CASE STUDY ON BEST PRACTICES FOR DIGITAL HEALTHCARE ECOSYSTEMS ACROSS THE WORLD

Submitted by-Dr. Apeksha Nannore

Guided by-Dr. Sheenu Jain

Introduction

Over the past two decades there have been several digital health initiatives launched by various countries to improve the quality of health care

To create such health eco-system which would help the country achieve the vision of universal health care, an understanding of the best practices followed across the globe is required.

While some developed countries have used Information and Communication Technology (ICT) infrastructure that are ahead of the curve as compared to some developing nations, it is important to utilize the knowledge and leverage it in building a state-of-the-art health system for any small country.

To understand the best practices followed across the world, this report has provided an in depth understanding of the various healthcare technological solutions and systems followed by some of the leading countries.

These countries have used their technological innovations and architecture to bring about a significant change in how the healthcare access is provided keeping in place the transparency, efficiency, and efficacy of these health systems.

Materials and Methods

RESEARCH QUESTION

What are the best practices in terms of Health Systems followed by several countries such as United Kingdom, South Korea, Canada and Singapore in digital healthcare ecosystem?

OBJECTIVES

• To study the systems or functions impacted within the health system such as the supply chain management, health workforce management & health facilities.

• To study the health system stakeholders impacted

• To understand deployed technologies relevant for the context of healthcare; this would include existing ICT applications and systems.

• To study the data and technology architecture adopted by such best practices

• To study standards adopted for interoperability of health data and consent management methodology and tools

• To identify the strategies to address the emerging issues and challenges in implementing such practices.

Secondary research

Extensive secondary research was carried out to find the best practices across the shortlisted countries for the purpose of this document.

Study design- Cross sectional study

Study Parameters-

Inclusion criteria: Countries with developed healthcare eco system

Exclusion criteria: Countries with not so significant healthcare ecosystem

Study tools: MS word, Microsoft edge

SAMPLE SIZE: 4 countries

SAMPLING TECHNIQUE: Convenience sampling

IMPLICATIONS OF RESEARCH: This study will help in developing in planning and implementing in the national level healthcare ecosystem for a small country.

Results

UK NHS

A communication plan is to be prepared to keep trusts, clinical staffs, suppliers, and the general public aware of what is going on and what is expected from them.

A strategic workforce is to be organized in order to plan support digital transformation at the start of the implementation process

Basic data place holders should be created across the EHR system to develop health records minimum details, like Summary Care Records modules developed by UK NHS.

Open APIs should be invented to help in delivery of patient care in order to make the information and data held across various clinical care settings available.

South Korea

- The model for health information exchange should be develop using interoperable standards and make available in the ecosystem before implementation.
- Standardization of longitudinal health records across the nations should be applied in the ecosystem so exchange of information can happen smoothly.
- Capacity building and awareness for adoption should be defined in the system to encourage better participation by stakeholders.
- Standards operating process of HIRA-S Korea should be adopted to create rule based electronic claim management ecosystem through e claim portal.

Canada

- Multiple consent manager model should be adopted at regional level complied by privacy law
- Sharing of information among multiple consent Manager through standard consortium
- A Repository of consent should be developed to record every consent incident like accept, reject, withdrawal or revoke the permission for sharing the records.
- Anonymization or data masking at state level.
- Provision of keeping basic details of Substitute decision maker of consent.

Singapore

An electronic health record system should be capable of aggregating clinical relevance of data from each interaction that a patient has with the system of healthcare.

The master index that must match the patient records from different sources and which includes an unique code of identification as well as other patients personal data.

A summary of care record for each of the patient that provides an overview of their recent medical activities and has an access to summaries of specific events, like hospital admissions.

Discussion
UK

- There should be a thorough evaluation of the long-term costs and benefits of various approaches to incorporating electronic patient record systems..
- • Establish specific resources and plans for greater issues alongside the implementation plan:
- o Create a communication plan in order to keep the trusts, suppliers, clinical staff, and the general public informed of what is going on and what is expected out of them.
- o Increasing the incentives and levers available for local organizations to invest adequately in their digital transformation journey.
- o By Creating a strategy to support digital transformation in workforce.
- o Developing plans to determine specific full criteria for, quality of data, clinical records and privacy, as well as how to meet them.

South Korea

- Using electronic data interchange, all the hospitals have implemented the computer-based provider purchase entry (CPOE) system, patient record systems (HMIS), and insurance claim systems (EDI).
- More than 80% of tertiary hospitals have implemented EMRs, as well as PACSs. While the government of Korea strongly encourages the exchange of health information systems amongst several leading hospitals and government agencies, which includes KHWIS and HIRA, they are actively investigating the possibility of exchange of their healthcare systems.
- Many Korean health information systems depends on EMR for treating patients instead of Electronic Health Records (EHRs) for individuals' lifetime health support. Result being, they are deficient in EHR functionality and interoperability.

Singapore: National Electronic Health Record System

- With increased chronic diseases and rising demand in healthcare services, eHealth considered to meet future healthcare challenges in Singapore.

- The system is supposed to collect, report, and analyze the data to facilitate policy formulation, implementation monitoring, and patient's record sharing. Singapore's National Electronic Health Record system (NEHR) collects the clinically relevant data from each encounter a patient will have with the system.

- An index that matches patients records from different sources and involve a special code as well as other information to identify the patient; a summary of record for each patient that provides a review of recent medical activity; availability to view particular events, like previous health insurance, hospital admissions; and an access to healthcare data in Singapore's registries for immunization, allergies and medical alerts are among the system capabilities.

- There is also plan for patients to access and potentially contribute to their personal health records. Patient's demand, a clear government push, an intent for greater transparency amongst healthcare organizations and payers, and a desired increased access for driving system implementation.

- IT training provided for healthcare providers along with clinician feedback will be included. This is an incremental, multi-stakeholder technique, which was crucial factor in the success of the Danish model.

Canada

- EHR solutions interact with all the blocks should route through HIE to record every incident of data exchange.
- The Feature of Withdrawal/Revoke the consent by user should be available first-hand. There are Multiple consent manager model should be adopted at regional level complied by privacy law.
- Canada has a Repository of consent developed, to record every consent incident like accept, reject, withdrawal or revoke the permission for sharing the records (Anonymization or data masking at state level). There is provision of keeping basic details of Substitute decision maker of consent.
- The government is accountable for:
  - Establishment of national healthcare standards and enforcing it through the Canada Health Act.
  - Providing financial support for the provincial as well as territorial healthcare services
  - Assisting in the healthcare service delivery to specific groups; and
  - Carrying out the other health related duties.

Conclusion

Building a successful digital health eco-system for a country entails significant planning efforts.

a country to understand its administrative dimensions, but it needs political support to bring in the reforms planned, it is advisable that the Centre devises such strategy that would not only help the overall architecture of the country but also support and complement the States in their effort.

digital transformation journey that the Country aims to pursue, requires a holistic view of the transformation journeys followed across other similar nations.

These countries have used their technological innovations and architecture to bring about a significant change in how the healthcare access is provided keeping in place the transparency, efficiency, and efficacy of these health systems.

The National Health System of United Kingdom has provided an outlook, of how implementation plan and proper standards implementation is necessary for interoperable eco system

South Korea has provided an example of how a nation can develop payer provider system for electronic claim processing but at the same time, due to the lack of national consensus over standards and HIE, its health care system could not achieve the interoperable EHR for better clinical decision support and healthcare access

The Country would have to take the right step of adopting the best practices that would be the technical feasibility and administrative challenges that lie ahead.

The path to a more comprehensive and state-of-the-art healthcare ecosystem lies in front of us and with careful preparation and planning,

Thank You