INTERNSHIP TRAINING

At

AKHIL SYSTEMS PVT. LTD., NEW DELHI

Feasibility, Benefits, And Complexities of Using Teleconsultation Services

By

Kritika Arora
PG/19/039
Health IT management

Under the guidance of Dr. Nitish Dogra

POSTGRADUATE DIPLOMA IN HOSPITAL AND HEALTH MANAGEMENT
2019-21

International Institute of Health Management Research, New Delhi

COMPLETION OF DISSERTATION

The certificate is awarded to

Ms. Kritika Arora

in recognition of having successfully completed her 3 months dissertation with effect from

March 15 to June 15, 2021 and has successfully completed her Project on

Feasibility, Benefits, And Complexities of Using Teleconsultation Services

At

Akhil Systems Pvt. Ltd., New Delhi

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

We wish her all the best for future endeavours.

Mrs. Shweta Gupta Vaish

Hr Akhil Systems

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

The Internship is in fulfilment of the course requirements.

I wish her all success in all his/her future endeavours.

Dr. Nitish Dogra
Associate Professor
IIHMR, New Delhi

CERTIFICATE OF APPROVAL

The following dissertation titled **"Feasibility, Benefits, And Complexities of Using Teleconsultation Services"** at **"Akhil Systems Pvt. Ltd., New Delhi"** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **PGDM (Hospital & Health Management)** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

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Name	Signature
Mr. Pankaj Gupta	_____
Dr. Nitish Dogra	_____
Dr. Sumant Swain	_____

CERTIFICATE FROM DISSERTATION ADVISORY COMMITTEE

This is to certify that **Ms. Kritika Arora,** a graduate student of the **PGDM (Hospital & Health Management)** has worked under our guidance and supervision. She is submitting this dissertation titled **"To Address the challenges to a successful Implementation of Hospital Information System"** at **"Akhil Systems Pvt. Ltd., New Delhi"** in partial fulfilment of the requirements for the award of the **PGDM (Hospital & Health Management).**

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

Dr. Nitish Dogra
Associate Professor
IIHMR, New Delhi

Mrs. Ankita
Business Analyst
Akhil Systems Pvt. Ltd.
New Delhi

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH, NEW DELHI

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled **"Feasibility, Benefits, And Complexities of Using Teleconsultation Services"** at **"Akhil Systems Pvt. Ltd., New Delhi"** and submitted by **Ms. Kritika Arora**, Enrolment No. **PG/19/039** under the supervision of **Dr. Nitish Dogra** for award of PGDM (Hospital & Health Management) of the Institute carried out during the period from **15th March to 15th June.** 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

FEEDBACK FORM

Name of the Student: Kritika Arora

Dissertation Organisation: Akhil Systems Pvt. Ltd., New Delhi

Area of Dissertation: Documentation of all the modules (Miracle Products) of Akhil Systems.

Objectives achieved: Worked closely and understood the work of Akhil Systems, co-ordinating with Clients and support team, asking and resolving Requirements, Documentations of all the Important Modules including Mobile Applications, Business Requirement Documents, and so on.

Strengths: Good communication and presentation skills, Quick Learner and hard worker.

Suggestions for Improvement: Kritika is a very well-behaved colleague. She is hardworking and takes keen interest in self- initiatives. However, her areas of improvement can be Time-management and learn more about existing technologies.

Suggestions for Institute (course curriculum, industry interaction, placement, alumni): Institute can train students more on hospital related workflows for Healthcare IT too.

Signature of the Officer-in-Charge/ Organisation Mentor (Dissertation)

Date: 20/06/21

Place: Delhi

1. ABOUT THE ORGANIZATION

Akhil Systems Pvt. Ltd is one of the pioneer hospital information system (HIS/EMR) organization with more than **26 years** of experience in the single domain of healthcare. With such a vast experience in the single domain, we are proud to believe that we have specialized in delivering total health solutions for ***Hospitals, Medical Colleges, Diagnostics Centre, Pharmacy Chains and clinics.***

Since its inception in **1994**, Akhil Systems has become industry leader for offering comprehensive and cost-effective healthcare software solutions by automating needs of clinical, administrative and financial areas in paperless environment.

With hundreds of successful implementations in India and overseas. Our presence can be felt in **Dubai, Myanmar, Bahrain, Qatar, Philippines, Bangladesh and many more countries**.

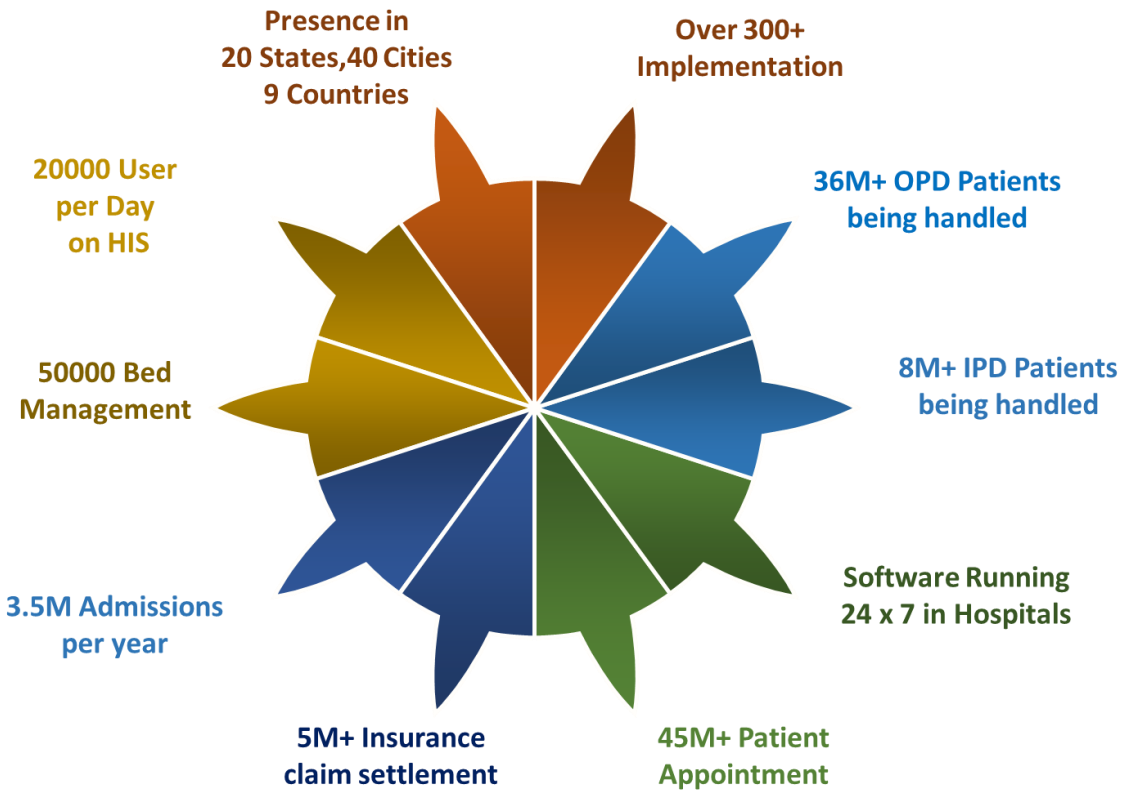


Fig. 1

Vision

We intend to provide the best services to our clients and want to achieve worldwide excellence in Healthcare IT industry by providing our world-class Healthcare ERP solutions.

Mission

To develop, innovate and provide robust Healthcare ERP solutions using latest technologies worldwide as per the client's vision with quick implementation and affordable cost.

Journey So Far

- Highest No. of Successful HIS installations in India
- Provided solution from 20 Beds to 1800 Beds Hospital
- Software Running 24 x 7 in Hospitals for last 25 years
- Recognized as *20 Most Promising Solution for Healthcare* 2016 by Silicon India Magazine
- Awarded *"Best HIS & HMIS Provider of the Year"* at 4th Annual e-Health Healthcare Leaders Award on 12th March, 2015 at New Delhi
- Recognized as *"Company of the Year'14 – Healthcare HIS"* by CIO Review Magazine
- Winner of *"Best HIS and HIMS Provider of the Year – 2013"* by e-India Award

Fig.2 Awards and Accolades

Presence In Worldwide

Fig. 3

1.1 MIRACLE HIS-OVERVIEW

Akhil Systems MIRACLE HIS is a comprehensive and complete solution designed that automates the clinical and administrative functions and enables the healthcare providers to improve their operational effectiveness, consequently reducing costs and medical errors, while enhancing quality of care. Our solution is designed to meet requirements of hospital of all sizes, medical colleges and nursing homes.

We understand the unique workflows and information needs of various care types, our product has been designed with modular architecture to cater to the requirements of the various departments and specialties of the hospital such as OPD, IPD, Emergency Care, Nursing Care, Pharmacy, Laboratory, Radiology, Inventory Management, Operation Theatre and many more.

Miracle Product Line

Fig. 4 Miracle Product Line

Miracle HIS Benefits

- Customized solution with total support for smooth running by medical & software specialists with over a decade experience in healthcare IT
- Eliminates redundant paper work & maintenance of records
- Builds efficiency & productivity with better work flow management
- Simple to learn & operate by non-computer background users
- Facilitates generation of accurate billing & revenue control
- Centralized database management storage
- Boost's hospital revenues— follow up revenue generation stream
- Improved bed utilization stream
- Maximizes resource utilization across all hospital departments
- Improves hospital administration through streamlining workflow operations
- Rapid deployment and quick return on investment
- Multi-site reporting and dashboards for management
- Easy adoption of technology, reduces upfront investments

INTERFACE WITH MIRACLE HIS

Our Akhil his is enabled for the following interfaces required by the hospital and offered to the hospital as per their requirements on chargeable basis:

- Interface with Laboratory Equipment
- Interface with Bar Code
- Interface with PACS
- Interface with SMS Technology
- Interface with Drug Database

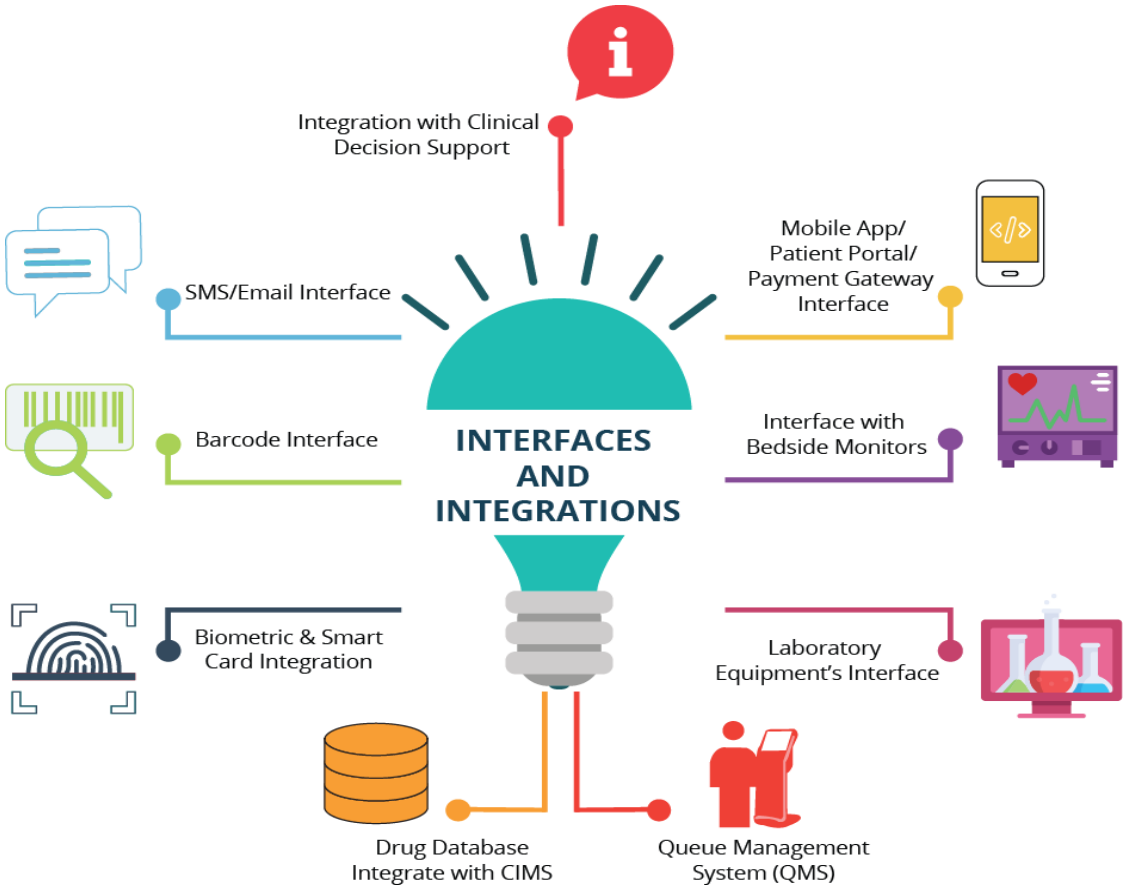


Fig.5 Interfaces and Integrations

1.2 MODULES OF MIRACLE HIS

1. Emergency

An emergency department (ED), also known as an accident & emergency department (A&E), emergency room (ER), emergency ward (EW) or casualty department, is a medical treatment facility specializing in emergency medicine, the acute care of patients who present without prior appointment; either by their own means or by that of an ambulance. The emergency department is usually found in a hospital or other primary care centre. Due to the unplanned nature of patient attendance, the department must provide initial treatment for a broad spectrum of illnesses and injuries, some of which may be life-threatening and require immediate attention. In some countries, emergency departments have become important entry points for those without other means of access to medical care.

2. Registration

Maintaining record of all the patients is a troublesome and time-consuming task. These days any hospital cannot depend on paper to maintain name record and hence, it requires an electronic solution to reduce the effort. Miracle HIS provide an easy way out for maintaining and managing name records of the all the patients. Registering patient name along with other personal information helps in organizing a manageable database. This database is easily accessible and could later be used by the provider, front desk, administrator or any authorized personnel. Hospital could use this data for analytic purpose as well. Miracle HIS is packed with multiple modules and most of these modules are interconnected. Registering patients using Miracle HIS is simple and allows user to omit human errors. Any correction or modification in the patient's record is one-minute task. User may need to enter remarks every time they make any changes. Miracle HIS also provide an option to add notes in the registration module.

Patient Registration – The patients visiting in the hospital are categorized into two types:

- General Patients
- External patients

3. Appointment

Time is the most precious entity that humans have been gifted by nature. Utilizing it judiciously is challenging. To maintain a smooth flow of work and work environment we assign time window to each patient where he/she could interact with the doctor or go through the treatment procedure. Managing large number of appointments and keeping a record of doctor's availability is intricate task. Miracle HIS has made this process easy for the operators. Using 'Appointment' module of Miracle HIS, operator could easy maintain a database of doctors, their time schedule, patient's arrival details and other necessary details of the patient. Through this module operator can make an appointment for patients with their respective doctor. Appointments could be booked over telephone, over hospital's website and online portals. A patient could simply walk-in for an appointment too. This module saves a lot of time and avoids all the time related conflicts. Operator can also keep a check on all the confirmed and unconfirmed appointments. Operator can easily manage all the unpaid appointment schedules.

4. Billing

Generating good revenue is a key process that leads to making of a successful business. Collecting money from the clients and keeping a record of each transaction is an intricate task. It involves a great deal of patience and good maths. One must be very careful before charging their clients (patients in this case). One wrong transaction could disgrace the reputation of the institution. Generating manual bills is a time-consuming task. One could possibly make errors in calculation or in writing the names of the medical services provided. One could make errors in calculating taxes manually. No matter whatever the reason is, one wrong bill would ultimately lead to patient's dissatisfaction. This module is used to perform the monetary events in the hospital, including Outpatient and Inpatient billing.

5. ATD – Admission, Transfer & Discharge

Used in health care, an ADT system is usually the foundation for other types of health care information systems because it holds valuable patient information such as a medical record number, age, name, and contact information. Using the ADT system, patient information can be shared, when appropriate, with other health care facilities and systems. ADT systems can also be used as an alert system upon a patient's admission. This can be helpful if a patient has had a history of an infectious disease or heart ailments. For example, when admitted, the ADT system may alert the admitting staff that the patient needs to be in an isolation room or on a cardiac floor. This Module enables advance Booking of Beds, Surgery & other Facilities in a hospital. The system maintains status of occupied & vacant beds.

6. EMR

An EMR (Electronic Medical Record) is a digital version of a paper chart in a clinician's office. It contains the medical and treatment history of the patients. An EMR allows a clinician to track data over time, easily identify which patients are due for preventative screenings, check how patients are doing on certain parameters such as blood pressure readings or vaccines and monitor and improve overall quality of care within the practice. An EMR is said to make the process of patient record-keeping easier, more accurate and comprehensive and more efficient. Doctors use specialized software, which allows them to enter information electronically and makes and patient's complete history available immediately. Physicians can use a desktop, laptop or electronic clipboard to navigate through patient's charts and record notes.

7. LIS – Laboratory Information System

This module provides multi-site, multi-facility specimen/sample tracking and lab support, accurate, up-to-the-minute patient data and charge information. Automatic generation of collection lists, labels and worksheets, instant comparison and statistical analysis of test results, on-line patient inquiries, reports, and summaries, integrated inventory management and maintenance scheduling for laboratory instruments/equipment, Lab Register Maintenance, Equipment's Interface for capturing of result etc.

8. RIS – Radiology Information System

A Radiology Information System (RIS) is a software suite for managing medical imagery and associated data. RIS in HIS is especially useful for managing radiological records and associated data in multiple locations and is often used in conjunction with a picture archiving and communication system to manage work flow and billing. RIS can track a patient's entire workflow within the radiology department. Images and reports can be added to and retrieved from electronic medical records (EMRs) and viewed by authorized persons.

9. Ward Management

Hospitals consist of departments, traditionally called wards, especially when they have beds for inpatients, when they are sometimes also called inpatient wards. Hospitals may have acute services such as an emergency department or specialist trauma centre, burn unit, surgery, or urgent care. These may then be backed up by more specialist units. In addition, there is the department of nursing, often headed by a chief nursing officer or director of nursing. This department is responsible for the administration of professional nursing practice, research, and policy for the hospital. Nursing permeates every part of a hospital. Many units or wards have both a nursing and a medical director that serve as administrators for their respective disciplines within that specialty.

10. Inventory

A hospital warehouse is a department in a hospital where medical supplies are stored. Such supplies include intravenous (IV) solutions and tubing, first aid products (band aids, wound dressings, gauze, etc.), protective equipment (gloves, gowns, masks, etc.), personal care products/toiletries (wash basins, bedpans, diapers, shampoo, deodorant, toothpaste, toothbrushes, patient belonging bags, drinking cups, etc.), feeding tubes, Foley catheters, respiratory supplies and orthopaedic supplies (crutches, arm slings, splints, etc.). Items in the warehouse may be distributed to various departments within the hospital (such as the emergency room, operating room, intensive-care unit, etc.), through a centralized requisition system which determines what supplies are needed and the amount to each department. For any modern-day hospital, it is next to impossible to keep a record of all the supplies on paper, hence, Inventory module comes in use.

Inventory module covers the functions of Purchase, Stock & Issue of Drug items, Stock Accounting, Inventory Control functions. The Stock Valuation is based on First-in-First-Out system. Inventory module keeps a record of all the purchase orders, availability and the cost of all the previously ordered items. A user can make an order directly to a vendor or make a request to his senior for his approval first. Inventory module allows only authorized personnel to make an order or place any request. Inventory module maintains a dashboard for a quick preview at all the necessary in and out of supplies.

11. Operations Theatre

An operating theatre (also known as an operating room, operating suite, and operation theatre or operation suite) is a facility within a hospital where surgical operations are carried out in a sterile environment. A hospital must ensure that their Operation Theatre(s) or OT(s) are available to be used by any other patient. A hospital also needs to keep a check on every admitted patient's status. To handle all these issues, Miracle© HIS provide OT module to manage all the OTs and their availability in the hospital. This module allows capturing, storing and accessing the patient's operative details and scheduling against different OT's, throughout the hospital facilities, including the steps of OT booking, confirmation, check in, surgery posting and many more for the inpatient as well for the outpatient and emergency patient.

12. MRD – Medical Records Department

The terms medical record, health record, and medical chart are used somewhat interchangeably to describe the systematic documentation of a single patient's medical history and care across time within one particular health care provider's jurisdiction. The maintenance of complete and accurate medical records is a requirement of health care providers and is generally enforced as a licensing or certification prerequisite. The terms are used for both the physical folder that exists for each individual patient and for the body of information found therein. These medical reports are maintained and managed by a department within a hospital facility called Medical Report Department or simply MRD. This department is responsible for the record maintenance.

13. Doctor Accounting

Keeping a track of revenue generated and its distribution amongst the employees is much difficult task than it sounds. This module is responsible for keeping and maintaining the doctor's payment status. This module allows user to define the rules of payment. Most of the providers in a facility do not agree to work on fixed salary basis. They will prefer to get some percentage of the revenue generated by the facility as their salary. Some provided may agree to work on fixed salary plus some profit share. Hospital may deduct or add some money into doctor's salary as per business rules every month. This way, managing the salary part of each doctor gets troublesome. Miracle HIS provide an easy way out of this problem. While maintaining 100% privacy and confidentiality, it allows a hospital to manage monetary transactions easily and errorless.

14. Blood Bank

It is an integrated Blood Bank Automated System refers acquisition, storage, validation and circulation of various live data and information electronically regarding blood donation and transfusion service. Multiple blood banks can be managed by a single Organization. This is an effective management tool for individual blood banks and multiple blood banks under a single Organization. The citizen can avail the blood stock availability status at their fingertips through web and integrated SMS and IVRS facility.

15. CSSD

Every day millions of medical procedures are performed utilizing a wide range of medical supplies, instruments, and equipment. These devices are required to be properly cleaned, disinfected and sterilized to ensure a proper working and good point of care for patients as in absence of proper handling, it can compromise the quality of care. Central Sterile Supply Department (CSSD) plays an essential role in order to provide the quality care and support infection control.

16. Dietary Order Management

Dietary management, also known as “foodservice management”, is the practice of providing nutritional options for individuals and groups with diet concerns through supervision of foodservices. Practitioners in dietary management, known as dietary managers, work in hospitals, long-term care facilities, restaurants, school and college cafeterias, correctional facilities, and other foodservice settings, usually implementing meal plans established by a dietitian or nutritionist. They are responsible for supervising the work of other nutrition personnel such as cooks and dietary aides.

17. Linen & Laundry

Hospital Laundry is one of the most important services which if ignored can induce the risk of cross-contamination as well as soil the patient experience. In the hospital industry, the linens are soiled with various types of body fluid like blood, urine, and faces etc. which need to be disinfected and serviced in a proper streamlined flow to ensure the right quality linen and good point of care for the patients. Linen and Laundry module make sure that linens are processed and cleaned in a streamlined manner so that patient comfortable and satisfactory experience.

18. Insurance Module

Insurance Module is an important module in Hospital Information System. The first purpose or reason to use an insurance module is to maintain the Record of Third-Party Insurance Companies Approval / Rejection.
If any hospital providing cashless servicing to the patients and have tie-up with different types of Insurance companies then is very useful module for the hospital.
Hospital can maintain the all records TPA request, through the module for cashless patients.
At the time Admission, if patient have Insurance policy, then hospital can make admission of the patient in under same Insurance Company (payer / sponsor), hospital/ admission desk has to be check they have tie-up with same Insurance company.

19. Accounts Receivables

The Module is used to manage the amount that has been received from Insurance/ Third Party companies against the invoice raised by the Hospital.

All the refunds, advance collection, settlements are done in this module for the company payer type patient.

20. Financial Integrations

Oracle-RCM & HIS Interface
Oracle-MM & HIS Interface
Tally Integration
SAP Integration

21. Patient Tracking

The Module is used to track the activity of the Patients who have been advised for Surgery, Admission or Radiology Investigations. There is a use of MHC Screen to track the patients came for the Master Health check-up

- An Admission Advise tracking system is put in place for the hospital team for follow up of the patients who have been advised for admission

22. Doctor App

The Doctor app is available with multiple features for doctor such as Booking and viewing OP IP Patient, Viewing Vitals, discharge summary, case sheet etc. **Recently updated with teleconsultation option.**

The Doctor can even view the appointments scheduled for the day or for future dates too and also view its patient under Appointment, IPD Patient and OPD Patient

Doctor can view the following details against the Patient as reflected under the categories:

1. Lab Reports
2. OP Prescription/Discharge Summary
3. Book Appointment
4. Vital
5. Diagnosis
6. Cross Referral

23. Patient App

The Patient App is available for the patients to book appointments, see history of diagnostic reports graphically, and view vital history, Prescriptions etc. **Recently updated with teleconsultation option.**

The user can explore the following options from the main menu:

1. Book Appointment
2. View Appointment
3. Lab Reports
4. OP Prescription/Discharge Summary
5. Vital
6. Diagnosis

7. Favourite Doctor
8. Feedback
9. Write us
10. Profile

24. Miracle Book an Appointment

Miracle book an appointment is a tool allows patient a full access to manage their hospital appointment. It is integrated with hospital website and provide real time booking for patient

Some features of the Miracle Telehealth solution are as follows:

- Book Appointment (By Specialization/Doctor Name/ Facility/Day/Date)
- Doctor profile for appointment booking
- Appointment booking for both registered or unregistered patient
- Make online payment (Payment gateway integration).

25. Patient Portal

It is integrated with MIRACLE HIS and provide real time information for patient to view their case records, lab reports, appointments and many more.

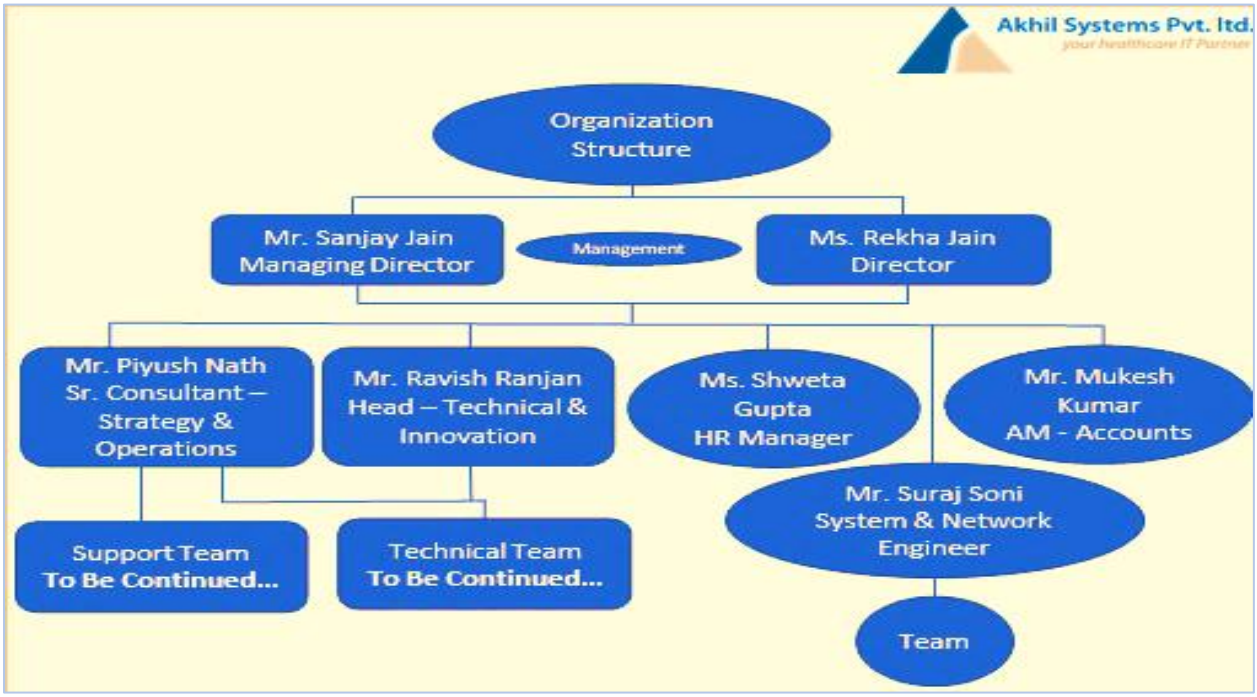
The user can explore the following options:

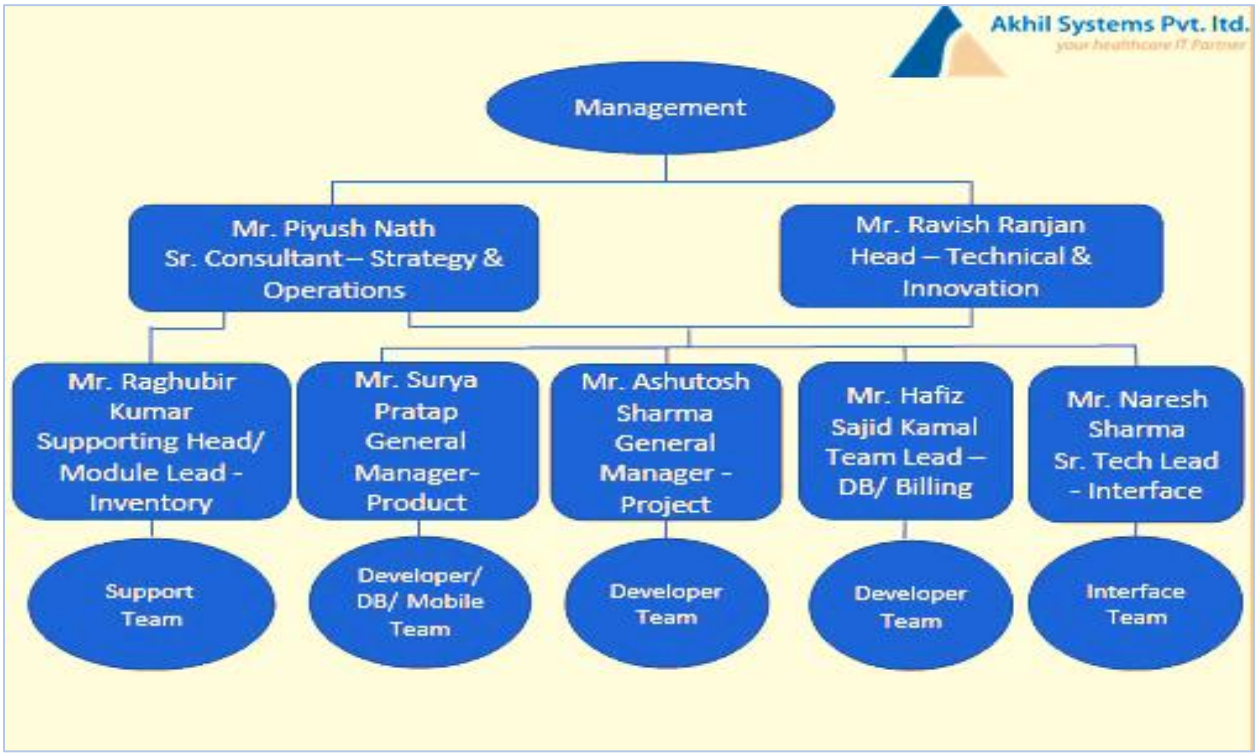
- Take an Appointment (registered patient by logging and un-registered patient using OTP.).
- View Recent Visit and request for follow-up appointment (by logging into portal).
- View lab and RIS reports.
- Give feedback for particular visit.
- Write to hospital for the queries.
- Make online payment (Payment gateway integration).
- View and download discharge summary (for IP patients).
- View doctor timing.
- View patient visited in date range.
- View payment history

26. Tele-consultation Solution

A complete teleconsultation solution which gives freedom to connect providers and patients through virtual channels.

1.3 ORGANIZATION PROFILE





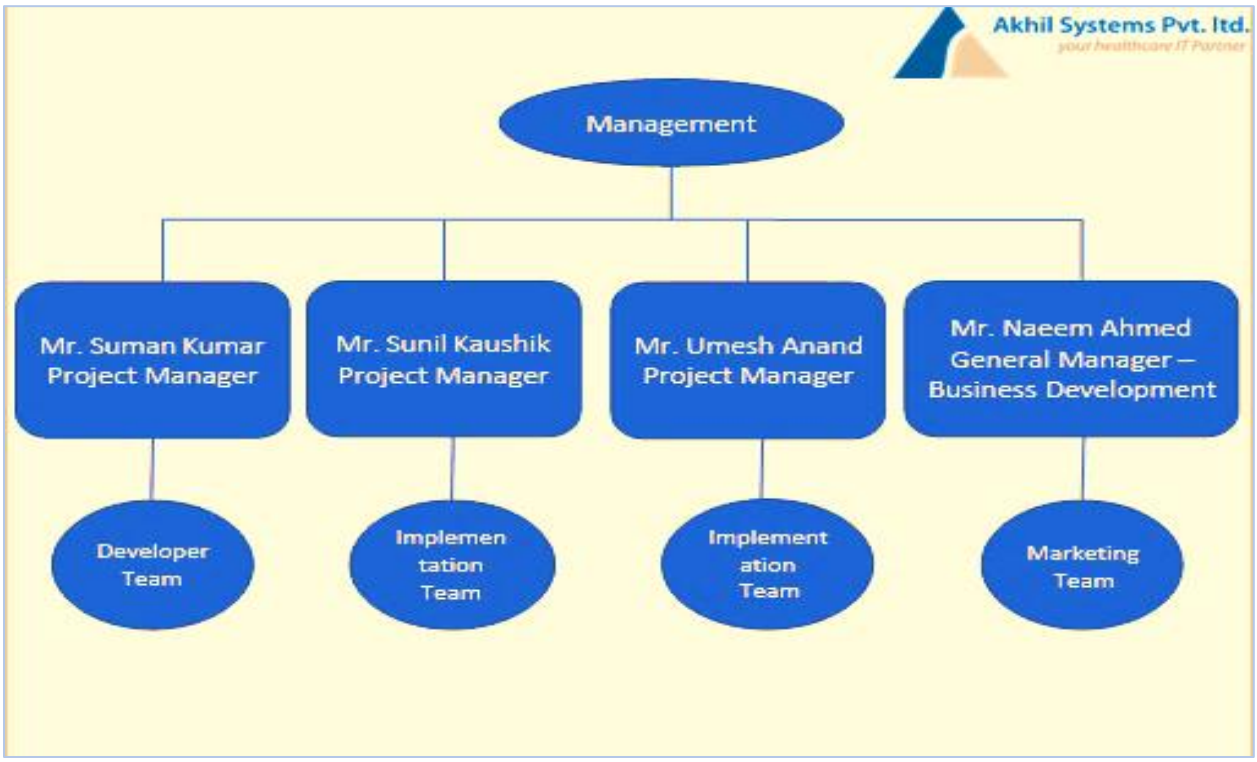


Fig.6 Organization Structure

2. PREFACE

2.1 Abstract

[Keywords- Teleconsultation, Feasibility, Benefits, Challenges]

Teleconsultation is the process of providing medical services using information and communication technology where distance is a factor, doctors and medical professionals provide these services to patients. Telephone communication can also be used in cases where patients and caregivers are unable to access medical professionals due to circumstances beyond their control. In this epidemic, telecommunications are an hour's necessity. As we all know, because of this epidemic, everyone is vigilant, and everyone refuses to leave their homes for fear of contracting a dangerous virus therefore Teleconsultation is the need of the hour. The goal of this study was to assess the quality and use of Teleconsultation services in hospitals. The evaluation focused on the availability, benefits, and complexity of the use of Teleconsultation services in selected hospitals. The questionnaire is designed to assess the role of telecommunications services and their challenges in the hospital. Based on the evidence, we see how Teleconsultation services affect the benefits and accessibility of users. The goal of this study is to evaluate the feasibility, benefits, and disadvantages of Teleconsultation services. This study aimed to assess the evidence of people accessing and using Tele-consultation services through Mobile App. To understand people's perception of the outcomes of Teleconsultation on specialist access and patient care. To study the challenges faced during the use of Teleconsultation services. As a result of an outbreak of coronavirus, there is a high risk that patients will go out and see a doctor in person. To improve patient monitoring and reduce the risk of transmission of the virus by not going to the hospital, teleconsultation is gaining traction as an important communication between patients and physicians that eliminates the need for patients to go to hospital weights. Patients are provided with phone calls such as video consultations, telephone communications, and conversations. Finally, assess the use of Teleconsultation services and the challenges that arise within the acceptance of Teleconsultation. The study used the Mixed Methodology approach to measure where Physicians, Patients, and users Feasibility, usefulness, and challenges of Teleconsultation services were assessed. The study population was the Clinicians, users, and patients of the selected hospitals where Miracle Mobile app Teleconsultation services are Deployed. The study tool included 13 questionnaires, which would be distributed and collected as a survey. Additionally, some articles on Teleconsultation Feasibility and Challenges were reviewed.

2.1.1 ACKNOWLEDGEMENT

I would like to render my sincere thanks to **Mr. Sanjay Jain and Mrs. Rekha Jain (Director, Akhil Systems, New Delhi)** for providing me the opportunity to complete my dissertation. Also, I would like to express my sincere and deep thanks to **Mrs. Ankita Banger (Business Analyst)** who helped me in every possible way and provided me best possible resources to complete my internship.

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Finally, my thanks to all the people who have supported me to complete the research work directly or indirectly.

Kritika Arora

PG/19/039

2.1.2 TABLE OF CONTENTS

2.1.3 LIST OF FIGURES

2.2 DISSERTATION REPORT

2.2.1 Introduction

Teleconsultation is the process of delivering medical services with the help of information and communication technologies. When distance is a barrier, doctors and medical experts give this service to patients. Teleconsultation can also be used when patients and caregivers are unable to access medical specialists due to unforeseen circumstances. COVID-19 has shown to be incredibly difficult for patients to consult doctors in an emergency. Especially when there are stringent lockdown limitations in place and hospitals are hotspots for viral dissemination. Alternatively, if the patient's mobility is restricted due to the disease. Medical professionals can use communication and information services to provide consultation via audio, video, or text-based services. Millions of patients have benefited from this, as they may plan a teleconsultation appointment and schedule their challenges from the comfort of their own homes. Following the widespread spread of the COVID-19 Pandemic, many doctors and medical institutions have turned to teleconsultation visits to meet the demands of their patients. In an era when doctors are dying as a result of the deadly virus, telemedicine and teleconsultation come in handy for scheduling visits without the risk of virus transmission. Medical institutions are pressuring doctors to use teleconsultation and telemedicine as a legitimate source of income, prompting the Medical Council of India to finally update telemedicine in India.

Types of Telemedicine:

Three types of Teleconsultations assist doctors in consulting with their patients. RMP employs three primary types of teleconsultations: text, audio, and video.

TELECONSULTATION VIDEO:

A video is an excellent tool for assisting doctors and RMPs in completing their consultations as quickly as possible. Doctors can study the patient's body language to determine their issues using a visual consultation tool.

A dedicated Video Teleconsultation application, such as the Akhil Systems Mobile App, enables patients to rapidly locate and engage with clinicians.

Video Teleconsultation platforms for doctors make it easier to identify patients who may need to visit the hospital in the future.

Let's take a look at the benefits and drawbacks using video for telemedicine.

Benefits:
The consultation procedure is significantly more efficient with the use of video RMPs can discuss with the caregiver and the patient at the same time with video teleconsultation

Challenges:

To conduct video teleconsultation, a high-speed network connection is required.

TELECONSULTATION AUDIO:

Audio works well for doctor teleconsultation. It is possible to do so via a regular phone call, VOIP, and dedicated software such as UHAPO.

Let's look at the advantages and disadvantages of audio-based teleconsultation.

Benefits:

Audio is convenient, quick, and useful in emergency situations.

It facilitates real-time engagement without jeopardizing data privacy.

Audio is straightforward and does not necessitate any additional infrastructure for scaling.

Challenges:

In the Consultation process, there is a considerable risk of imposters.

There is a chance that doctors and patients will overlook linguistic cues.

Furthermore, it is unsuitable for medical disorders that necessitate a visual examination.

TELECONSULTATION BY TEXT:

Text can also be utilized for teleconsultation and telemedicine. In most circumstances, text-based communication can be used.

The Medical Council of India published a page of Telemedicine guidelines for RMPs on March 25, 2020. In India, this has been an important directional signal for RMPs, teleconsultation platforms, and patients.

Before we get into the regulations of teleconsultation, there are several fundamental principles that every RMP must follow before performing a teleconsultation appointment.

Principles of Teleconsultation:

- The RMP is in charge of determining whether a teleconsultation appointment or an in-person meeting for your medical condition should be scheduled.
- Even if the process is conducted out through Audio, Video, Text, or a combination of all, the RMP must follow the same consultation principles. In other words, it is the role of RMPs to provide high-quality consultation services.
- The RMP reserves the right to cancel the teleconsultation and schedule an in-person consultation at any time.
- Similarly, the Patient or Caregiver can cancel the teleconsultation at any time and choose for an in-person consultation.

The March 2020 teleconsultation standards, like a shared set of principles, must ensure that RMPs and Patients always follow a set of regulations. These regulations must be carefully followed for the safety of both the patient/caregiver and the RMP. It was a practical approach to switch to teleconsultation. However, the country's expertise with telemedicine is minimal. Certain patients may have never heard of video calling, let alone video consulting. However, with over 340 million WhatsApp users, India has a high incidence of smartphone usage. We decided to utilize this software for teleconsultation because it features a video calling feature. The feasibility and patient acceptance of such an approach needed to be explored. (6)

Objectives

Specific Objective:

- The purpose of this study is to assess the feasibility, benefits, and Complexities of Teleconsultation services.

General Objectives:

- This study aimed to assess the evidence of people accessing and using Tele-consultation services through Mobile App.
- To understand people's perception of the outcomes of Teleconsultation on specialist access and patient care.
- To study the challenges faced during the use of Teleconsultation services.

2.2.2 Literature Review

A literature review provides us with up-to-date information, including the key results of the theoretical and methodological bank in a particular region. This is the first stage of the study. A study of the literature allows us to quickly check the current state of research and identify issues that remain unanswered, and the creation of a foundation for future research.

A Video-the indirect clinical research, consultation, and have the potential to overcome the traditional right of consultation in terms of accessibility, ease of use, and, in some cases, for a price. A Video-the indirect dialogue is more accessible, such as the quality of the technology and the reliability is improved. However, there are still some questions about the clinical quality and safety standards. Although there is no in-depth study of their interaction dynamics have been carried out and there is no consensus as to what makes a video consultation, effective, video, indirect, we are sometimes criticized for being inferior to face-to-face in the consultation. (2)

Policy-makers around the world, for sure it will encourage them to make better use of digital technologies, in particular video-conferencing. Virtual media, such as Skype (Microsoft Corporation) FaceTime (Apple Inc.) and Live on The Live, all of them are becoming more and more popular and for communication between patients and their doctors. One of the factors that have an impact on the work of non-institutional settings, it is the solution to the problem, as a member of the high prices and rising costs. Patients will often try to make use of the video conferencing because it can save your time and money, especially for the tertiary health care. The 2019 corona virus disease pandemic (COVID-19) has had a strong focus on the delivery of video services are delivered quickly and on a large scale, and to reduce the personal, social contacts, and to help limit the spread of the disease.

The most recent estimates, which are, in summary, the published studies on, video-based, outpatient treatment advice. They show great promise for the video support in terms of tolerance, safety and efficacy, clinical patients, in a wide range of diseases, such as diabetes, eye care, cancer treatment, chronic renal disease, spinal cord injuries, and chronic obstructive pulmonary disease, psychiatric disease, down's syndrome, cerebral palsy, chronic pain, and physical therapy, such as the power supply and the language of the therapy. (1)

To assess the feasibility and acceptability of a large part of the literature uses experimental methods to classify a service model in the first place, in a particular technology, and tasks or work that is clinical, supported by technology, and surveys are typically used in small fragments. There is a lack of information about the releases. Patients who are concerned about their privacy, safety, security, and the ease with which the technology may be in use. According to some studies, older people are less excited about it for the video conferencing. Qualitative analysis of the issues associated with the engineering problems, such as pixilation, or the quality of the sound, as well as the quality of the treatment, for example, due to a lack of physical control.

There has been very little research directly focusing on the dynamics by means of a video-taking part in the health of the consultation process, and how videos can be used to influence the communication. So far, only eight of the studies have considered co-operation, in the video, discussion, and only one of them is considered to be a video of that on both sides of the discussion. Ekberg, and colleagues examined the use of virtual media, and improve cognitive-behavioral therapy in the treatment, speech and language therapy, and with notice of the fact that the doctors were able to get to the dialogue and the communication is correct in both cases. (3)

In a series of studies with a focus in video-mediated cardiovascular and cardiac opinion, Pappas, et al. We have studied a video consultation with the patient, with the help of a primary care physician (general practitioner or registered nurse), consultations with a specialist, the general practitioner's practice. It was found that, in the clinical judgment and the decision-making process to be effective, and the video will be allowed for a general discussion, and shared to help you. In order to continuously keep track of the patient's commitment, the specialists have been forced to take their obligations under the video area (for example, running between meetings, and began talking to manipulate the camera angle).

A previous study by our team, in comparison to a video consultation, the patients with diabetes, and post-operative cancer treatment with the selected face-to-face consultations, and presented a brief summary of what is and what is lost when doctors and patients to communicate at a distance, for example, that the total length of the video consultation is much less, and there are pauses in the conversation, when compared with an equivalent face-to-face in the consultation. (4)

Stommel et al. We have investigated the occurrence of post-operative video-conferencing, with a small, but significant, differences in the interaction, the more prosocial conversation at the beginning of the video dialogue, and the role of the people in the video-conferencing, in which it is most often behind the scenes, invisible to the doctor, and rarely take part in the interaction. In addition to health, there is a growing body of research on the ways in which video can have an impact on the level of interaction. It is an early study on the video by means of the interaction, it is shown how the technology can be harmful for the conversation to flow.

People will be able to see and hear one of the steps that occur during the face-to-face interaction, but in the case of video-mediated interaction, or they will hear and see for milliseconds in a phenomenon called the lag. Such delays might seem insignificant, but they can also have a significant impact on the interview, because they can interfere with the operation of the system of rules by which the participants can be used to control who is allowed to speak at a particular point in the discussion (to run), and such problems as misunderstanding (correct). Video technology may have an impact on the quality of the interaction and the user experience, allowing participants to correctly follow all of these recommendations. Other scholars question whether the technological issues such as no sound, and new types of interruptions, such as a

family member who is in a room, have an impact on the relationship. In the case of video conferencing in healthcare, such evidence has not yet been investigated.

To sum it up, the examination of video-consultation, it appears that they are affordable, safe, secure, and convenient health care, and the proof of their participation in the consultation, it is not an easy one. Only a few studies have examined the impact of movies on the micro dynamics of interaction in the field of medical consultations. As a result, very little is known about how the different communication methods, forms of communication, speech, behavior, body, style, and attitude), technology, material, grades and/or high-speed Internet for the quality of the impact on the company's participation in the video, the health care system. (5)

2.2.3 Methodology

The design and configuration of the study:

• The study was a descriptive cross-sectional study, both primary and secondary data.

Research Tool:

• Quantitative Questionnaire Based Study

Sample Size:

• n=52

Target population:

• Client and users of Akhil System's

Time of Study:

• March-May 2021

Inclusion criteria:

Patients, Users, and Doctors who have deployed Akhil's Teleconsultation Mobile App.

Exclusion criteria:

Others who have not deployed or used Akhil's Teleconsultation Mobile Application.

Limitations:

• Due to lack of resources the sample has been limited to people who responded until June 8'2021.

• The survey only addressed people who have been using the Teleconsultation Mobile Application.

Ethical Considerations:

• Confidentiality was ensured and was explicitly stated in the consent form.

• During the process of data collection and data entry due data security was followed.

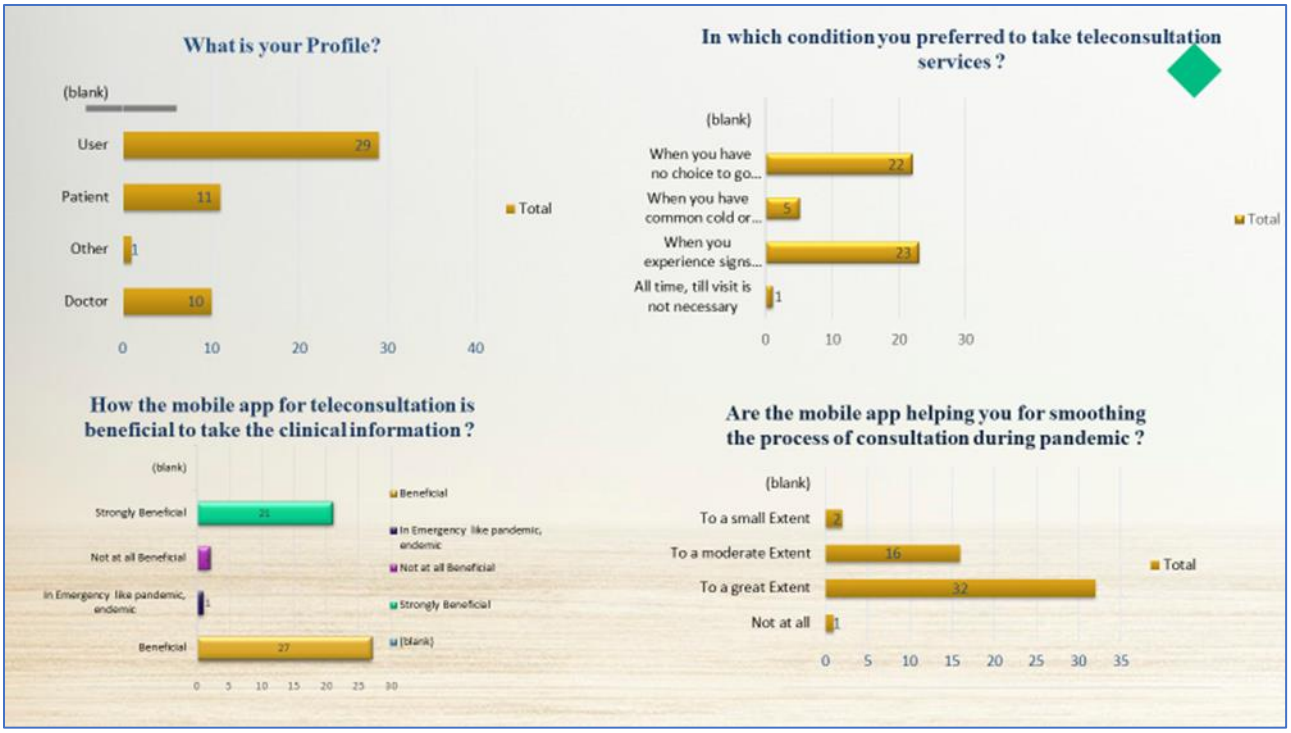
• Google forms were collected and stored securely.

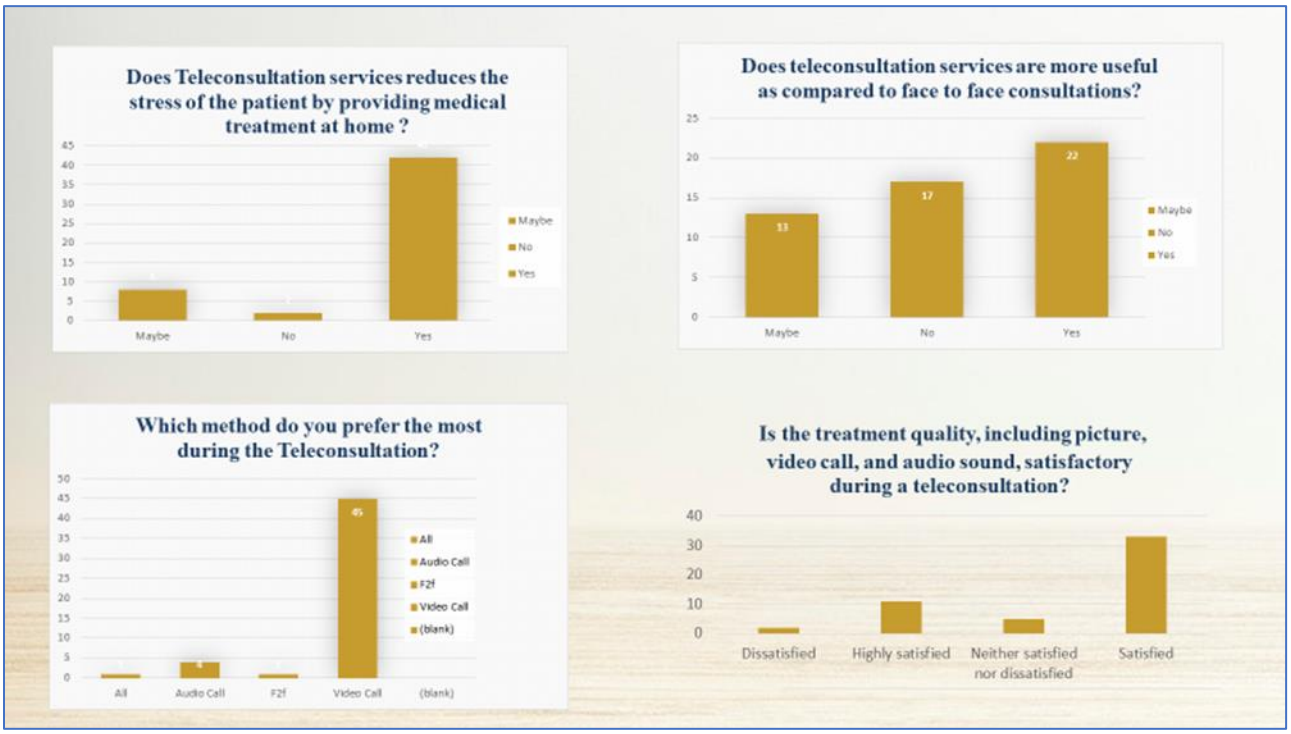
The research was a descriptive cross-sectional study that incorporated both primary and secondary data. The survey's target audience comprised all Patients, Doctors, and Users of the Teleconsultation Mobile App. The web link was shared with the 50 possible participants via WhatsApp, text messages, and e-mails. Google Forms was used as the survey tool. It had thirteen questions that covered three general areas: first, the respondents' comments on the feasibility of using teleconsultation; second, the benefits of Teleconsultation services and the addressability of their concerns. When multiple-choice questions were asked, each response was given equal weightage; for example, if each of the 52 respondents submitted one response, a total of 52 replies were assessed.

During the answer process, participants were made aware of the topic "feasibility, benefits, and Complexities of Teleconsultation services," and a short message appreciating the importance of their contribution to the study was issued, with a focus on the anonymity of the response. The poll would take 5 minutes to complete, according to the message. Because no patient or respondent identification information was obtained, no ethical approval was requested.

2.2.4 Results

A total of 50 participants including patients, Doctors, and Users were recruited to measure the Feasibility, Accessibility, and Complexities they face in accessing Teleconsultation Services; of these, all 50 filled the Questionnaire. From within, 29 were users, 11 were patients and 10 were Doctors. The questionnaire took 5 minutes to fill. (41.5%) of them agreed that they prefer to take Teleconsultation services when having signs of COVID or another condition that can be transmitted, (52.9%) benefitted from Teleconsultation by taking Clinical Information through Mobile App, (62.7%) finds Mobile App has a great extent in smoothing the process of Teleconsultation in this Pandemic, (80.4%) of total participants agreed that Teleconsultation services reduces the stress of the patient by providing medical treatment at home, Less than half of the people (41.2%) agreed on the fact that teleconsultation services are more useful as compared to face to face consultations, Majority of the Participants (88.2%) prefer Video Consultations medium the most during the Teleconsultation, (64.7%) were satisfied with the treatment quality, including picture, video call, and audio sound during a teleconsultation, (78.4%) agreed that teleconsultation provide convenient way for scheduling the appointment on time, To some extent (37.4%) face issues like data connectivity, technical issues or confidentiality, Majority of Participants (41.2%) agree on the fact that like Teleconsultation other teleservices such as Virtual ICU's, Teleradiology are future of healthcare, Majority (70 %) believes that Indian Healthcare System provides the necessary push to use the Teleconsultation services in Remote Areas.


What is your Profile?
(blank)
User
29
Patient
11
Other
1
Doctor
10
Total
0
10
20
30
40
In which condition you preferred to take teleconsultation services ?
(blank)
When you have no choice to go...
22
When you have common cold or...
5
When you experience signs...
23
All time, till visit is not necessary
1
Total
0
10
20
30
How the mobile app for teleconsultation is beneficial to take the clinical information ?
(blank)
Strongly Beneficial
21
Not at all Beneficial
In Emergency like pandemic, endemic
1
Beneficial
27
Beneficial
In Emergency like pandemic, endemic
Not at all Beneficial
Strongly Beneficial
(blank)
0
5
10
15
20
25
30
Are the mobile app helping you for smoothing the process of consultation during pandemic ?
(blank)
To a small Extent
2
To a moderate Extent
16
To a great Extent
32
Not at all
1
Total
0
5
10
15
20
25
30
35


Does Teleconsultation services reduces the stress of the patient by providing medical treatment at home ?
45
40
35
30
25
20
15
10
5
0
Maybe
No
Yes
Maybe
No
Yes
Does teleconsultation services are more useful as compared to face to face consultations?
25
20
15
10
5
0
13
17
22
Maybe
No
Yes
Maybe
No
Yes
Which method do you prefer the most during the Teleconsultation?
50
45
40
35
30
25
20
15
10
5
0
45
All
Audio Call
F2f
Video Call
(blank)
All
Audio Call
F2f
Video Call
(blank)
Is the treatment quality, including picture, video call, and audio sound, satisfactory during a teleconsultation?
40
30
20
10
0
Dissatisfied
Highly satisfied
Neither satisfied nor dissatisfied
Satisfied

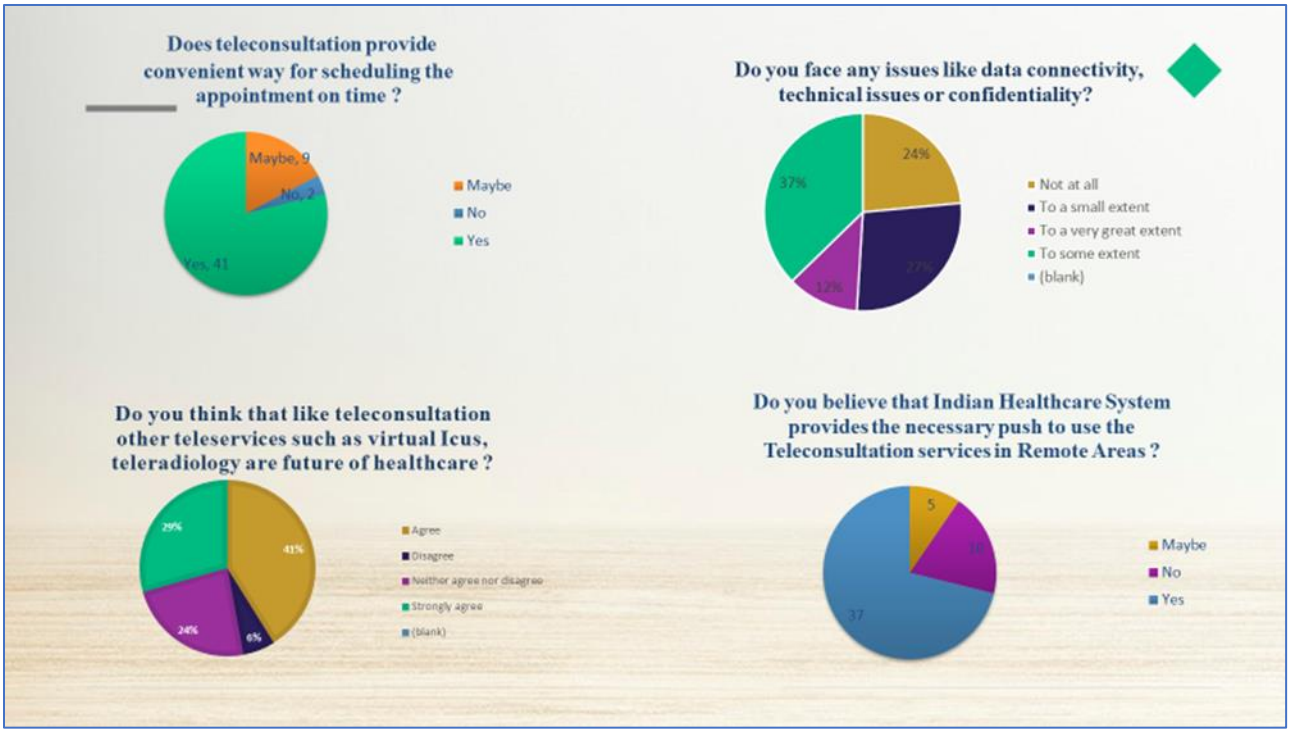


Fig.7 Findings of Survey

1. Accessibility

- Teleconsultation was particularly convenient for people who are on Sunday at the work place, as well as for all those whose lives were tied to it at work, at school or in child care, such as doctors.
- More than 80% of the participants felt that the conference call was "under stress" and then the trip to the hospital, but it could also be unexpected delays.
- For teleconsultation services are available from anywhere and at any time, and the majority agreed that the Teleconsultation appointment was temporary, and that there was no need to wait in line to get an appointment.

2. Benefits

- The Mobile App has been a godsend for Doctors, Patients, and Users in taking and viewing clinical information such as uploading prescriptions, medications, viewing or uploading of test reports, Diagnosis, and progress notes during the Teleconsultation process.
- More over half of those polled feel that the Mobile App will have a substantial impact on the Teleconsultation procedure in this Pandemic.
- The majority of participants preferred video consultations because they minimized the possibility of misinterpretation that can occur during a phone consultation, making it easier to identify if a patient

did not grasp what they had said. Video consultations were regarded to be more intimate and conducive to rapport building.

- Because the majority of people had adequate data connectivity in their mobile phones, more than half of the participants were satisfied with the treatment quality, which included photos, video chats, and audio sound during the teleconsultation procedure. Patients and users can also submit comments during the Teleconsultation appointment, which improves treatment quality.

3. Challenges

- More than half of those polled agreed that teleconsultation services may be less useful than face-to-face consultations because patients and clinicians may be unsure whether video consultations are the best medium to use when discussing very personal or very serious issues, or when receiving/delivering difficult and/or bad news, and that a face-to-face consultation is preferable.

2.2.5 Recommendations

- There is a prime need to have proper Data connectivity even in remote areas as well as urban areas.
- There should be a proper protocol for training the end-users as well as the setting of the use of the Teleconsultation Mobile application.
- The Mobile App having Teleconsultation Feature should be brought under an umbrella to make a clear picture of the regulatory guidelines of testing, validation, and certification before bringing in into use.
- Teleconsultation must be leveraged not just for COVID-19 but across as many healthcare programs to bring in faster test reports and better data management.
- The Teleconsultation training should be done on a larger and appropriate sample size to prove the accuracy and efficiency of the test results.
- Indian Healthcare System should provide the necessary push to use the Teleconsultation services in Remote Areas

2.2.6 Discussion

Teleconsultation saved me a lot of time and money. Teleconsultation appointments were booked on time, with no waiting in line. Teleconsultation was rated as "least stressful" than visiting the hospital. The clinical information of participants can be accessible via the Mobile Application. Misunderstandings could be reduced by using video consultations. During a Teleconsultation appointment, patients and users can provide comments. Teleconsultation services, such as Issues with Data Connectivity, may be less useful

than face-to-face consultation. Telehealth is a twenty-first-century method that is both patient-centered and safeguards patients, physicians, and others. Telehealth is the delivery of health care services by health care professionals over long distances using information and communication technology (ICT) to transmit authentic and accurate information. Telemedicine services in real-time, via the mechanisms of storage, and shipping. In view of the rapid pace of innovation, and a decrease in the number of mobile devices, the majority of families have at least one type of digital gadgets, such as smartphones and digital cameras, which allows patients and providers to interact.

2.2.7 Conclusion

Video conferencing and other similar television systems are also used for the transmission of health and medical program for people who are sick or quarantined, in order to reduce the risk of exposure to others, and co-workers. In quarantine, the doctors can make use of these services for remote care for their patients. In addition, the deployment of a telemedicine specialist to work on multiple sites and can help you solve some of the workers ' problems. The use of telemedicine technology has many advantages, especially in case of emergency / medical care, as well as in situations where the use of the services, do not require the direct involvement of the patient and the service provider, such as the provision of psychiatric assistance. For external treatment, which minimizes the use of resources in health institutions, improve access to health care, and to reduce the risk of person-to-person transmission of infectious diseases. In addition to ensuring the safety and security of the people, including the general public, patients, medical staff, and another major advantage is the easy access for healthcare professionals. As a result of the technology that is appropriate, efficient, and cost-effective solution. The patients are trying to use out of, but the problems remain the same. Recognition of the mode of payment, and insurance coverage were also major obstacles to the implementation of these programs. In addition, some of the doctors are worried about the technology, as well as clinical quality, as well as to the security, privacy, and responsibility. Telemedicine can be an important requirement for the general public, health care professionals and their patients with COVID-19, especially if they are reduced, thus allowing the patients to seek advice concerning their health problems and in real-time by means of interaction with their health care provider.

2.2.8 Appendix

(Survey Questionnaire)

Feasibility, Benefits, And Complexities of Using Teleconsultation Services

Teleconsultation is the process of providing medical services using information and communication technology where distance is a factor, doctors and medical professionals provide these services to patients. The telephone communication can also be used in cases where patients and caregivers are unable to access medical professionals due to circumstances beyond their control. In this epidemic, telecommunications are an hour's necessity. As we all know, because of this epidemic, everyone is vigilant, and everyone refuses to leave their homes for fear of contracting a dangerous virus, Teleconsultation is the need of the hour.

Age *

1. What is your Profile? *

- Doctor
- Patient
- User

2. In which condition you preferred to take teleconsultation services? *

- When you experience signs of COVID or another condition that can be transmitted
- When you have common cold or viral
- When you feel seriously ill
- When you have no choice to go and visit the doctor

3. How the mobile app for teleconsultation is beneficial to take the clinical information? *

- Strongly Beneficial
- Beneficial

Not at all Beneficial

4. Is the mobile app helping you for smoothing the process of consultation during pandemic? *

- To a great Extent
- To a moderate Extent

- To a small Extent
- Not at all

5. Does Teleconsultation services reduce the stress of the patient by providing medical treatment at home? *

- Yes
- No
- Maybe

6. Does teleconsultation services are more useful as compared to face-to-face consultations? *

- Yes
- No
- Maybe

7. Which method do you prefer the most during the Teleconsultation? *

- Video Call
- Audio Call
- Text/Chat

8. Is the treatment quality, including picture, video call, and audio sound, satisfactory during a teleconsultation? *

- Highly satisfied
- Satisfied
- Neither satisfied nor dissatisfied
- Dissatisfied

9. Does teleconsultation provide convenient way for scheduling the appointment on time? *

Yes

- No
- Maybe

10. Do you face any issues like data connectivity, technical issues or confidentiality? *

- To a very great extent
- To some extent
- To a small extent

- Not at all

11. Do you think that like Teleconsultation other teleservices such as Virtual ICU's, Teleradiology are future of healthcare? *

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree

12. Do you believe that Indian Healthcare System provides the necessary push to use the Teleconsultation services in Remote Areas? *

- Yes
- No
- Maybe

2.3 References

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