

**Strategies to Built Successful Mobile Based Services for Health
Care Delivery: An Innovative Thinking of Young Professionals**

**Internship Training
at
Sub District Hospital, Palitana- Bhavnagar (Gujarat)**

**By
Ashish Agrawal**

**Under the guidance of
Maj. (Dr.) Vinod Kumar SV**

**Post Graduate Diploma in Hospital & Health Management
2012–14**


**Institute of Health Management Research
Jaipur
2014**

**INSTITUTE OF HEALTH
MANAGEMENT RESEARCH**

1, Prabhu Dayal Marg
Sanganer Airport, JAIPUR - 302 029, INDIA
Tel. : 3924700, 2791431-32
Fax : 91-141-3924738
E-mail : iihmr@iihmr.org
URL : <http://www.iihmr.org>
Gram : HEALTHINST

TO WHOMSOEVER MAY CONCERN

This is to certify that **Ashish Agrawal** student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from Institute of Health Management Research, Jaipur has undergone internship training at **Sir Mansinhji Hospital, Palitana, Bhavnagar (Gujarat)** from 1st February 2014 to 30th April 2014.

The Candidate has successfully carried out the study designated to him during internship training and his approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish him all success in all his future endeavors.



Dr. Ashok Kaushik
Dean, Academics and Student Affairs
IIHMR Jaipur



Maj. (Dr.) Vinod Kumar SV
Associate Professor
IIHMR Jaipur

SIR MANSINHJI HOSPITAL-PALITANA



Outward No.....85....
Sub-district Hospital,
Talety Road, Palitana. Dist. Bhavnagar
E-Mail:-mansinhjihospital@yahoo.com
Phone.....02848-252529
Date:-.....30/04/2014

The Certificate is awarded to

Ashish Agrawal

In recognition of having successfully completed his
Internship in the Department of
Hospital Administration

and has successfully completed his project on
**Gap Analysis of Sub-District Hospital According to
Indian Public Health Standards**
February-2014 to April-2014

Sir Mansinhji Hospital, Palitana

He comes across as a committed, sincere & diligent person who has a
strong drive & zeal for learning.

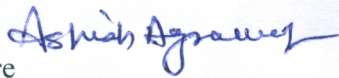
We wish him all the best for future endeavors.

(Signature)
अधिसक वर्ग-१
मानसिंहजी हॉस्पिटल
Medical Superintendent

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled “**Strategies to Built Successful Mobile Based Service for Health Care Delivery : An Innovative Thinking of Young Professional**”, submitted by **Ashish Agrawal**, **Enrollment No 1299** under the supervision of **Maj (Dr.) Vinod Kumar SV** for award of Postgraduate Diploma in Hospital and Health Management of the Institute carried out during the period from 1st February 2014 to 30th April 2014 embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

Signature

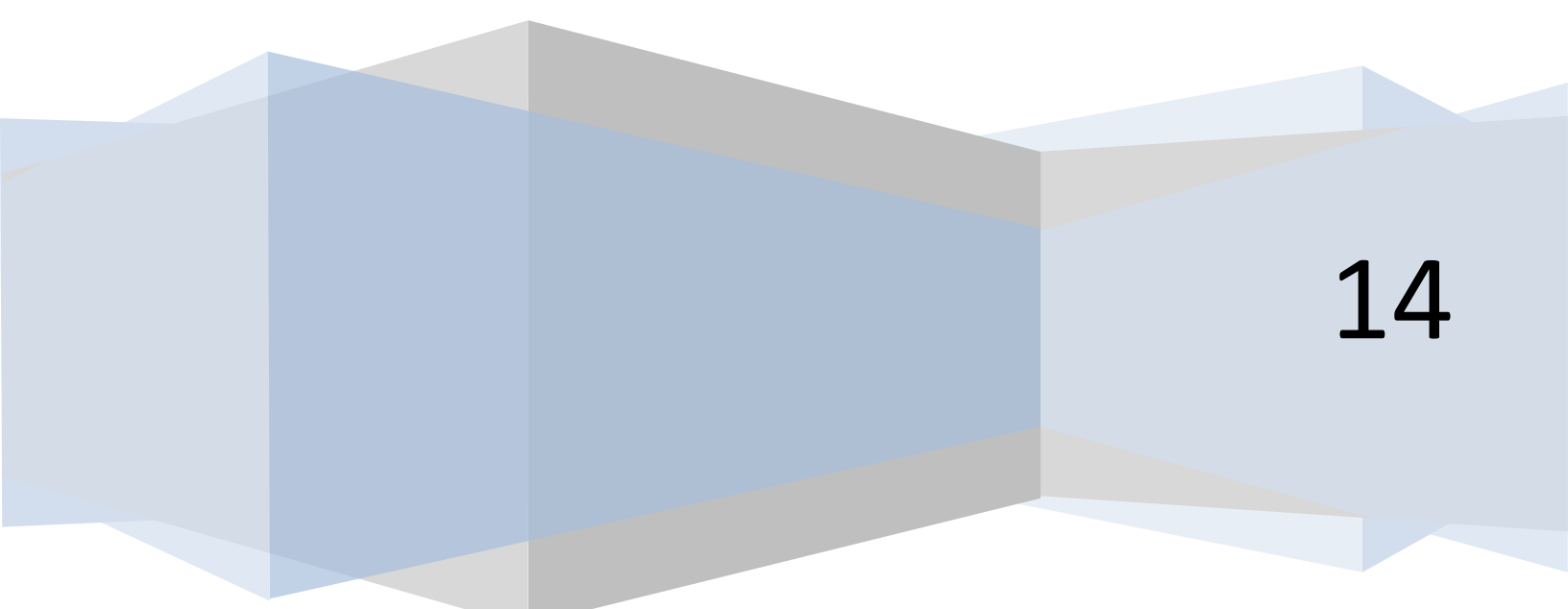


Institute of Health Management Research, Jaipur

Strategies to Built Successful Mobile Based Services for Health Care Delivery

An Innovative Thinking of Young Professionals

Dr.Ashish Agrawal



14

Background

The massive growth of adoption of mobile technologies around the world has many business managers wondering how to effectively position their firms to benefit from the trend. The drive for mobility is part of the business technology agenda for most companies today. Accenture's CIO Mobility Survey found that two-thirds (67 percent) of CIOs and other IT professionals believe mobility will impact their businesses as much as or more than the Internet did in the 1990s. Mobile technology allows companies to have an unprecedented level of connectivity between employees, vendors, and/or customers. Real-time communication with the office can be important in delivering business benefits, such as efficient use of staff time, improved customer service, and a greater range of products and services delivered. Mobile technologies have immense potential as a way to advance healthy behavioural shift, to boost the doctor-patient relationship, and to upgrade the way healthcare is delivered globally. The rise of mobile applications has fuelled the demand for healthcare applications and can streamline the entire Hospital workflows. In the United States alone, health spending places the domestic health care industry among the five or six largest economies in the world. The sheer size of the health care market suggests there's a huge opportunity for mobile applications and customized, purpose-built devices.

Objective of Study

1. To find out the relevance of the study in terms of effective strategy development for mHealth
2. To study the perception of the future managers about use of mobile applications in their workplace.

3. To study the requirement of the mobile applications by future managers for better service delivery.

Research Methodology

This study was descriptive in nature. A combination of qualitative and quantitative methods was used to collect the primary data through Email and Facebook. The population for the study will include the all young health care management professionals that include health care/hospital management graduates and students of pioneer collages of India. The total 750 respondents were selected for the study through non probability purposive sampling technique.

Results

The response rate of the study was reported low as only 21 % of the respondents submit their responses. More than 50% of the respondents belong to 25-30 years of the age group. 89% of the respondents had smart phones with emailing and navigation facilities and only 1% of the respondents were such, who had basic mobile phone with only call and SMS Facility

Two third of respondents were given the Rank 3 or more to quality of questionnaire on a scale of one to five, where Rank 5 is highest quality questionnaire. 62% of the respondents were prefer Laptops for managing the services in their organization and only 13% respondents willing to use smart phones for managing the services in their organization. 83% of the respondents were using emails as communication media within their organization. As a senior manager 87% of the respondents were willing to work with tablets/mobiles while making reports in real time.

Respondents were given real time blood group availability as compulsory requirement for effective mobile technology. To improve operational efficiency, real time tracking of doctors and

patients was rated mandatory requirement by 42% of respondents. To improve the quality and reach of services patient feedback, registration of birth & death, Mass communication and patient education was stated mandatory requirement. For proper inventory management near expiry drug alerts and stock out drug alerts was stated mandatory requirement. Server slow down and cyber threat at national level was stated biggest threat of adoption of mobile technology.

Conclusion

In this era of mobility, smart phones represent a major opportunity to transform the manner in which health care delivered. Transforming towards electronic mobile systems for service delivery will save money, improve access, and provide higher levels of quality.

Key Words

eHealth, mHealth, Smart Phone, email, Real Time Tracking, Respondents, Weighted Mean and Percentage.

Acknowledgement

Words are almost never sufficient to express acknowledgment to all individuals who contributed directly or indirectly during the project. This study is not an individual work; this is the effort of a team. The study was successfully completed due to the efforts and involvement of various individuals at different stages.

First of all, I express my gratitude to Maj. (Dr.) Vinod Kumar SV, Guide and Mentor, for guiding me and providing technical support as and when required. I am also thankful to Col. (Dr.) Ashok Kaushik, Dean Academic and Student Affairs, Institute of Health Management and Research, Jaipur for his support throughout the project work.

I would like to extend my thanks to the management, medical and paramedical staff of Sir Mansinhji Hospital, Palitana (Bhavnagar) specially, Dr. B.N. Hathila, Superintendent for giving me all the information and support required to complete my internship and Dissertation.

I would also like to acknowledge **Dr. S.D Gupta**, Director IIHMR, Jaipur for his inspiration and guidance.

Last but not least, my sincere thanks are due to all the respondents who spent their time and responded to rather lengthy schedule with tremendous patience.

List of Figures

S.N.	Content	Page No
1	Quality of Questionnaire: Respondent view	9
2	Respondents view: Preferred device for managing the services in their organization	10
3	Respondent view: Information flow in their organization	11
4	Respondent View: Usefulness of Mobile Devices in Clinical Administration	12
5	Respondent view: Usefulness of Mobiles for improving Operational Efficiency	13
6	Respondent view: Usefulness of Mobiles for Quality improvement	14
7	Respondent view: Usefulness of Mobiles for Marketing and Public Relation	15
8	Respondent view: Usefulness of Mobiles for Finance and Human Resource Management	16
9	Respondent view: Usefulness of Mobiles for Purchase and Inventory Management	17
10	Respondent View: Threat of Mobile Technology in Delivering Health care through Mobiles	18
11	Relationship between work experience and willingness to work as a senior manager of respondents	19

Abbreviations

3G-Third Generation

ANC- Ante Natal Checkup

CIO-Chief Information Officer

EHR- Electronic Health Record

GPRS-General Packet Radio Services

IT-Information Technology

J2ME- Java 2 Plateform Micro Edition

mHealth- Mobile Health

NeGP-National e-Governance Plan by Government of India

PHR- Personal Health Record

PNC- Post Natal Checkup

RIM Blackberry-Research In Motion Blaceberry

SMS-Short Message Service

USSD-Unstructured Supplementary Service Data

Table of Contents

S.N.	Title	Page No
a.	Acknowledgement	i
b.	List of Figures	ii
c.	Abbreviations	iii
1.	Introduction	1-3
1.1	Aim of Study	3
1.2	Objective of Study	3
2	Literature Review	4-6
3	Research Methodology	6-7
3.1	Study design	6-7
3.2	Study Population	7
3.3	Sampling Technique	7
3.4	Sample Size	7
3.5	Tools Used for Data Collection	7
4	Results	8-19
4.1	Quality of Questionnaire	9
4.2	Device Preference for managing the services in the organization	10
4.3	Information flow in the organization	11
4.4	Usefulness of Mobile Devices in Clinical Administration	12
4.5	Usefulness of Mobiles for improving Operational Efficiency	13
4.6	Usefulness of Mobiles for Quality improvement	14
4.7	Usefulness of Mobiles for Marketing and Public Relation	15
4.8	Usefulness of Mobiles for Finance and Human Resource Management	16
4.9	Usefulness of Mobiles for Purchase and Inventory Management	17
4.10	Threat of Mobile Technology in Delivering Health care through Mobiles	18
4.11	Relationship between work experience and willingness to work as a senior manager	19
5.	Discussion	20-21
6.	Conclusion	22-23
7.	References	24

1. Introduction

Many countries including the United States are challenged to provide adequate health care. Difficulties include physical distance between doctors and patients, too few skilled health care professionals and the extraordinary complexity between insular medical systems and costs of health care equipment and infrastructure. In addition, the current epidemic of chronic illnesses, in both developed and developing economies, illustrates the need for innovative, efficient, technology-supported interventions.

e-Health has emerged as a popular phenomenon to deliver health services around the world. However, e-health in an implementation sense is restricted primarily to the use of computer based internet access to deliver services. In countries where the penetration of computers and internet is relatively low, such as in India, there is an apprehension that the reach of e-health may be limited. The limited reach of e-health has made health care provider to think of new technologies, such as mobile phones, to reach the citizens and deliver better health services. The growth of telecom-subscribers in India has been phenomenal with over 851.70 Million users at the end of June 2011. The overall tele-density in June 2011 was 71.11. The net additions are growing at the rate of over 15 Million per month. This means that India would have over 900 Million mobile users by 2012. Looking at the increasing number of mobile subscribers, it has become imperative to offer health services over mobile-phones. This ensures the vision of NeGP(National e-Governance Plan by Government of India) of providing health care services to every citizen near their doorstep, becomes a reality. The current e-Governance gateway or e-health gateway infrastructure should be extended for mobile governance. A separate infrastructure is required for:

- Seamless integration with backend departments through existing e-health exchange

- Common interface for mobile based services (SMS, USSD, GPRS, 3G, Cell Broadcasting, Location Based Services, etc).

Mobile devices pose constraints in generating as well as rendering of the contents for the service delivery. If we look at the type of mobile handsets used by the Indian citizens, we categorize them in three classes based on the type of channels available for service delivery on that particular mobile handset.

1. **Basic Phones** which are very low cost handset and have minimal features, e.g. SMS and voice calls which can be used as the mode of service delivery.
2. **Smart Phones** which are currently costly, but are mobile operating system based and offer most of the features and channels for service delivery.
3. **Semi-smart Phones**, which are coming in between the above two categories in terms of price and the features. Most of the phones in this category may not have the mobile operating system but at least most of them have J2ME or Java ME available

Smart phones and tablets have spread rapidly in developed and developing nations, and this represents a major opportunity to transform the manner in which medical care is delivered.

Moving to electronic systems for service delivery will save money, improve access, and provide higher levels of quality.

The demand for access to business information and applications through mobile technologies such as the Apple iPhone and iPad, devices running Google Android and Windows 7 Mobile or using RIM Blackberry is surging as consumer preferences and behavior spill over into the business workforce. The massive growth of adoption of these technologies around the world has many business managers wondering how to effectively position their firms to benefit from the

trend. The drive for mobility is part of the business technology agenda for most companies today. Accenture's CIO Mobility Survey found that two-thirds (67 percent) of CIOs and other IT professionals believe mobility will impact their businesses as much as or more than the Internet did in the 1990s. Mobile technology allows companies to have an unprecedented level of connectivity between employees, vendors, and/or customers. Real-time communication with the office can be important in delivering business benefits, such as efficient use of staff time, improved customer service, and a greater range of products and services delivered.

1.1 Aim of Study

The basic aim of the study was to explore the possibilities for implementation the mobile based service delivery model for health care organisations.

1.2 Objective of Study

1. To find out the relevance of the study in terms of effective strategy development for mHealth.
2. To study the perception of the future managers about use of mobile applications in their workplace.
3. To study the requirement of the mobile applications by future managers for better service delivery.

There are many areas of hospital functioning that can be managed efficiently by not only adopting the information technology alone but the innovative approaches in hospital operations, quality assurance, public relation and marketing, financial accounting, medical records and a holistic patient care etc. merged with economical mobile technologies.

2. Literature Review

Health care access, affordability, and quality are problems all around the world. There are well-established disparities based on income and geography, and the high costs of health care present affordability challenges for millions of different people. Large numbers of individuals do not receive the quality care that they need. Mobile technology offers ways to help with these challenges. Through mobile health applications, sensors, medical devices, and remote patient monitoring products, there are avenues through which health care delivery can be improved. These technologies can help lower costs by facilitating the delivery of care, and connecting people to their health care providers. Applications allow both patients and providers to have access to reference materials, lab tests, and medical records using mobile devices. Complex mobile health applications help in areas such as training for health care workers, the management of chronic disease, and monitoring of critical health indicators. They enable easy to use access to tools like calorie counters, prescription reminders, appointment notices, medical references, and physician or hospital locators. These applications empower patients and health providers proactively to address medical conditions, through near real-time monitoring and treatment, no matter the location of the patient or health provider.

Mobile applications and devices that allow consumers to take charge of their own treatment and prevention are trying to turn health care industry on its head, taking health care out of hospitals and doctor's offices, and putting more power in consumer hands. In the United States alone, health spending places the domestic health care industry among the five or six largest economies in the world. The sheer size of the health care market suggests there's a huge opportunity for mobile applications and customized, purpose-built devices. The extent to which

stakeholders create user confidence through adequate privacy and security protections will play a key role in accelerating or retarding the adoption of mHealth and the realization of benefits.

In many places around the world, frontline health workers have difficulty accessing medical information or learning from the experiences of health colleagues. Often times, they don't have common medical reference materials or basic knowledge about diagnosis, treatment, and prescriptions. A project called "mPowering Frontline Health Workers" is addressing this problem by using mobile devices to provide the latest medical information to frontline health care providers. Through a digital repository provided by health experts, people such as midwives, nurses, and community health workers can use cell phones, smart phones, tablets, and laptops to get information on neo-natal care, immunization, and childhood diseases. This helps them become more effective in delivering health care and reducing the death of children and mothers in developing nations.

In South Africa, as an example, health providers use mobile devices with a library of clinical resources. Nurses and physicians can access the latest in medical information concerning diagnosis, treatment, and medication. They can look up data on drug interactions as well as ways to treat particular illnesses.

And in Japan, the Wireless Health Care@Home program allows residents living in remote areas to send critical health information to doctors via a wireless network, Allowing people to manage their own health while also receiving timely treatment helps them prevent illnesses from becoming more serious. It is a way to empower patients by giving them greater responsibility for their own medical treatment.

These are just some of the ways that mobile devices improve health care by providing timely and up-to-date information at people's fingertips. If health providers can check on adverse side

effects that arise from certain treatments or how particular medications affect patients, those are tremendous benefits for the health care system. They help to reduce costs while also improving the quality of medical care.

More than ever, hospitals are squeezed by demands to reduce costs, operate more efficiently, improve patient safety and outcomes, reduce readmissions, and earn high patient satisfaction ratings. We've entered an era where accountable care and pay for performance increasingly dictate hospital revenues. While technology alone can't enable hospitals to meet their challenges, there's a burst of innovation around health technology tools that offer hospitals new pathways to harnessing data, managing performance, and providing better care all around. mHealth holds promise for improvement along the value chain – maximizing professionals' time and productivity, improving quality, increasing access and equity, stimulating greater consumer involvement, and potentially decreasing costs, or perhaps equally as importantly, getting better value for the money invested.

3. Research Methodology

3.1 Study Design

This study was descriptive in nature. A combination of qualitative and quantitative methods was used to make the cost effective and value driven mobile based health care service delivery model. In the era of ever changing technology that provides base for such studies, information was collected with the help of available secondary sources. Primary data was gathered online from semi structured questionnaire which was investigated to get the information that will help

to bridge the gap between current and desired infrastructure of mobile technology in health care setting.

3.2 Study Population

The population for the study comprised all young health care management professionals that include health care/hospital management graduates and students of pioneer colleges of India, who can contribute in developing the innovative mobile based solutions for better service delivery.

3.3 Sampling Technique

Non probability purposive sampling technique was used to identify the respondent of the study. Proportional sample was taken from top ranked health care/hospital management schools and the early professionals in the field.

3.4 Sample Size

The total samples for the study was 750 respondents taken into consideration of non response rate high as 30-40% in case of online survey.

3.5 Tools used for data collection

Semi structured online questionnaire based on extensive literature review was prepared in English for both quantitative and qualitative data collection

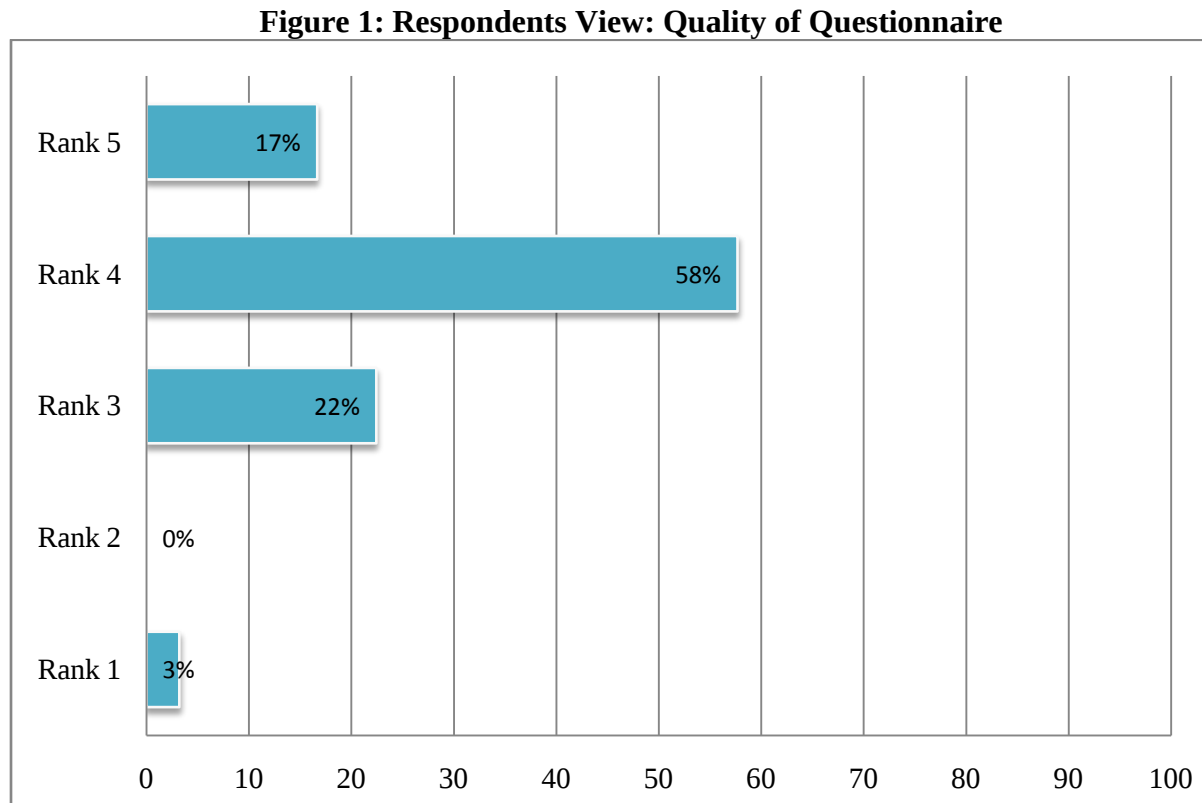
4. Results

The sample of 750 health care professionals was taken to make the strategies for developing the mobile based application for delivering the health care in a better way. For this study respondents were contacted through Emails and Facebook to collect data. The response rate of the study was low as expected previously. The total responses were received in only about 21% of the total sample size, among them 57 % of the respondents was males and 43% of the respondents were females. More than 50 % of the respondents belonged to age group of 25- 30 Years of age. The two third of the respondents were either fresher's or having one to three years of experience in the health care industry.

All the respondents of the study were having their own mobile phones and two third of the respondent get their first mobile phone during graduation. 89% of the respondents had smart phones with emailing and navigation features, only 1% of the respondents were such, who had basic mobile phones with only call and SMS facility.

4.1 Quality of Questionnaire

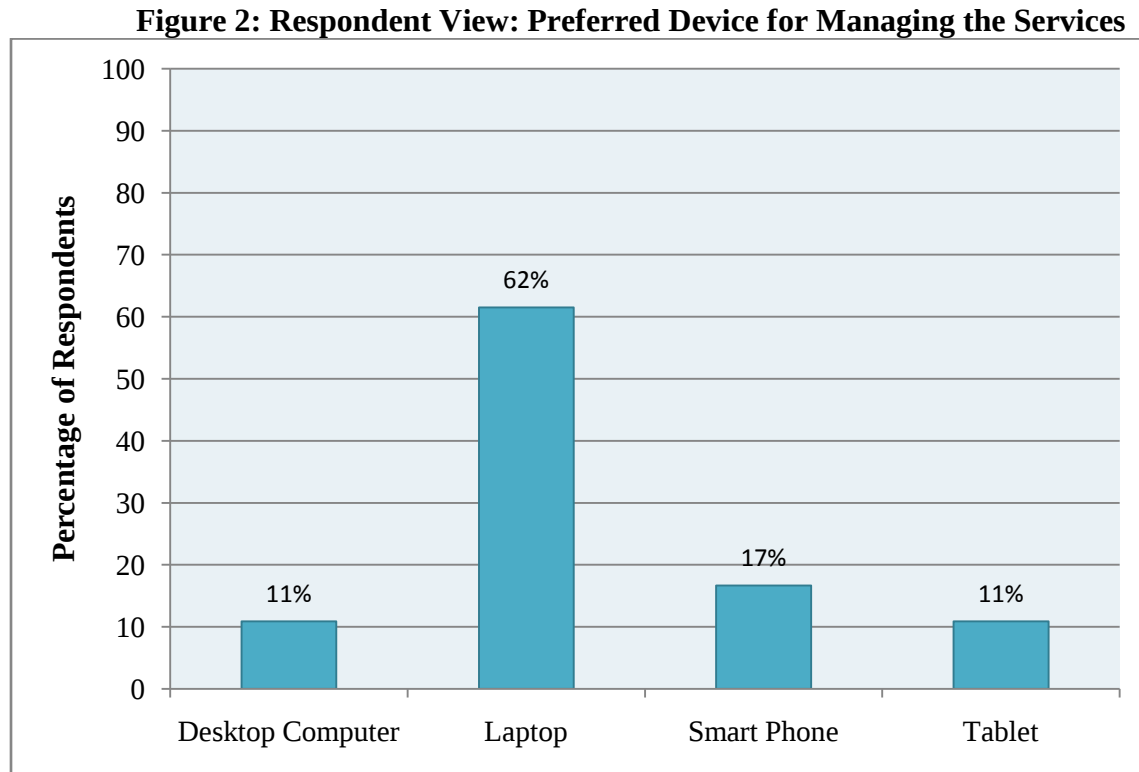
When respondents were asked to rank the quality of questionnaire on a scale of one to five, where Rank 1 stands for least quality questionnaire and five stands for high quality questionnaire. The result as follows in figure 1.



The figure 1 depicts that two third of the respondents were given the Rank 4 & 5 to the quality of questionnaire whereas only one third of the respondents were given the rank 3 or less to the quality of questionnaire.

4.2 Device Preference for Managing the Services in the Organization

When respondents were asked about their choice of device for managing the services within their organization, As Shown in Figure 2 only 17% respondents want smart phone as a managing devices although 62 % of the respondents prefer laptops for managing the services.

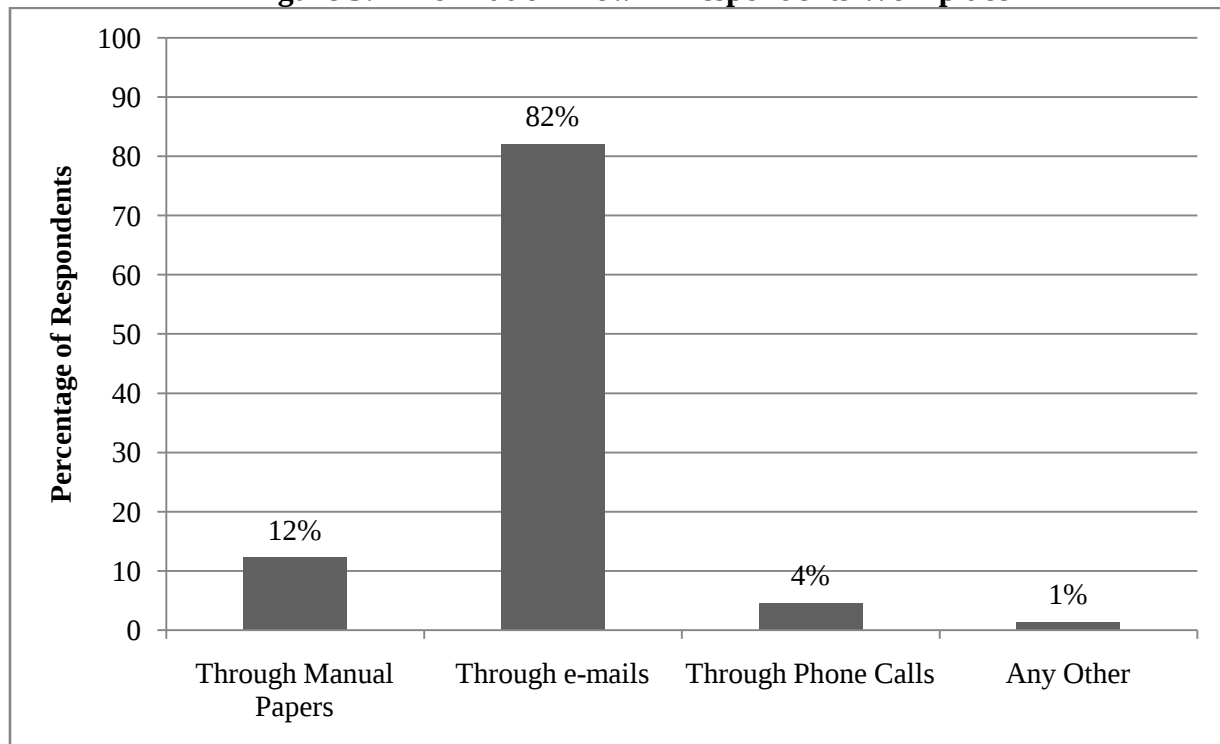


4.3 Information Flow in the Organization

The respondents were asked about the current scenario of information flow in their organization.

As shown in figure: 3 Email was the source of information flow in 82% of the respondents workplace whereas 1% of the respondents were using Whatsapp as communication channel.

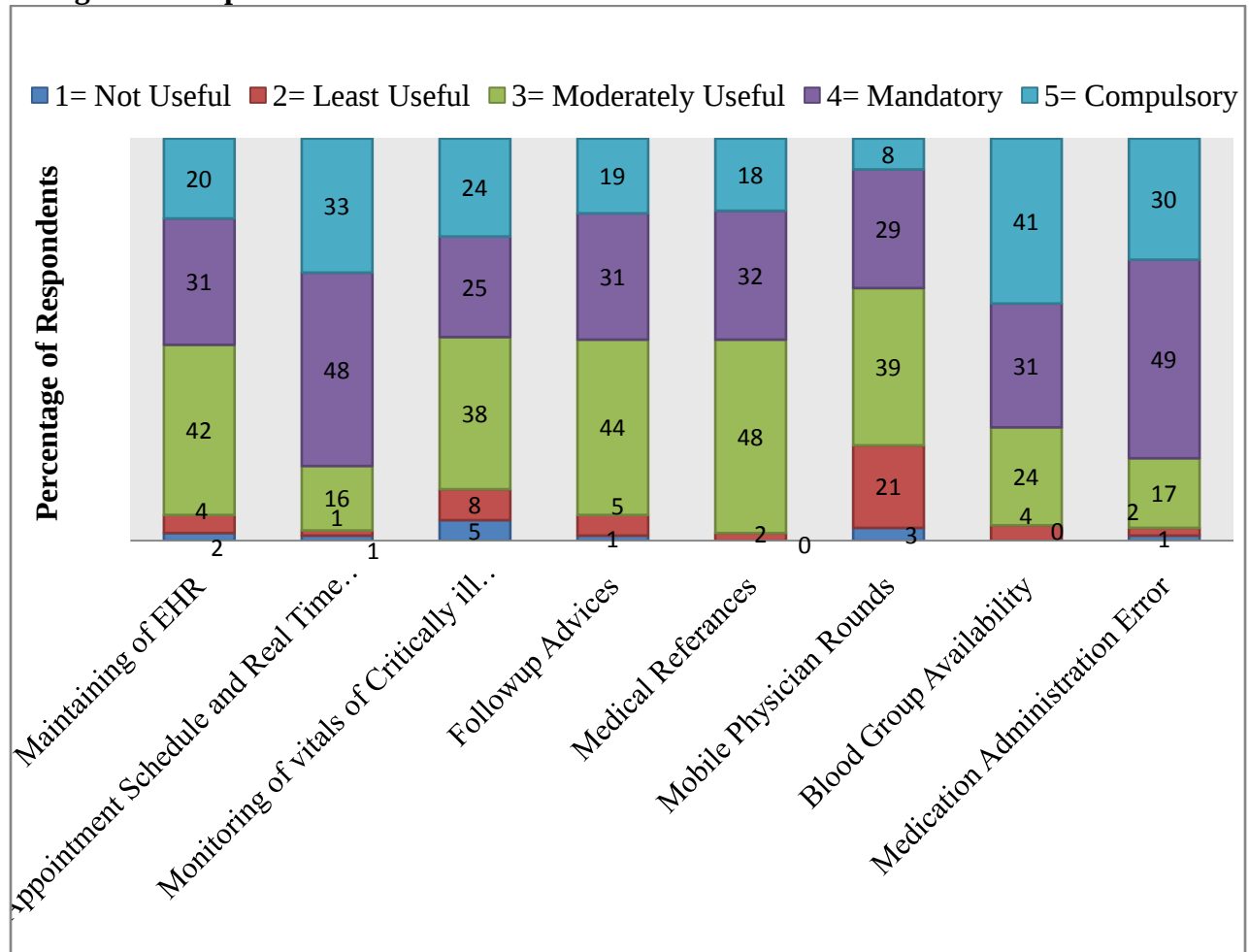
Figure 3: Information Flow in Respondents Workplace



4.4 Usefulness of Mobile Devices in Clinical Administration

The respondents were asked to rank usefulness of mobiles in clinical administration on a scale from one to five, where one stands for Not Useful and five stands for highly useful or mandatory in nature.

Figure 4: Respondents View: Usefulness of Mobile Devices in Clinical Administration

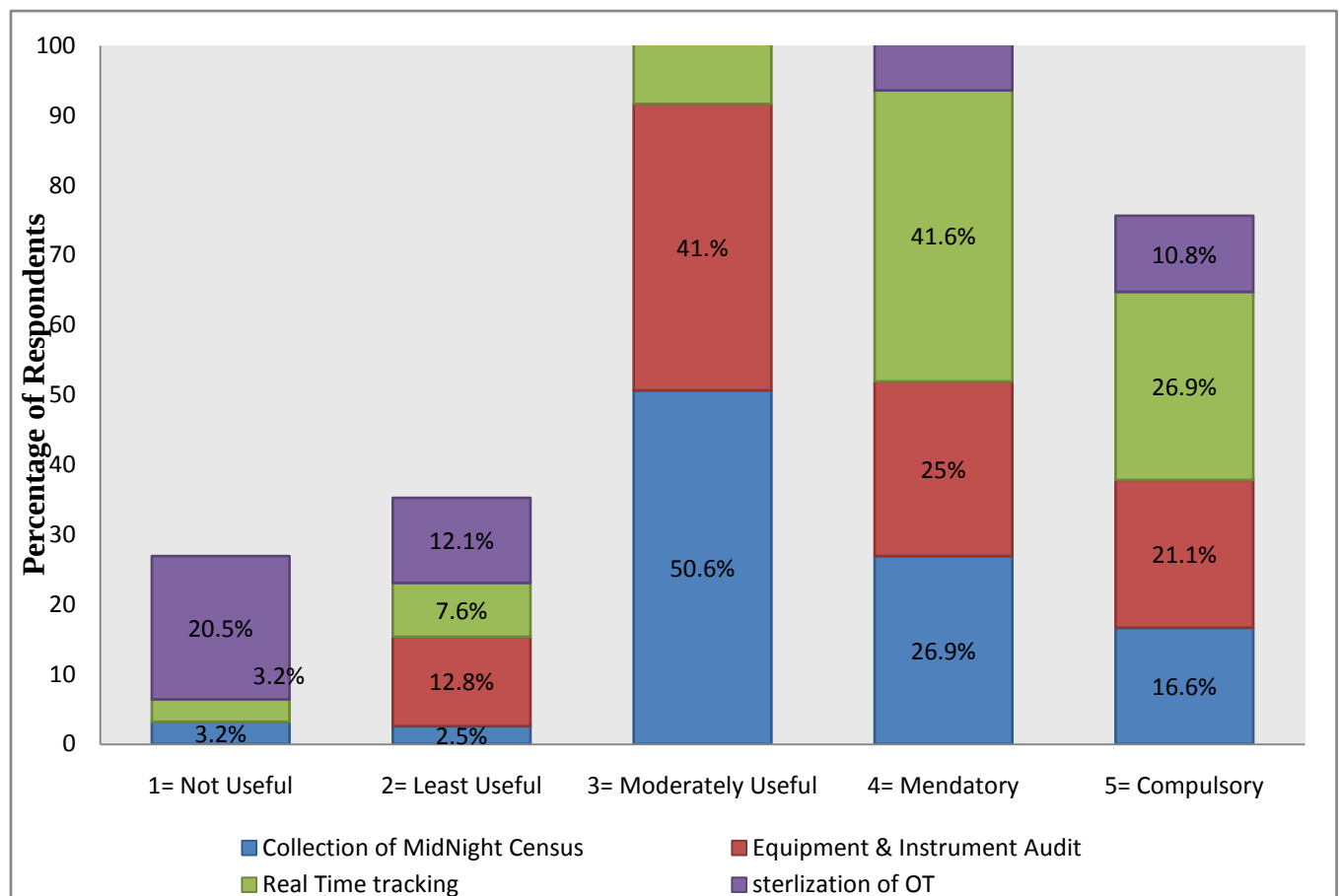


The above figure 4 shows that 41% of respondents perceived that blood group availability on real time basis as a compulsory requirement which is followed by appointment schedule & Real time tracking of patients and Doctors.

4.5 Usefulness of Mobiles for Improving Operational Efficiency

The respondents were asked to rank usefulness of mobiles for improving operational efficiency of a Health care organization on a scale from one to five, where one stands for Not Useful and five stands for highly useful or mandatory.

Figure 5: Respondent view: Improving Operational efficiency through Mobiles

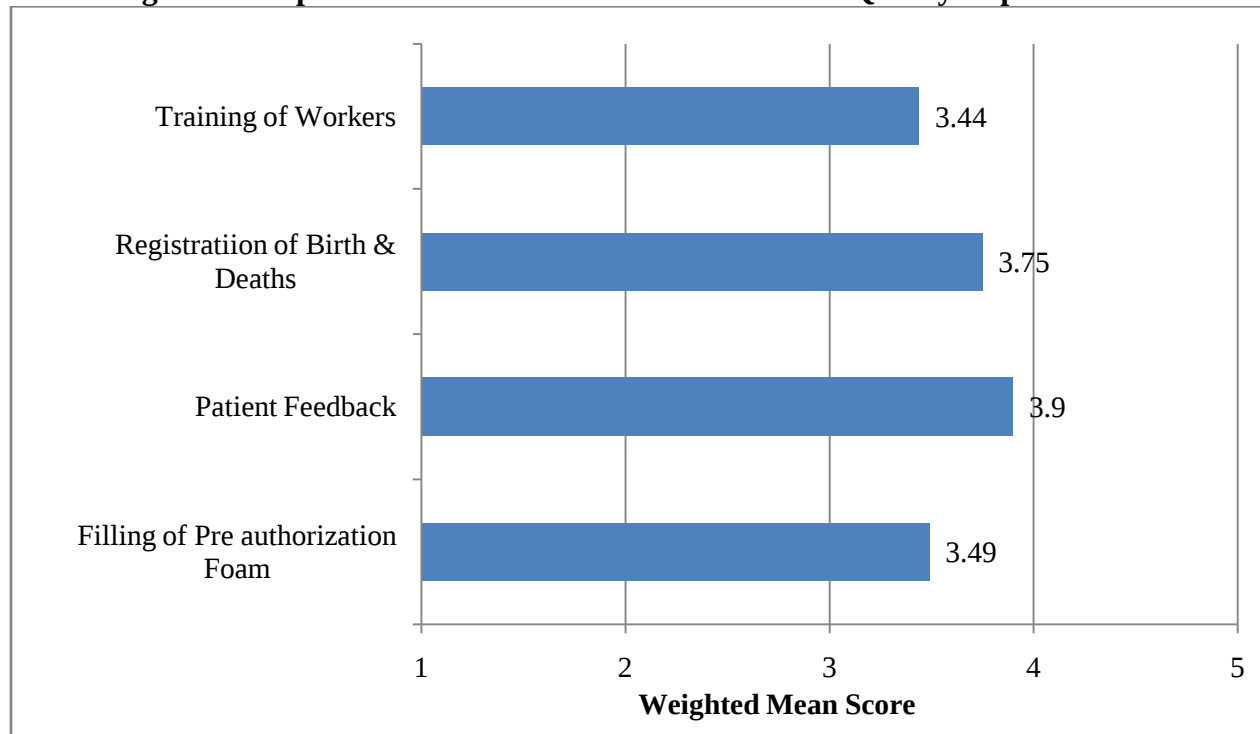


The above figure 5 shows that 41.6% of the respondent want Real time tracking of patients and doctors as a mandatory mobile application which is followed by collection of mid night census that will be moderately useful strategy of mobile health applications.

4.6 Usefulness of Mobiles for Quality Improvement

As Health care access, affordability, and quality are problems all around the world. To improve the quality of services in health care organizations, how mobile technologies can help, the respondents were asked to rank usefulness of mobiles in improving the quality of a Health care organization on a scale from one to five, where one stands for Not Useful and five stands for highly useful or mandatory service. The responses further analyzed by using concept of weighted mean.(Figure 6)

Figure 6: Respondent View: Usefulness of Mobiles in Quality Improvement

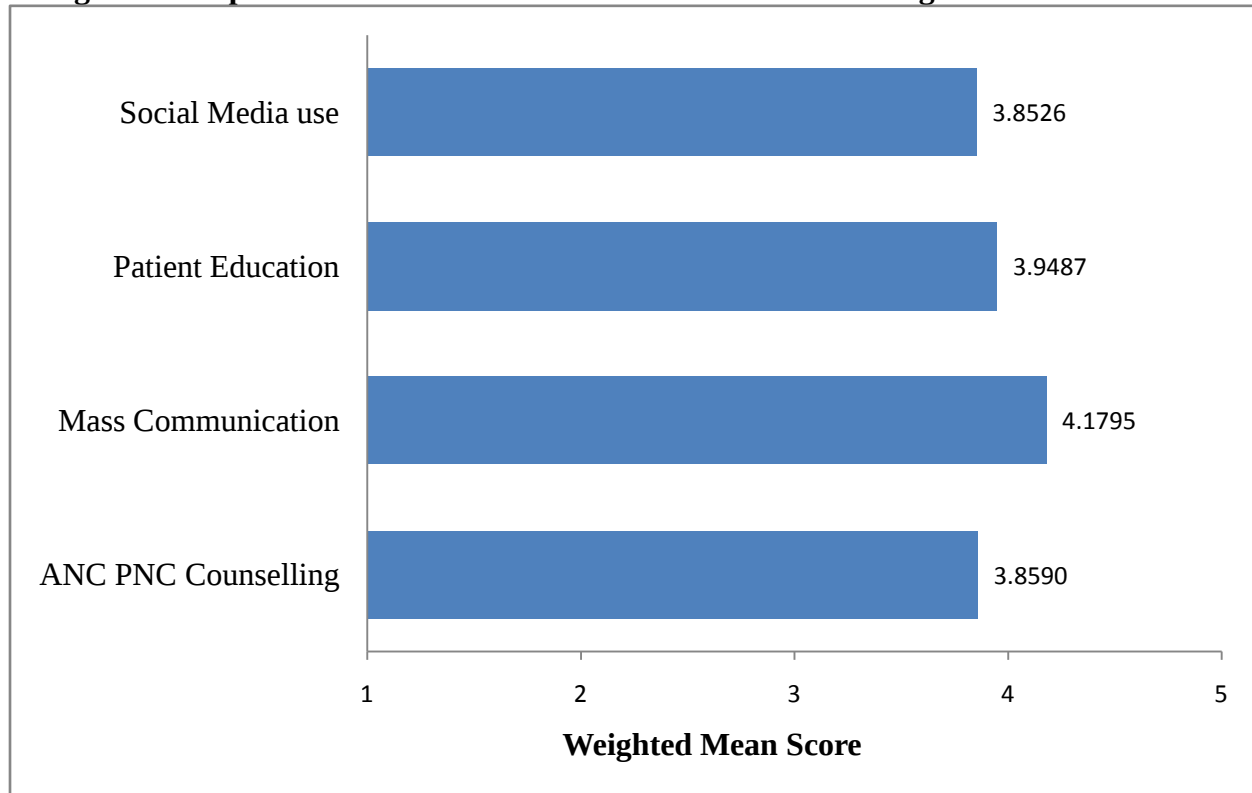


The above figure 6 shows that patient feedback by using mobile application would be a good strategy for improving the quality of services as it has maximum mean score of 3.9 among all other quality improvement parameters which was followed by Birth and death registration and filling of Pre authorization forms.

4.7 Usefulness of Mobiles for Marketing and Public Relation

The respondents were asked to rank usefulness of mobiles for Marketing and public relation of Health care organization on a scale from one to five, where one stands for Not Useful and five stands for highly useful or mandatory service.

Figure 7: Respondent View: Usefulness of Mobiles for Marketing and Public Relation

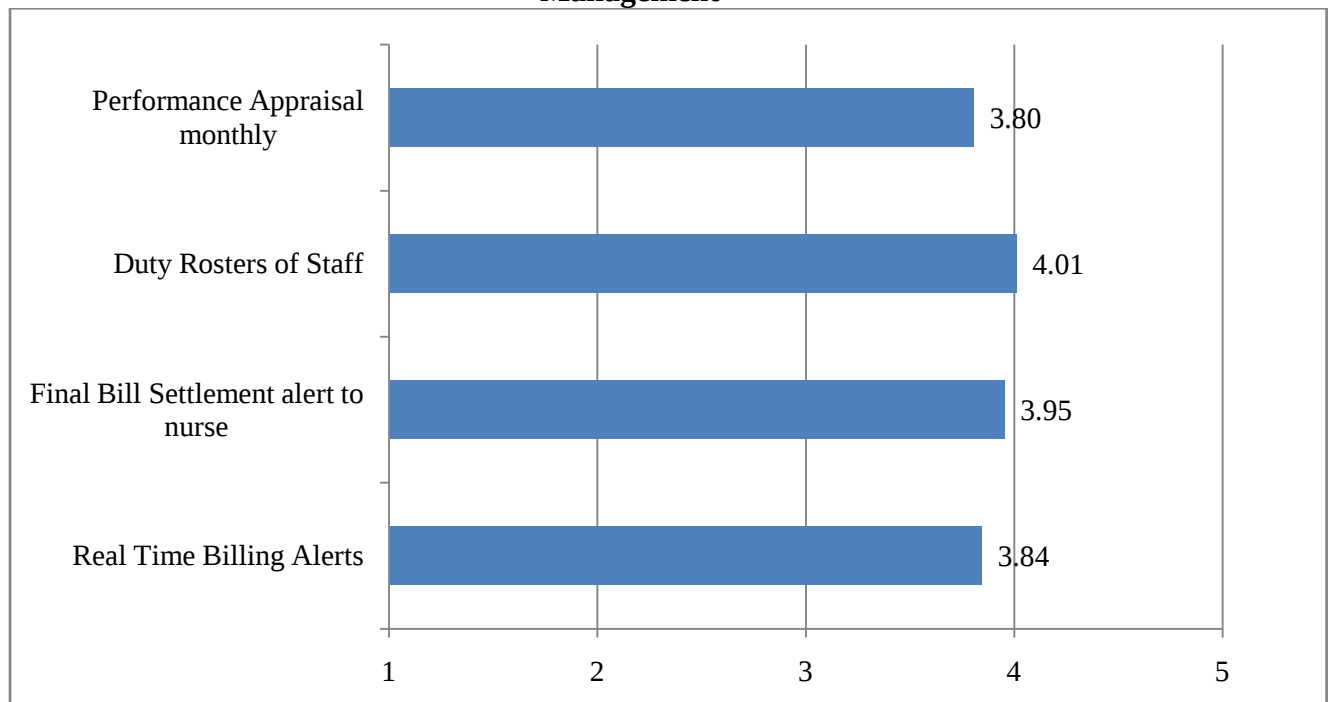


The above figure 7 shows that usefulness of mobile technology in mass communication will be of great importance as it had mean score more than four which was followed by educating the patients, ANC & PNC counseling using mobile applications.

4.8 Usefulness of Mobiles for Finance and Human Resource Management

The respondents were asked to rank usefulness of mobiles for Finance and Human Resource management of Health care organization on a scale from one to five, where one stands for Not Useful and five stands for highly useful or mandatory service.

Figure 8: Respondent view: Usefulness of Mobiles for Finance and Human Resource Management



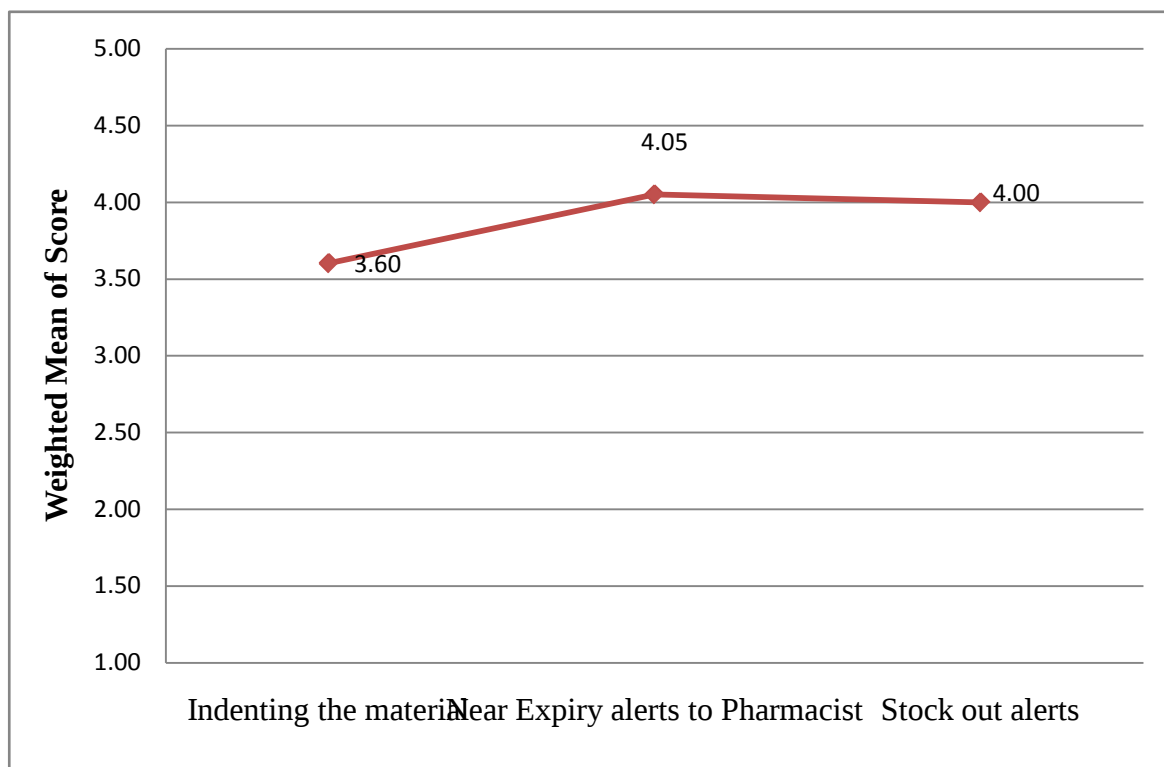
The above figure 8 shows that maintaining the duty roster of staff and implementation of this through mobile application should be compulsory as it got mean score of four followed by monthly performance appraisals of the employees.

In finance management final bill alerts to the respective ward in charge nurse and patient should be compulsory service as it gets mean score of 3.95 followed by Real time billing alerts to the patients.

4.9 Usefulness of Mobiles for Purchase and Inventory Management

The respondents were asked to rank usefulness of mobiles for purchase and Inventory management of Health care organization on a scale from one to five, where one stands for Not Useful and five stands for highly useful or mandatory service.

Figure 9: Respondent view: Usefulness of Mobiles for Purchase and Inventory Management

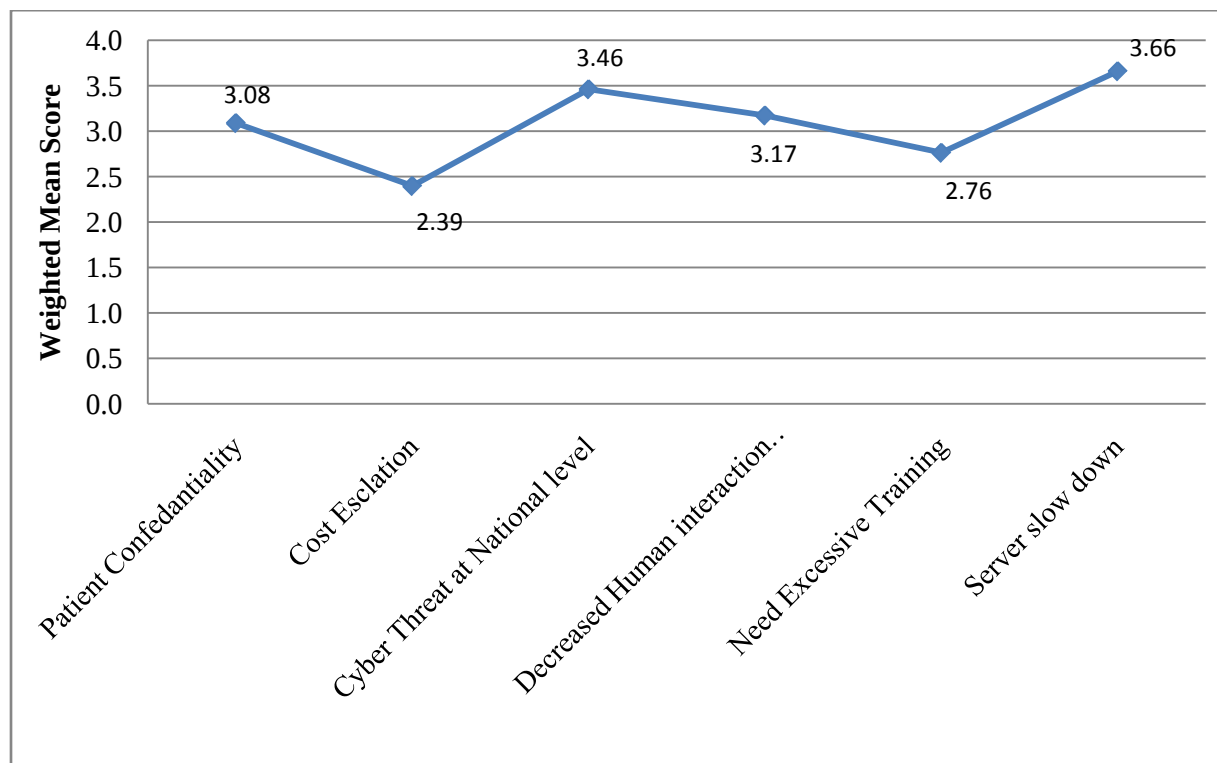


The above figure 9 shows that Near Expiry alerts to the pharmacist gain maximum mean score of four, which suggested that it should be a compulsory mobile health service in a health care setting. The stock out alerts also is a compulsory mobile health service in an organization as it also gets a mean score of four followed by indenting the material through mobile applications.

4.10 Threat of Mobile Technology in Delivering Health care through Mobiles

The figure 10 shows the comparative presentation of respondent view about threat of mobile technology in health care delivery in terms of mean of score on a scale of one to five, where one stands for least dangerous and five stands for highly dangerous.

Figure 10: Respondent View: Threat of Mobile Technology in Health Care Delivery

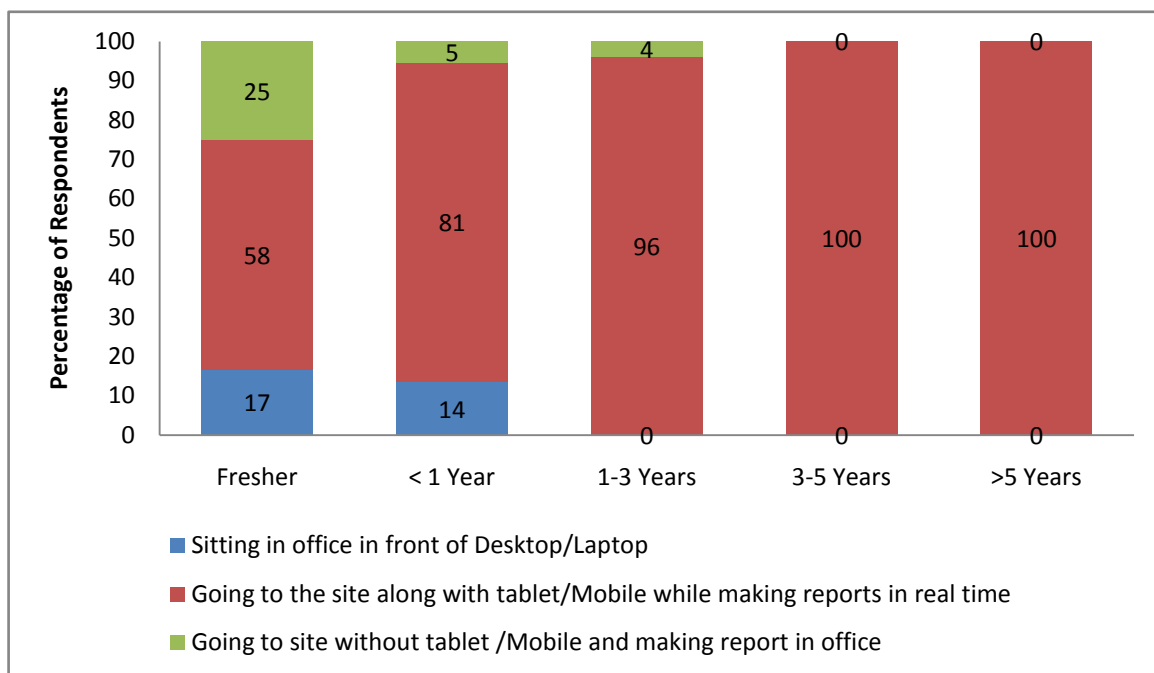


The above Figure 10 depicts that Server slow down and Cyber threat at national level can be a big threat of mobile health care delivery as it scores 3.66 and 3.46 mean score respectively on a scale of one to five. Another big threat of health care delivery through mobile can be Patient confidentiality.

4.11 Relationship between Work Experience and Willingness to Work as a Senior Manager

The below figure 11 shows the relationship between work experience and willingness to work as a senior manager. There is also statistically significant relationship between work experience and willingness to work as senior manager (p value $<.005$). As the person get experience he/she has more willingness to work as going to site along with tablet/mobile while making reports in real time

Figure 11: Relationship between Work Experience and Willingness to Work as Senior Manager



5. Discussion

According to the Response Rates, standards and the journal by Jack E. Fincham, response rate 60% for the most research should be the goal of researcher and expectation of the editor of the journal. Lack of the responses to the questionnaire by potential respondents is referred to as non response biases. If the response rate of a survey is 20%, the non response bias is 80%. Brick and Kalton suggest that one way of dealing with lack of representativeness is to weight the study sample segments to reflect the greater population attributes. According to surveygizmo survey on response rate of external online survey is 10-15% average. Its depends on various factors like contacts of researcher, length of survey and interest of respondents.etc

The value of personal health records (PHRs) has been debated and continues to be uncertain. But in large healthcare organizations like Kaiser Permanente and Group Health Cooperative, where PHRs are linked to EHRs, millions of patients are using PHRs to view parts of their medical record, see lab results, request prescription refills and appointments, and e-mail their physicians. Patients at the Palo Alto Medical Foundation who had PHRs indicated that these tools made them feel like part of the medical team and kept them in closer touch with their providers. Our study also recommended that maintaining of electronic Health records will be of great importance for clinical administration.

Studies demonstrate that patient engagement is essential to improving health outcomes and that the lack of such engagement is a major contributor to preventable deaths. in fact, it is estimated that 40 percent of deaths in the U.S. are caused by modifiable behavioral issues, such as smoking and obesity. People with chronic diseases take only 50 percent of the prescribed doses of medications, on average. Fifty percent of patients do not follow referral advice and 75 percent do not keep follow-up appointments. In this study follow up advices also gets 3.5 mean score on a

scale of one to five which mean it would be a compulsory strategy to built quality driven strategy.

There is a strong relationship between work experience and willingness to work as senior manager. As the work experience increases from one to three years, the philosophy of working as senior manager would be change from office work to onsite work and making report in real time by using smart phones.

There is also strong relationship between type of mobile phone and use this in clinical administration specially for scheduling of appointments & real time billing alerts to the nurses and patients and maintaining the electronic health records. As the person having more featured smart phone he/she has willing to add on these clinical administration features in his/her smart phone.

6. Conclusion

The aim of this study is to find out strategies to built successful mobile based services for health care delivery through an innovative approach by young professionals. The maximum participants of this study were young professional who have less than 5 years of experience in the field. The respondents were asked about their current status of using mobile technology and their acceptance of mobile technology in different arena of health care management. The major findings of the study which further suggest building the strategies to develop successful mobile based applications as follows:

1. The mobile application which allows health care managers to work on real time basis while they are in the field would be of great acceptance.
2. The mobile application which allows Maintaining of electronic health records and appointment scheduling and real time alerts to the patients and doctors would be of great importance in clinical administration.
3. The mobile applications which allow collection of mid night census and provide real time tracking of the patients and doctors will gain maximum acceptance to improve the operational efficiency of the health care organization.
4. The mobile applications which allow prompt patient feedback and registration of births and deaths through mobiles will have a greater impact on improvement of quality of services.
5. The mobile applications which allow mass communication features and patient education through mobiles will be a choice of policy makers for marketing of their services and improving & maintaining the public relations. (Like 1% of respondents were using Whatsapp.. for mass communication within their organization)

6. The mobile application which have feature of assigning duties to the staff and proper management of duty rosters will be of great use for human resource management.
7. The mobile applications which have features that will provide final bill settlement alerts to the concerned nursing staff at the time of discharge can improve the smooth flow of financial activities and it will also decreases the discharge time and finally improve the patient satisfaction.
8. The mobile application which have feature of providing stock out alerts and near expiry drug alerts to the pharmacists will improve the inventory management in hospitals and that will be of great acceptance in the health care professionals.
9. There should be proper policies to overcome threat of mobile technology like Server slow down, cyber threat at national level and compromised patient confidentiality.

7. References

1. The Editors of CIO, Business Technology Leadership, Strategic guide to enterprise Mobile applications.
2. The Deloitte open mobile survey 2012, Open Mobile: The growth era accelerates.
3. A report by Ernst & Young, mHealth Mobile technology poised to enable a new era in Health Care.
4. The Gigantic Lethargic Health Care Industry(Internet).
Available from :<http://www.businessinsider.in/The-Explosion-In-Health-Apps-And-How-TheyreDisrupting-The-Gigantic-Lethargic-Health-Care>
5. Fincham E. Jack, The Response Rates, Standards, and the Journal (Internet).
Available from: www.ncbi.nlm.nih.gov/pmc/articles/PMC2384218/
6. Surveygizmo, Response Rate(Internet)
Available From: www.surveygizmo.com/survey-blog/survey-response-rates/
7. Phytel, Patient Engagement: An Essential Strategy for Population Health(Internet)
Available from: <http://www3.phytel.com/Libraries/Whitepaper-PDFs/Provider-Based-Patient-Engagement---An-Essential-Strategy-for-Population-Health.sflb.ashx>
8. Anand K. Parekh, “winning their trust.” N Engl J Med 2011; 364:e51June 16, 2011.