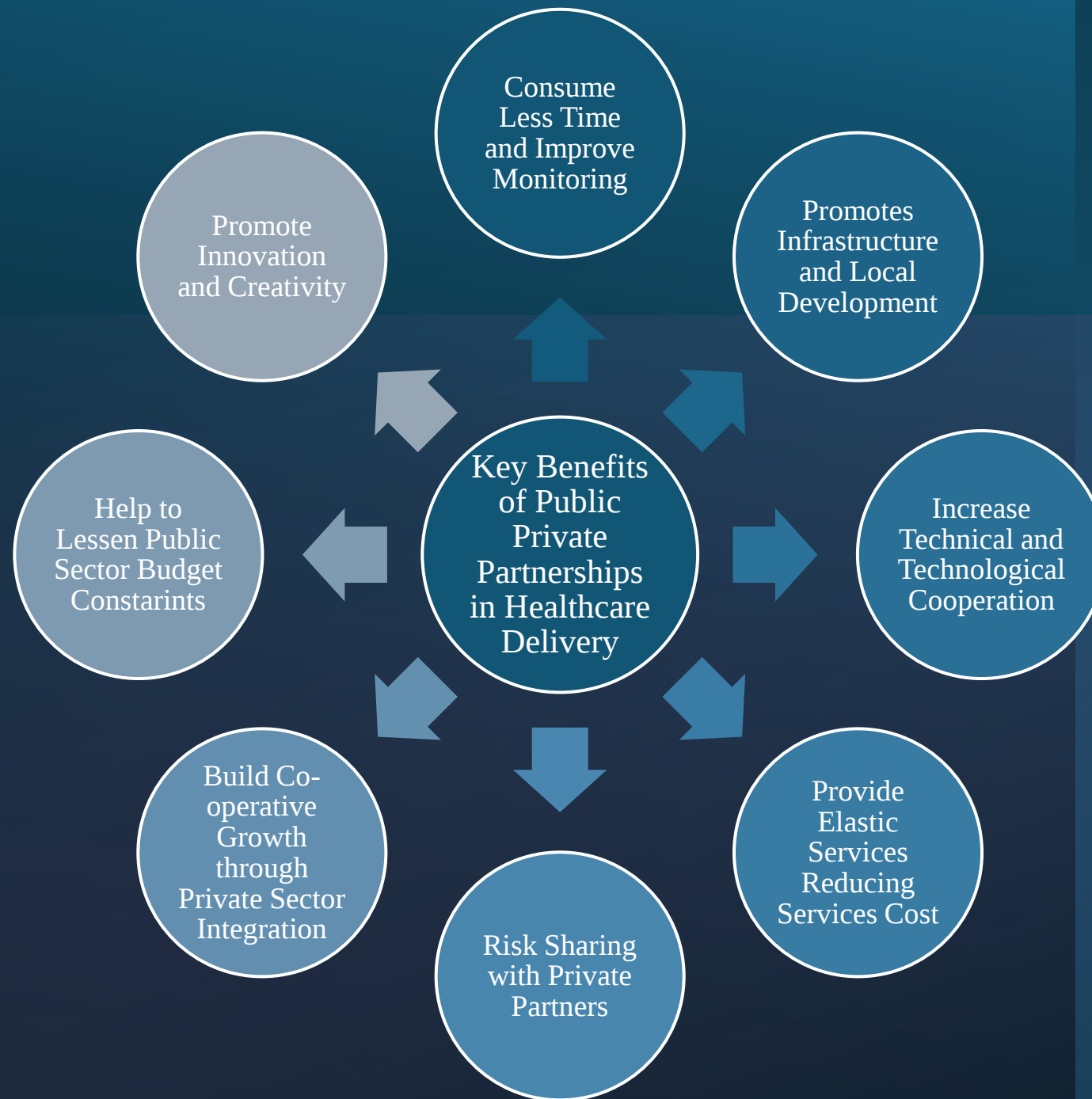
<i>INTERNAL FACTORS</i>	<i>EXTERNAL FACTORS</i>
ICT infrastructure and e-health technologies	Health strategy/plan
ICT skills and knowledge	Funding
Technical support	Bureaucracy
Security concerns	
Healthcare provider–patient relationship	
Insufficient basic medical facilities	
Demographic factors	

Global Theme	Internal Factors		External Factors	
Local Theme	ICT infrastructure and e-health technologies		Health Policy	
	ICT skills and knowledge			
	Technical support			
	Security Concerns		Funding	
	Doctor patient Relationship			
	Lack of basic medical facilities			
	Demographic factor such as age		Bureaucracy	
	Resistance to change			
Theme Derivation/ source of information	A description of information relating to Technology			
	A description of information relating to ICT and skills			
	A description of information relating to IT department		A description of information pointing to money, funds and budget	
	A description of information relating to Privacy of patient Information			
	A description of information relating to interaction between doctor and patient			
	A description of information relating to medical equipment		A description of information relating to system authority	
	A description of information relating to old and young medical doctors			
	A description of information relating to change in work process & procedure			



Public-Private Partnerships (PPPs) in Healthcare Delivery -

Public-Private Partnerships (PPPs) offer a unique approach to infrastructure development and service delivery by combining the resources and expertise of the public sector (government) with the efficiency and innovation of the private sector (businesses). A Public-Private Partnership (PPP) for the delivery of Digital Health Interventions involves collaboration between government entities and private sector companies to develop, implement, and maintain digital health solutions. This approach leverages the strengths of both sectors to improve healthcare delivery, accessibility, and outcomes.



CONCLUSION -

- The current state of e-health in developing countries paints a concerning picture. While some governments have initiated e-health strategies, implementation remains patchy. Public healthcare facilities often lack the infrastructure, resources, and expertise to utilize e-health effectively. This creates an uneven landscape where central hospitals might have basic e-health systems, but community hospitals lag far behind. This disparity necessitates targeted policies that specifically encourage and empower public healthcare organizations to embrace e-health.
- The challenges faced by healthcare professionals in public institutions further underscore the need for a comprehensive approach. Physicians often lack the training and support necessary to integrate e-health into their workflows. This highlights the importance of targeted training programs, user-friendly interfaces, and ongoing technical support to ensure healthcare professionals feel comfortable and empowered to utilize e-health tools.
- Here are some key strategies to consider:

Developing a National E-health Strategy

Enhancing Capacity Building

Public-Private Partnerships

Promoting User-Centric Design

Data Governance and Security

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- These factors encompass a complex interplay of government regulations, information and communication technology (ICT) infrastructure and expertise, funding, healthcare facility capacity, and technical assistance.
 - By recognizing the challenges, implementing targeted policies, and investing in capacity building, developing countries can bridge the digital divide and reap the benefits of e-health in their public healthcare facilities.
 - Addressing these issues will ensure the benefits of e-health reach all healthcare institutions, ultimately improving health outcomes for populations in developing countries.

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E-HEALTH

***THANK
YOU***
