



PART – 1

{WORK FROM HOME REPORT}

IMPLEMENTATION OF E-HEALTH

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Introduction



- ▶ eHealth involves a broad group of activities that use electronic means to deliver health-related information, resources and services.
- ▶ For example, eHealth can be used to provide treatment to patients without the need to travel to a doctor; to educate health professionals through online learning; to track diseases and epidemic outbreaks; to facilitate health promotion initiatives; and to support public health.
- ▶ eHealth is one of the fastest growing sectors in the overall health care market and can be used at the local, national, regional and global levels as a resourceful means to promote and strengthen health systems and health information

The 10 E's in 'e-health'

- **Efficiency** - one of the guarantees of e-wellbeing is to expand effectiveness in medicinal services, in this way diminishing expenses.
- **Enhancing quality** of care - expanding effectiveness includes diminishing expenses, and yet improving quality
- **Evidence based** - e-health interventions should be evidence-based in a sense that their effectiveness and efficiency should not be assumed but proven by rigorous scientific evaluation
- **Empowerment** of consumers and patients - by making the knowledge bases of medicine and personal electronic records
- **Encouragement** of a new relationship between the patient and health professional
- **Education** of physicians through online sources

- **Enabling** information exchange and communication in a standardized way between health care establishments
- **Extending** the scope of health care beyond its conventional boundaries. This is meant in both a geographical sense as well as in a conceptual sense
- **Ethics** - e-health involves new forms of patient-physician interaction and poses new challenges and threats to ethical issues such as online professional practice, informed consent, privacy and equity issues
- **Equity** - to make health care more equitable is one of the promises of e-health, but at the same time there is a considerable threat that e-health may deepen the gap between the "haves" and "have-nots"

OBJECTIVE

- ▶ To review the literature on the implementation of e-health:
 1. To identify diseases that can be improved by using m-Health
 2. To identify the barriers for implementing e-health

METHODOLOGY

- ▶ **STUDY DESIGN** – descriptive study
- ▶ **STUDY POPULATION** - all countries are included
- ▶ **DURATION OF STUDY** – 1 month (June)
- ▶ **INCLUSION CRITERIA** –
 1. Article published from January 2018- January 2020
- ▶ **EXCLUSION CRITERIA** –
 1. Articles which were not open access

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- ▶ I conducted literature review search on keywords “ehealth technologies” and “e-health barriers” in PubMed
 - ▶ I reviewed 60 articles for the objective 1, out of which I used 30 articles for my study, for this I used the keyword “ehealth technologies”.
 - ▶ For objective 2, I reviewed 30 articles out of which I used 15 articles for my study and used the keyword “e-health barriers”

RESULTS

- FOR OBJECTIVE 1 :
 - I reviewed 30 articles, out of which 19 articles showed the result in favour of implementing e-health.
 - According to articles, following 11 diseases showed improvement by m-health apps: gestational diabetes, sclerosis, cancer patient, chronic pain, fast track hip and knee arthroplasty, psoriasis, mindfulness, atrial fibrillation, COPD, IBD and mental therapy.
- 1. According to article “Use of eHealth and mHealth Technology by Persons With Multiple Sclerosis “ by using mhealth, sclerosis is improved.
- 2. Treatment of Gestational Diabetes:
 - Phone screening can be used to prevent postnatal depression which leads to gestational diabetes
 - Web based psychological treatment
 - mHealth Applications & exercise program shows less gestational weight gain, increment in sync check and decrement in smoking

3. According to articles "The use of eHealth to promote physical activity in cancer survivors: a systematic review" treatment of cancer patients:

- M-health, electronic device, telemedicine are effective methods in cancer treatments and it promotes physical activity The Use of Cancer-Specific Patient-Centered Technologies Among Underserved Populations in the United States: Systematic Review
- For better patient care, customisation of mhealth technologies shows better result.

4. Mental Therapy Session:

- Online consultation facilitates effective and convenient remote treatment of depression, anxiety disorders.

5. In article "Patients' Needs and Requirements for eHealth Pain Management Interventions: Qualitative Study" it is mentioned that treatment of Chronic Pain:

- e-health self management intervention is used
- For improvement of e-Health medication of such patients, planning and creating e-Health interventions (for self administration) shows improvement.

6. Fast track hip & knee arthroplasty:

- using m-Health and e-health medication for self administration pain level of patients can be reduced.

7. Mindfulness & Relaxation:

- Physical activity & healthy diet based applications can be used for weight loss
- Reminders, personalised and reward features in m-Health apps can also be used for better results

8. Atrial Fibrillation : According to article “Accuracy of mHealth Devices for Atrial Fibrillation Screening: Systematic Review”

- m-Health applications can be used for early diagnosis and treatment
- Due to early diagnosis, significant decrease in expenses can be achieved

9. COPD (Chronic Obstructive pulmonary disease):

- wearable & sensors can help in monitoring ECG, heart rate, blood pressure and body temperature of patients regularly.

10. IBD(Inflammatory bowel disease) and Psoriasis :

- all these diseases can use mhealth technologies for treatment but to observe significant changes further studies are suggested.

- FOR OBJECTIVE 2 :
 - I reviewed 15 articles highlighting key barriers faced in implementation of mHealth.
- 1. For Older adults, cognition, motivation, physical ability and perception of technology were observed as major barriers in implementing mHealth.
- 1. Socio-demographic factors like age, income and education acts as barrier in providing ehealth opportunity.
- 1. Societal behaviour and lack of effective cost solutions are still not accessible and acts as barrier for patients.
- 2. In rural areas, connectivity also acts as a barrier
- 1. Guaranteeing information security & privacy of patients creates distrust in mHealth apps.
- 1. To implement mHealth on large and diverse population, applications specific for people with disabilities and impaired conditions should be made.

Recommendations:

- Identifying diseases that can be improved by using m-Health
 - After identifying diseases which show improvement by using m-health technologies, awareness and implementation of these technologies should be promoted to better understand the extent of improvement in treatment of such diseases.
 - Training of healthcare professionals around importance of m-health and e-health technologies and use of wearable devices would be beneficial.
 - Further studies to identify diseases which shows improvement by use of mHealth should be done
- Barriers in Implementing eHealth
 - To increase connectivity in rural areas awareness about e-health is required
 - To ensure data security and privacy of patients focus should be on ethical aspects of ehealth

CONCLUSION

- ▶ Based on the articles reviewed, M-health apps are the most preferred e-health technology which is simple to use and cost-effective
- ▶ 11- 12 diseases were identified which shows improvement using m-health i.e chronic pain, COPD, mental health, psoriasis, gestational diabetes, sclerosis, cancer patient, IBD, hip and knee arthroplasty.
- ▶ For better results customizing is very good option for treating cancer patients. It helps to maintain individuality of each person and results would be more accurate
- ▶ There are some barriers in implementing e-health like cost, perspective, connectivity, and accessibility

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- ▶ For better awareness and connectivity training and education should be promoted
 - ▶ to reduce cost and provide accessibility to all, government should focus on new healthcare models for hospitals and provide funds
 - ▶ further technological developments are required for data security and to maintain privacy of patients

PART – 2 {COURSE REPORT}

► I have done 3 courses over the course of 3 months:

- Patient safety and quality improvement
- Contact tracing of covid-19
- E-health: more than just an electronic record

PATIENT SAFETY AND QUALITY IMPROVEMENT

- ▶ Establishing a national concentration to make authority, research, conventions to improve the information base about safety
- ▶ Identifying and learning from errors through immediate and strong mandatory reporting efforts, as well as to encourage voluntary effects
- ▶ Raising measures and desires for upgrades in security through the activities of associations, group purchases and professional groups
- ▶ Crafting safety system inside health care organisation through implementation of safe practices at the all level

CONTACT TRACING OF COVID-19

- ▶ SIGNS- Temperature

 - Breathing faster than usual

- ▶ SYMPTOM- Fatigue

 - Nausea

 - Loss of taste

 - Muscle ache

- ▶ INCUBATION PERIOD- 2-14 DAYS

 - 5% by 2 days

 - 50% by 5 days

 - 95% by 14 days

▶ TRANSMISSION

Mouth

Nose

Throats

Surfaces

Up to 6 feet

Window of opportunity is very short

▶ REPRODUCTIVE NO

The no. of people one infectious person will infect. For covid-19 = 2-3 person

EHEALTH MORE THAN JUST AN ELECTRONIC RECORD

- ▶ Ehealth impacts on practice, teaching and research
- ▶ By using wearable devices, apps, internet and social media. We provide health in the hands of customers
- ▶ We can interact with and between health professional through telehealth, shared care, rehabilitation, coaching and professional support
- ▶ data records- eMR, BIG data, genomics, predictive and precision healthcare

- ▶ **HCI (Human computer interaction)** – the ways in which humans interact with computers and design technologies that let humans interact with computers. we can use HCI for medical purposes. Examples are graphical user surfaces, voice user interfaces

- ▶ Evaluation of m-health apps
 1. Engagement
 2. Functionality
 3. Aesthetics
 4. Information quality
 5. One subjective quality scale
 6. App specific

- ▶ Homomorphic encryption can be used for privacy preserving outsourced storage and computation

THANK YOU