

M-Health – Stirring the Health Upshots in the Finger Points by Techno- Exertion



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Abstract

"The notion that simply discharging patients with some technology will prevent readmission or ensure positive outcomes is more wishful thinking than reality."

Dr. Brennan Spiegel, Director of Health Services Research, Cedars-Sinai Medical Center

Health is a word one who supposes all the way through life journey, inexorable in everyone's life, all people are apprehending more , but compelling effort for healthy life is less, 5 decades ago health was painstaking as get rid of the soreness from diseases, at that time communicable diseases ,mortality due to these ailments were more and revolution of medicines and innovations happened, 2 decades ago AIDS was major menace , and now it was meticulous by massive measures, now the diseases which are steering the life is mostly grounded on lifestyle like heart problems, cancer and road accidents. Increasing mortality due to life style is a very giant peril for every human being, as the threat upsurges awareness also increases, observance of these in the mind many countries introduced e-health, m-health, health blogs and health websites for the easy access of health information.

This paper tries to transport out the indispensable concepts and updates related to m-health technology and its utility by the people, According to NHP 2015, Health Information is acknowledged as one of the key dimensions of the health systems. Use of ICT has the potential to reduce frequency of hospital visits & management of chronic diseases, it also facilitate medical consultation with specialists, capacity building of health care workers/ professionals, and improve program monitoring and supervision, and delivery of emergency care. And this paper endeavors to present different m-health apps and websites provided by national health portal of our country which are very useful, interesting and mostly unknown to the people. For this paper authors used the references of WHO reports, ICT sector World Bank, Forbes, Online daily news papers, National health policy 2015, National health portal of India and researches relates to M-health in global context and Indian context.

Keywords: M-Health, Framework, Websites, Mobile Apps.

Introduction

India is the world's third prime economy in terms of its Gross National Income and has the prospective to produce superior and more justifiably, and to arise to be calculated as one of the technologically advanced nations of the world. India owns as never before, an erudite arsenal of intrusions, know-hows and knowledge obligatory for providing health care to the societies. Yet the gaps in health consequences continue to widen. On the face of it, much of the ill health, disease, premature death, and misery we see on such a large scale are unrequired, given the handiness of real and inexpensive interferences for deterrence and action.

A combined health information system which helps the requirements of all stake-holders and advances competence, transparency, people familiarity, and distribution of improved health upshots in terms of admittance, excellence, affordability and dropping of disease burden and facilitates monitoring of health entitlements to citizens is the goal. This integrated health information system is having five ideal elements- first, the systems for cumulative public access secondly the tools essential for public health benefactors, thirdly systems for sustenance to suppliers and hospital managers for a quantifiable enhancement in quality and efficiency of care, fourth, an IT empowered supply chain management systems and to end with, systems for better observing, scheduling and control.

Objectives of the Study

1. To share the concepts and social goals related to M-Health,
2. To display the M-Health system and framework,

3. To discuss the view of NHP on M-health,
4. To present application categories of different useful mobile health apps ,
5. To add some chronicle updates on M-health.

What is M-health?

M-Health was defined as wireless telemedicine involving the use of mobile telecommunications and multimedia technologies and their integration with mobile healthcare delivery systems (Istepanian and Laca 2003). The main technologies carrying M-Health information are GSM, GPRS, 3G, and 4G-LTE mobile telephone networks; Wi-Fi and Wi-MAX computer-based technologies; and Bluetooth for short-range communications. These technologies operate on hardware networks that include mobile phones, mobile computers (including netbooks, tablets, and personal digital assistants), pagers, digital cameras, and remote sensors.

Social Goals of M-Health

Improving Healthcare Quality and Access

Treatment Support

Treatment Support compliance reminder, uses phone calls or SMS messages that remind patients to take their medications.

Patient Tracking

Using digital medical records through mobile applications geared toward healthcare providers and pharmacists reduces errors in diagnosis, treatment, and prescribing.

Supply Chain Management

Applications that collect data on sales and inventories help inform procurement and ordering by suppliers, retailers, and health systems. The same actors can use other applications to track shipments and monitor distribution of healthcare commodities

Health Financing

Micro insurance and health savings products are increasingly being delivered by mobile phone to increase operational efficiency. This includes use of Smartcards, vouchers, insurance, and lending for health services linked to mobile platforms

Emergency Services

Mobile technology extends access to and increases efficiency in health emergency services and responses, including ambulance models

M-Health System

Making Health Sector Human Resources More Efficient

Support for Clinical Decision-Making

Mobile tools can help health workers provide treatment based on best practices, international protocols, and patient histories. DTree's Android/ Open MRS application does so for childhood malnutrition, with software that calculates healthy weights and creates individualized treatment plans.

Better Recordkeeping

Health workers can spend less time dealing with bureaucracy and more time providing care when they have mobile applications to report data required by funders.

Capture and Use Real-Time Health Information Surveillance

Collection of time-sensitive data on health problems is growing, giving patients and practitioners greater scope for immediate decision-making without meeting in person.

Disaster Management

After natural disasters, M-Health applications have been used to collect medical information, report on areas in greatest need, and direct emergency medical treatment.

Accountability for Healthcare Delivery

Governments can create feedback loops that enable patients to provide feedback on government services, doctors, and other healthcare workers.

M-Health applications also empower patients by allowing them to obtain accurate information quickly so that they understand their diagnoses and treatments and can check their medical records.

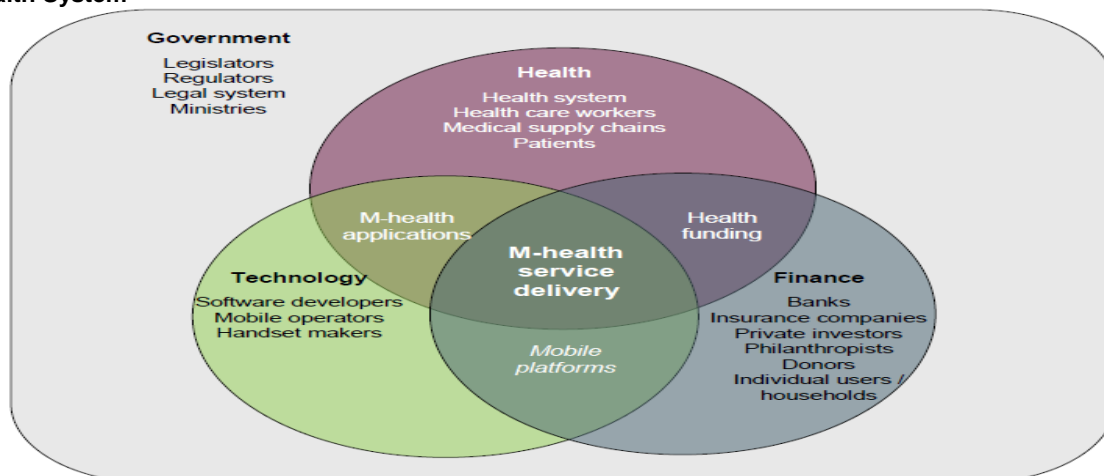
Prevent Disease and Promote Public Health

Disease Prevention

During emergencies, people in affected areas can use M-Health applications to report urgent health needs

Education and Awareness

Several countries are using games, quizzes, and other nontraditional mechanisms to deliver health information

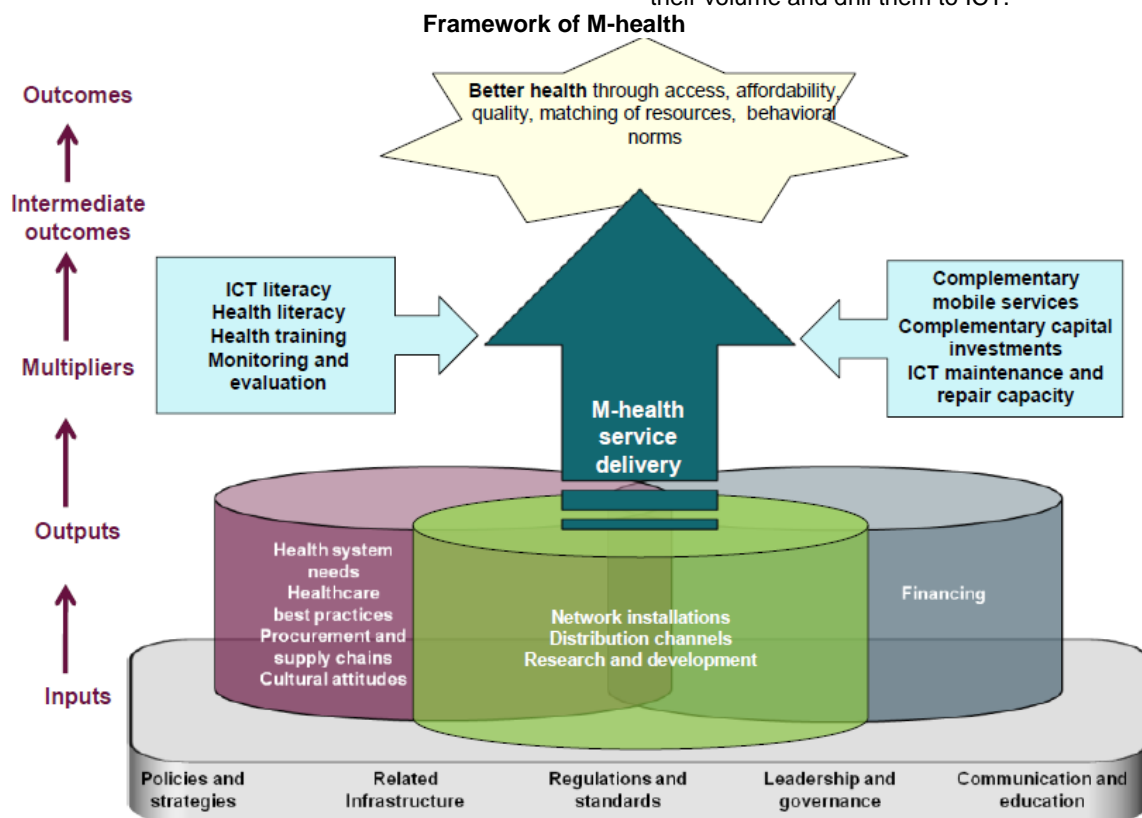


Source: Dalberg research and analysis.

Rendering to this M-health system, chief stakeholders are,

1. Healthcare benefactors, overseers, and outside specialists who identify needed M-Health requests.
2. Software developers occasionally domestic but frequently abroad develop M-Health claims. The applications are not continually ambitious by the needs of a specific health system and are from time to time dissimilar from the implementers, which may be a discrete company or NGO.
3. Patrons including multilateral agencies, nitty-gritties, and large businesses offer startup funding and ongoing financing for M-Health creativities.

4. NGOs conduct research and development, offer smaller amounts of funding, support the implementation of M-Health interventions, and measure their effects.
5. Mobile network operators provide the architecture for implementing M-Health applications and sometimes donate services in kind.
6. National governments describe the regulatory framework, provide financing, integrate M-Health applications with the regular health system, and make balancing funds.
7. Social intercessors including civil society administrations and community-based establishments focus on health workers, structure their volume and drill them to ICT.



Source: Dalberg research and analysis.

The growth of m-Health involvements be contingent on both the business's growth and its aptitude to affect health consequences. This growth goes through four phases:

1. To comprehend the potential of m-Health, a broad variety of inputs is desirable from the public, private sectors, donors and other stakeholders.
2. The outputs engendered by these inputs are fully executed m-Health services, counting the fundamental applications and business replicas.
3. The usefulness of these outputs is partially gritty by multipliers that may augment or detract from the expediency, operability, and penetration of the interventions.
4. When the multipliers qualify them to be effective, the productivities will improve driver's of good

health and upgraded health outcomes in besieged populations.

The dissemination and efficacy of m-Health services be subject to on the use for mobile applications, features that facilitate the battered audience to habit the applications, these multipliers are as vital as contributions to the amenities since they can regulate the potential for business models to attain a measure that brands them viable over the long term.

1. Consumer literacy. To create the best usage of m-Health applications, target spectators must appreciate central concepts about health and ICT.
2. Health worker literacy. Health workers need the same kinds of skills and often at a higher level as consumers.

3. Medical training institutions. The quality of medical and nursing schools, as well as other institutions for training health workers, affects m-Health just as it affects other parts of the health system.
4. Retention of health and ICT workers. The training and experience that contribute to the skills and literacy mentioned above are lost when workers move or leave the health or ICT industries. Retaining them is critical for the effectiveness of m-Health.
5. Complementary m-Services., health is more likely to improve health outcomes when combined with other m-Services operating on the same platforms.
6. Ex post complementary investments. Investments by the public and private sectors, ranging from advertising campaigns to improvements in infrastructure and network installations, can multiply m-Health's effectiveness.
7. Ex post policy decisions. Governments can fan the flames of m-Health by easing regulation or douse them by making regulation more restrictive. Regardless of a government's initial stance, stability and consistency in the evolving policy environment make private actors more comfortable about investing further.

Countries with M-Health Strategies (WHO report)

Sub-Saharan Africa	Middle East and North Africa	South Asia	East Asia and Pacific	Latin America and Caribbean
Algeria Botswana Burkina Faso Comoros Gambia, The Ghana Guinea Lesotho Madagascar Mali Nigeria Rwanda Sudan Swaziland Tanzania Uganda	Bahrain Djibouti Egypt, Arab Rep. Iran, Islamic Rep. Jordan Morocco Oman Saudi Arabia Syria, Rep. United Arab Emirates Yemen, Rep.	Bangladesh Bhutan India Sri Lanka	Brunei Darusselam China Fiji Korea, Rep. Malaysia Mongolia Myanmar Singapore Vietnam	Argentina Bahamas, The Belize Brazil Chile Dominican Republic El Salvador Mexico Panama Venezuela, R.B. de

Sources: Dalberg research; WHO Global Observatory for eHealth

NHP (National Health Policy)-2015 Use of ICT for Health and Health Information Needs

An integrated HIT serves the needs of all stake holders and improves efficiency, this architecture has 5 pillars, increasing public access, tools required, systems support, and IT enabled supply chain management and systems for monitoring. A caution that policy take a note of patient privacy, autonomy and data privacy, for this purpose (NeHA) National e-health Authority to provide Leadership in better implementation

This policy took initiative for better primary care in different steps,

1. Individual and family issued with family cards.
2. Digitizing the functions of recording reporting and follow up.
3. Continuing of care.
4. Building payment gateways of facilities.

5. ICT functions includes appointments, grievances and records.

HIT architecture should develop systems to suit the priorities, so they should be consistent with electronic health record standards, data and Meta data standards and inter operability guidelines laid down by NeHA.

The integrated health information system will be based on key principles and strategies like.

1. Adoption of National Electronic Health Record Standards (announced by the Ministry in 2013) and Metadata and Data Standards;
2. Federated architecture to roll-out and link systems at State level and national level;
3. Progressive use of "Aadhaar" (Unique ID) for identification (in case UID is not available, then other ID would be created as per the standards)

- notified by the Ministry) and issue of a unique Health Card to every citizen;
4. Creation of health information exchange platform and national health information network;
 5. Use of existing/planned national & state level IT infrastructures such as the National Optical Fiber Network, Meghraj (cloud).
 6. Smartphones/tablets for capturing real-time data; and
 7. Setting-up of dedicated governance structures.

NHP 2015 also seen the tremendous potential for the application of telemedicine and M-Health, the aim is to reach rural and remote areas,

creation of clinical and non clinical learning material, formation of health informatics in the combination of public health, science, IT, and social context and tele-consultation. ICT also enhances the services of AYUSH practitioners, demographic and health survey, and its information taken as vital part, NFHS and NSSO surveys will provide the baseline for real time situation analysis on cost of care. Careful deployment of ICT tools, improvement of work processes, and innovative capacity building has to come together to make this fundamental tool of decentralized and disaggregated burden of disease measure reliable enough for health planning and health outcome measurements at all levels.

Different Websites and Mobile Apps by National Portal

S.No.	Web sites	Utility
1.	M-health basics	Introduction to m-health
2.	M-health planning and implementation guide	Necessities for implementation
3.	Front line SMS	Free open source without internet
4.	Mobile FP tool	Family planning tools regarding
5.	Mobile alliance for maternal action (MAMA)	Maternal dangers and precautions
6.	TB detect	Early detection of TB and awareness
7.	Mobile health improvement	How to use the mobile health options
8.	Strengthen FP program	Family planning programmes
9.	MEEDS	Malaria early epidemic system
10.	Verboise	Healthy pregnancy and happy babies
11.	Riff	Multiple groups to analyze, visualize information
12.	Seen tags	Extract accurate information from text reports
13.	Reporting wheel	Easy data reporting for illiterate people
14.	Data winners	Easy access of health data
15.	Health unbound	Health and diseases related information
16.	Stat planet	Interactive maps
17.	Data dyne	Mobile data for health
18.	Tele rivet	Mobile communication platform
19.	Rapid SMS	Large scale data collection through SMS
20.	Open data Kit	Collection of data on mobile device
21.	Health care at home	General information on health
22.	KMES- Kolkata medical emergencies	Kolkata state connected health and emergency information and easy access

S. No	Mobile Apps	Utility
1.	AIIMS WO CC-ENBC	Essentials for child care and new born nursing
2.	Healthy you card	Appointment booking
3.	Healthy you EHR	Access data anywhere, any time
4.	1mg	Online pharmacy
5.	Safe pregnancy and birth	Pregnancy dangers and caution
6.	Mobile Tech water sanitation	Identify water sources and cleanliness
7.	Mswasthya	Multiple search health and providers information
8.	Mobile data collection made easy	Health Data collection tools
9.	Alt 12 apps	Free menstrual and fertility tracker
10.	Evo 2	First baby monitor
11.	Logistics management for hospitals	Supply and logistics for hospital management
12.	Isabel symptom checker	Enter one or multiple symptoms and get the diseases details
13.	Geo chat	Community health workers chat
14.	Resource maps	Medical supplies, prices, diseases prevention
15.	Veegilo	Information on diseases outbreaks
16.	m-tikka	Electronic web based infant registration for vaccination
17.	CPR	Preventing from cardiac arrest
18.	Open X data	Improve data quality
19.	Free health vault	Personal health record access
20.	My fitnesspal	Nutritional data base and calorie calculator

21.	Health PIE	Patient information empowerment system
22.	OB insulin	Easy calculator for determine the dose of insulin for pregnant women
23.	FOAM	Free open access medical education
24.	Secure me	Identify the health through raising alerts
25.	DHIS 2	Web based open source information system
26.	KMES	Kolkata medical emergency system app
27.	Lybrate	Find doctors in one click system
28.	Continuous care	Stay connected with hospital systems, doctors and records
29.	Health memo	Upload health records electronically
30.	I TRIAGE Health	To make confident decisions based on answers, care options
31.	New born care	Information regarding newborns
32.	H- connect	Compilation of world wide heterogeneous health data
33.	Upto date	Clinical decision support system
34.	5 minute consult	Diagnosis ,treatment and management
35.	MED BOX	Record saving electronically secured server system
36.	Med unit	Accessibility of medical professionals and facilities
37.	Zoojoo.be	Game based social wellness platform
38.	Curofy	Made by IITians and doctors to change the way of communication

Chronicle Updates

To know the interesting information of m-health, the authors dig into the different dailies, online journals and some of the news portals like "The Hindu", "Hindustan times" Medical news today, Forbes, M-Health intelligence. The Hindu article talks on how m-health applications strengthens TB detection, referrals, and aiding the TB fight. (June 16, 2017) New health policy focusing on deployment of digital tools by setting National digital health authority (NDHA) (June 26, 2017)

Max, Medants, AIIMS, Fortis, Shankaranethralaya already have HIT, now they will be supported by IT providers Deloitte, Wipro, TCS, Napier and Reliance. (June 29, 2017). Making of smart cities through health and happiness like foreign countries by advanced use of m-health applications (March 29, 2017). IMA seeks steps to popularize mobile apps among common people through online registration system, national health portal, Aadhar based system of easy registration, e-Rakthosh (connecting all blood banks of Indian states (December 31, 2016). M-power heart project is an effective ness of m-health technology, initiated by NPCDCS and public health foundation of India (December 2016)

M-Health intelligence and Forbes online journal discussed and presented more researches and articles related to m-health in global context, developing the m-health app that helps the parents in addressing the health issues of children, and Bieffect is an app created to identify the mood challenges, and spot manic and depressive episodes. 2017 connected patient report showing that general gaps in the use of artificial intelligence, that is younger Americans interested in Engaged in Artificial intelligence, but the older Americans are excited to use AI to help their doctors. Washington University, school of medicine used text messages intervention as a cost effective way to track symptoms and identification of adolescents with depression and autism. California

University smart phone messaging improves health behaviors for low income children.

Article that provides guidance, regarding the validation of digital health app, by its consumer driven utility and knowing the reason to use the app by providers. The health news today provided the article named m-health solution, the future of health care, analyzing the range of applications, advantages and challenges of mobile technology in health. Also they talked about the Medopad – its software, service provider as well as app easing the people accessing technology for health. Also it discussed about the app which is giving training to the professional to identify the early stage of skin cancer.

Conclusion

The viewpoint towards healthcare has altered drastically in modern times. Mobile health (M-Health) is an embryonic approach that is shifting the way the Ecosphere works these days. Mobile technology is fashioning wonders in the healthcare industry. It stretches suppliers' prospect to admittance the patient's clinical data and latest medical offerings at any time and place. It also benefits patients with chronic disorders to endure in relentless touch with the doctors, without them having to be physically presented at the hospital. M-Health apps permit members to access important health- and benefits-related information, hypothetically eliminating the need for human interference via customer service inquiries. Payers' gadget M-Health apps as a cost-effective way to healthier serve and improve their fellow familiarity by offering self-directed access. Advances in mobile device capabilities cause healthcare payers to recognize the opportunity to upsurge brand trust worthiness, so the Health industry with its digitization of its maneuver will spring novel progressive vision to evolution of healthy citizen.

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Online Dailies

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5. *Hindustan times*