

DISSERTATION REPORT

AT

EYE-Q Hospital Pvt. Ltd, Gurugram, Haryana

(22nd FEB TO 23rd MAY, 2023)

A REPORT ON

**Growth of EMR Adoption and Compliance among
Healthcare Provider at Eye-Q Hospitals**

BY

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PGDHM (HOSPITAL AND HEALTH
MANAGEMENT) 2021-2023



International Institute of Health Management Research, New Delhi

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Last but not least, I want to sincerely thank everyone who has contributed their time, offered to help, and given support and direction during this project. Your efforts were crucial to its completion, and I owe you all a sincere apology.

Certificate of Approval

The following dissertation titled **"Growth of Electronic Medical Record Adoption and Compliance among Healthcare Providers at Eye-Q Hospital"** is hereby approved as a certified study in management carried out and presented in a manner satisfactory 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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(Completion of Dissertation from respective organization)

The certificate is awarded to

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In recognition of having successfully completed her Dissertation at

EYEQ Hospital Pvt. Ltd, Gurugram, Haryana

and has successfully completed her Project on

**Growth of EMR Adoption and Compliance among Healthcare
Provider at EyeQ Hospitals**

Date- (2nd FEB TO 30nd April, 2023)

EYEQ Hospital Pvt. Ltd, Gurugram, Haryana

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.



Training & Development

A handwritten signature in blue ink, appearing to read "Sumit Shasini".

Vice President-Human Resources

FEEDBACK FORM

Name of the Student: Dr. Disha Bakshi

Name of the Organisation in Which Dissertation Has Been Completed: EYEQ Hospital Pvt.
Ltd, Gurugram, Haryana

Area of Dissertation: Growth of EMR Adoption and Compliance among Healthcare Provider at
EyeQ Hospitals

Attendance: Adherence to Dissertation Norms

Objectives achieved: Yes

Deliverables:

- Assess the Growth of EMR Adoption and Compliance
- Identified the parameters and factors that contribute in EMR compliance

Strengths: Good Observation, Communication and Analytical skills

Suggestions for Improvement:

Suggestions for Institute (course curriculum, industry interaction, placement, alumni):

More Emphasis Can be put on DBMS/RDBMS as analytics will require
the knowledge of such tools. It should be a subject in Semester

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

Date: 27/07/2023

Place: Gurugram, Haryana



Certificate from Dissertation Advisory Committee

This is to certify that **Dr. Disha Bakshi**, a graduate student of the **PGDM (Hospital & Health Management)** has worked under our guidance and supervision. She is submitting this dissertation titled **"Growth of EMR Adoption and Compliance among Healthcare Provider at EyeQ Hospitals"** at **"EYEQ Hospital Pvt. Ltd."** 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.

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This is to certify that the dissertation titled “**Growth of EMR Adoption and Compliance among Healthcare Provider at Eye-Q Hospitals**” and submitted by **Dr. Disha Bakshi**, Enrollment No. **PG/21/032** under the supervision of **Dr. Nidhi Yadav**, Assistant Professor, IIHMR Delhi for award of **PGDM (Hospital & Health Management)** of the Institute carried out during the period from **02th February to 30th April, 2023** 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.

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This is to certify that **Dr. Disha Bakshi** student of PGDM (Hospital & Health Management) from International Institute of Health Management Research, New Delhi has undergone Dissertation training at **EYEQ Hospital Pvt. Ltd**, from **2th February to 30th April, 2023**.

The Candidate as 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 her future endeavours.

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CHAPTER-I: INTRODUCTION

ABBREVIATIONS

ABBREVIATION	MEANING
1. EMR	Electronic Medical Record
2. EHR	Electronic Health Record
3. MIS	Management Information System
4. HMIS	Hospital Management Information System
5. DED	Dry Eye Disease
6. AED	Allergic Eye Disease
7. IS	Information System

About The Organisation



EYE Q SUPERSPECIALITY EYE HOSPITAL



INTRODUCTION:

The Eye-Q hospital chain is committed to providing best quality eye care at affordable cost across India.

It is an ISO 9001-2015 registered organization operating under the leadership of our Founder and CMD- Dr.

Ajay Sharma & CEO- MR. Rajat Goel one of the most renowned eye surgeons in India.

They are aided by a team of specialists with rich experience in their respective specialties from top hospitals across the country.

Established in 2007, Eye-Q is today a chain of 37 super specialty eye hospitals with centres in Delhi-NCR, Haryana, Uttar Pradesh, Uttarakhand and Gujarat. It has recently extended its services in Africa with a centre in Lagos, Nigeria.

Eye-Q provides preventive, rehabilitative and promotive services through comprehensive eye care services. EYE-Q's eye specialist doctors have successfully treated 50+ lakh patients in a span of 11+ years. The high success rate can be attributed to the experienced and trained eye doctors (ophthalmologists) who have extensive experience and skills in performing surgeries with precision and without any complications. Eye-Q's Gurgaon branch caters to the eye care of the people of Gurgaon and adjoining regions. EYE-Q hospitals are rated among the best in India having 33 eye care hospitals across 24 cities. EYE-Q specialist doctors have more than a decade of experience in treating patients and are trained internationally giving them an edge.

MISSION-

To make every patient an Ambassador for Eye-Q through a combination of

- Highest level of quality and technology in eye care.
- Exceptional personal care.
- Complete integrity to the patient and his/her needs.

VISION-

To be India's foremost chain of eye hospitals in terms of both Quality of eye care and the Number of patients handled at affordable cost.

VALUES

- Be honest and open in my communication and do what I say I will do
- I accept our individual & team responsibility and meet my commitments each & every time
- Our clinical & non clinical team is supportive of each other's efforts and care for each other
- Give care, compassion & respect to patients and colleagues as I expect for myself
- Will make conscious effort to contribute in creating a social impact
- Will embrace and drive positive change

Organization Profile

Services includes-

CATARACT SURGERY

Cataract is a disease which mostly occurs in the elderly population. Cataract requires immediate doctor advice to get the treatment. EYE-Q offers laser automated technology for Cataract surgery which is a bladeless and painless method. EYE-Q doctors have successfully treated cataract patients and again brought back life to their vision.

LASIK SURGERY

Lasik surgery is the best way to get rid of the eyeglasses. EYE-Q hospitals offer comprehensive detailed eye check up to check whether the patient is suitable for LASIK surgery or not. The check-up ensures that the patient is completely fit to undergo treatment. EYE-Q doctors have a decade of experience in performing surgery.

RETINA TREATMENT

Retinal tearing and retinal detachment are treated using retinal surgery which is combined using laser photocoagulation and retinal freezing cryopexy techniques. EYE-Q offers treatment which is best suited to patient requirements. EYE-Q eye doctors have successfully performed retinal surgeries without any complications.

DIABETES EYE CARE

Diabetic retinopathy is a serious condition of the retina that could lead to blindness in diabetic patients. Our hospitals across India cater to the eye care of diabetic patients which is focused on early diagnosis and management of disease by our experienced doctors who have more than decade of experience in serving diabetic patients

OPTICAL SERVICES

Optical services are offered at EYE-Q hospitals. Our experienced optometrists are professionally qualified to deliver quality services to the clients. EYE-Q has invested in faster glazing machines to offer the best spectacles and contact lenses for the patient with vision problems. Eye-Q has collaborated with Pinnacle optical Pvt Ltd

PAEDIATRIC SERVICES

Squint and Amblyopia fall under Paediatric eye disease which requires early treatment. EYE-Q eye specialists are trained for Paediatric eye care which is generally different in approach with respect to the adult patients. Best technological equipment is present for visual evaluations of children and its correction.

REFRACTIVE SERVICES

Refractive defects include Myopia, Hypermetropia, and Astigmatism which generally occurs due to refractive errors leading to vision defects. Refractive services include Lasik surgery which is a tried and tested method for refractive errors. EYE-Q dedicated team of doctors have years of experience in treating the patients.

ICL SURGERY

Implantable Collamer lens surgery is the procedure in which contact lenses are implanted into the eyes. The ICL lens works with the natural eye lens for correcting refractive errors. The contact lenses are implanted therefore do not required to be removed. EYE-Q hospitals offer ICL surgery to patients for treating vision defects.

GLAUCOMA TREATMENT

Glaucoma occurs when the optic nerve gets damaged due to intraocular pressure which can result in vision loss also depending on the severity. Doctors need to be consulted immediately for better chances of recovery. Eye-Q specialist doctors have a wide range of experience in dealing with Glaucoma which requires treatment combined with psychological counselling.

OCULOPLASTY SERVICES

Oculoplastic surgery is offered as a cosmetic, corrective and reconstructive eye surgery in cases of retinoblastoma and ocular-orbital eye defects. EYE-Q offers comprehensive and contemporary approaches for diagnosing and treating eye defects. EYE-Q surgeons have more than a decade of experience for treating eye patient providing the best care.

Introduction

The Electronic Medical Record (EMR) is a digital version of the traditional paper-based medical record for the patients. It includes digitally documented data on past and present illnesses and treatment written by health care professionals caring for the patient.

EMR Compliance means data must be aggregated from a variety of information and authentication silos, each with their own audit trail and access logs, and no means of communicating with each other.

EMRs allows clinicians to track their patient data over time & identifies which patient is due for preventive check-ups & screenings. More important, they may acquire support to improve the quality of clinical decision-making. Electronic Medical Records (EMRs) is widely used in health care organizations, and Organization widely pay attention on factors affecting its implementation processes. Despite the advantages of EMRs, the adoption of EMRs is slow among the organizations. There is extensive literature present on the use of EMRs, and various theories and models are available for the same The organization, the kind of innovation or technology, and the user all play a part in many of these ideas and models. There is conflicting evidence regarding how organizational characteristics influence innovation processes in healthcare organizations. Some studies found positive correlation and others find little or no correlation on the innovation process. Poor design, excessive adoption pressure, or a lack of user support are all factors that may cause consumers to oppose the usage of an EMR.

. It is essential to take into consideration how all user, organization, and the innovation interact for implementation processes to be effective and in order to avoid negative impacts. To increase the successful implementation of EMRs the possible differences of reactions between user groups are taken into account.

Information technology is increasingly recognized as an important tool for improving patient safety and quality of care, especially by promoting the practice of evidence-based medicine. Of all the health information technology (IT) in current use, the electronic medical record (EMR) has the most wide-ranging capabilities and thus the greatest potential for improving quality. Research has demonstrated the quality benefits of electronic documentation and viewing, prescription and test ordering, care management reminders, and messaging, among other EMR functions.

Hence this study aims to analyze the growth of Electronic Medical Record (EMR) compliance in eye care hospitals over the past five years.

This study will help to understand the analysis, research, and quality improvement initiatives due to data collected from EMR. It will provide valuable insights into patient outcomes, treatment effectiveness, and trends in eye care and contribute to evidence-based practices, advancements in eye care, and potential collaborations with clinics, insurance companies, corporates which can enhance the hospital's reach and bring further business opportunities

EMR Compliance Protocol for Consultants

PARAMETERS	EMR Section to be clicked	Expected Compliance
A. DIAGNOSIS	Primary Diagnosis at least	100% of all OPD
B. ADVICE	Any one of these; <i>Medicines/Procedures/Surgery/Glass prescription/Cross consultation/External Lab Investigation</i>	80% of all OPD
C. NEXT APPOINTMENT	Date/Days/weeks/months/year	100% of all OPD

NEED OF THE STUDY

1. Unique Requirements of Eye Care Hospitals: Eye care centres have unique requirements which distinguish them apart from other healthcare facilities in terms of the way they operate, specialized workflows, and data requirements. Therefore, it is crucial to look into how different Eye care Hospitals are using and adhering with EMRs in order to understand how EMRs could potentially be used to efficiently fulfil their individual needs.
2. Enhanced clinical judgment and care of patients: It is possible to learn more about how EMRs affect patient care and spot areas for improvement by examining the growth of EMR implementation in eye care hospitals.

3. EMRs can streamline procedures for administration, minimize down on paperwork, and enhance operational efficiency in the healthcare sector. Understanding the status of EMR implementation and compliance in eye hospitals can help identify any gaps or hurdles that limit efficiency in operation and offer recommendations for workflow and allocation of resource optimization approaches.

Research Questions:

- A. What are the key factors contributing to the growth of EMR compliance in Eye care settings?
- B. What are the challenges and barriers faced by Eye care hospitals in achieving EMR compliance?

Objectives:

The objectives of this research are as follows:

- A. Primary Objective: To identify the parameters that contribute in EMR compliance
- B. Secondary Objective: To identify the challenges that affect EMR Compliance in order to provide recommendations.

CHAPTER-II: REVIEW OF LITERATURE

STUDY	METHODOLOGY	RESULT	Conclusion
Big data and the eyeSmart electronic medical record system - An 8-year experience from a three-tier eye care network in India	An 8-year retrospective review of all the patients who presented across the three-tier eye care network of L.V. Prasad Eye Institute was performed from August 2010 to August 2018. Data were retrieved using an in-house eyeSmart EMR system. The demographic details and clinical presentation and ocular disease profile of all the patients were analyzed in detail.	In total, 3,721,051 ocular diagnosis instances were documented in the patients. Most common ocular disorders were related to cornea and anterior segment (n = 1,347,754, 36.22%) followed by refractive error (n = 1,133,078, 30.45%).	There is a need to adopt digitization in geographies that cater to large populations to enable insightful research. The implementation of EMR systems enables structured data for research purposes and the development of real-time analytics for the same..
Incidence,	This was an observational	Overall, (1.46%)	The study results

demographic s, types and risk factors of dry eye disease in India: Electronic medical records driven big data analytics report I	hospital-based study of 1,458,830 new patients presenting between 2010 and 2018. Patients with recent onset of both symptoms and signs, as defined by the tear film and ocular surface society dry eye work shop (TFOS DEWS) II guidelines, were considered as DED subjects. The data was prospectively collected using an electronic medical record system.	patients were diagnosed with recent- onset DED. The incidence of DED was 2688 and 16,482 per million population in children and adults. While incidence was significantly greater in males in 3rd, 4th, 9th and 10th decade ($p <$ 0.03), it was greater in females in 5th and 6th decade ($p < 0.0001$) of life..	indicate that age, sex, residence, occupation, and socio-economic status have significant impact on development of DED..
Allergic eye disease in children and adolescents seeking eye care in India: Electronic medical	This was a hospital-based cross-sectional study of 259,969 new patients (≤ 21 years of age) presenting between 2010 and 2018. Patients with a clinical diagnosis of AED were considered as cases. Data	Overall, 26,309 (10.1%) children and adolescents were diagnosed with AED. The prevalence of AED was 0.3%, 6.6%, 18.3%, 15.8%, 8.1%, and 4.9% in infancy	About a tenth of the children and adolescents seeking eye care in India are affected by AED, which commonly affects boys with atopy, from middle

records driven big data analytics report II*	were collected using an electronic medical record system.	(<1 years), toddlerhood (1-2 years), early childhood (3-5 years), middle childhood (6-11 years), early adolescence (12-18 years) and late adolescence (18-21 years), respectively.	to higher income families during their early to middle childhood and shows a self-limiting trend by late adolescence..
Compliance With Electronic Medical Records Privacy Policy: An Empirical Investigation of Hospital Information Technology Staf	This research followed Churchill's approach for generating questionnaires, with the research constructs reflectively measured using previously validated instruments. We adopted reflective measurements for the following reasons: (1) the indicators are manifestations of the construct, (2) removing an indicator does not alter the	The results revealed that perceived vulnerability and perceived severity of threats from Electronic Medical Records breaches may be used to predict the information technology staff's fear arousal level	Based on the findings, we suggest that hospitals could plan and design effective strategies such as initiating privacy-protection awareness and skills training programs to improve information technology staff member's adherence to privacy policy.

	conceptual domain of the construct, and (3) indicators can be interchangeable.		
Electronic health records implementation: an evaluation of information system impact and contingency factors Lemai Nguyen 1, Emilia Bellucci 2, Linh Thuy N.	A systematic literature review was conducted from peer-reviewed scholarly journal publications from the last 10 years (2001-2011). This paper reports on our analysis of previous empirical studies of EHR implementations. We analysed data based on an extension of DeLone and McLean's information system (IS) evaluation framework.	A mix of evidence-based positive and negative impacts of EHR was found across different evaluation dimensions. In addition, a number of contingent factors were found to contribute to successful implementation of EHR	a lack of socio-technical connectives between the clinician, the patient and the technology in developing and implementing EHR and future developments in patient-accessible EHR.

CHAPTER-III: METHODOLOGY

Study Design:

- The study design using Quantitative approach provide insight on EMR adoption rates, compliance levels, and perceived benefits and challenges.

Study Area

- The study area is EYEQ Vision Super Specialty Hospital Pvt Ltd, specifically focusing on the Doctors working in the chains of EYEQ Hospital across INDIA, using EYETECH Software.

Eligibility Criteria:

Inclusion Criteria:

- Doctors working in the EYEQ Hospital across INDIA and NIGERIA, using EYETECH Software.

Exclusion Criteria:

- Others Employees working in EYEQ hospital.

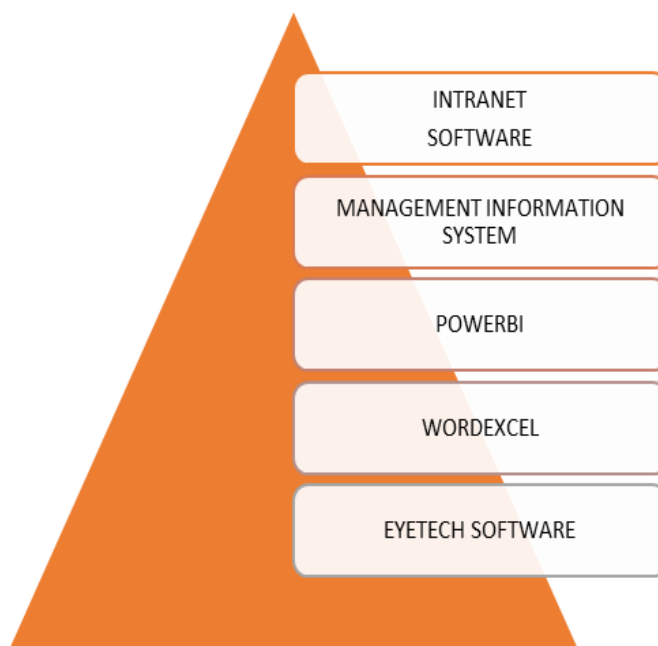
Study Duration:

Duration of study was 3 months (22nd FEB TO 23rd MAY, 2022)

Method of Data Collection and Analysis

Quantitative data was obtained through the EYETECH Software, having Management Information System report used by the Organization, which facilitates the collection and analysis of both quantitative and qualitative data. The MIS is integrated with PowerBI tool, that provide more refined and cleaned Data, helping in analysis part. Other tool such as MS excel is also used for better analysis and representation of Data to assess the growth of EMR compliance over the past four years.

SOFTWARE and TOOLS USED for EMR COMPLIANCE



CHAPTER-IV: STATISTICAL ANALYSIS AND FINDINGS

DATA ANALYSIS

The data was analysed based on these Protocols. Based on these protocols, Result was generated.

EMR Compliance Protocol for Consultants

	PARAMETERS	EMR Section to be clicked	Expected Compliance
A	Diagnosis	Primary Diagnosis at least	100% of all OPD
B	Advice	Any one of these; <i>Medicines/Procedures/Surgery/Glass prescription/Cross consultation/External Lab Investigation</i>	80% of all OPD
C	Next Appointment	Date/Days/weeks/months/year	100% of all OPD

All of you must have noted that sometimes duplicate entries are done for same patient in a day. This is done for OP procedures. The calculation for EMR compliance would exclude these duplicate (Procedure) entries.

So, if you see more than 1 entry (EMR FILE) of same patient, please fill the data in first entry only and rest of the duplicate entries (EMR file) can be just signed in and signed out.

Calculation for EMR compliance will also include all patients who come for short review and post op visits

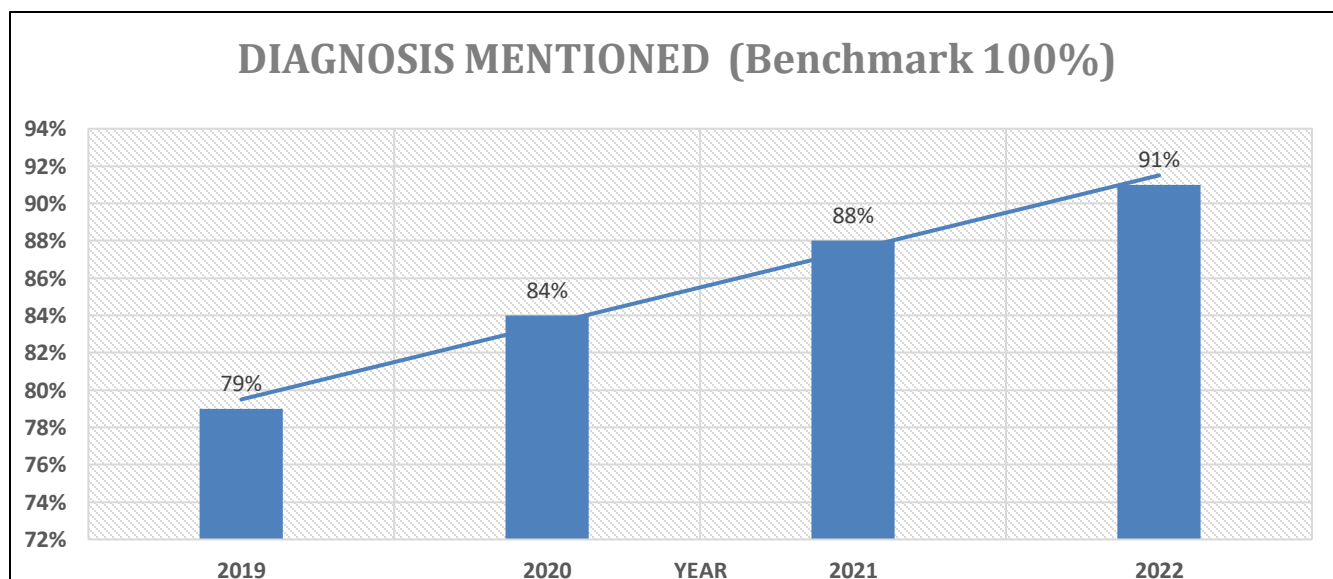
RESULT

EMR COMPLIANCE (2019-2022)					
PARAMETERS	2019	2020	2021	2022	
DIAGNOSIS MENTIONED	79%	84%	88%	91%	
ADVICE DONE	66%	75%	81%	86%	
NEXT APPOINTMENT GIVEN	80%	85%	88%	90%	

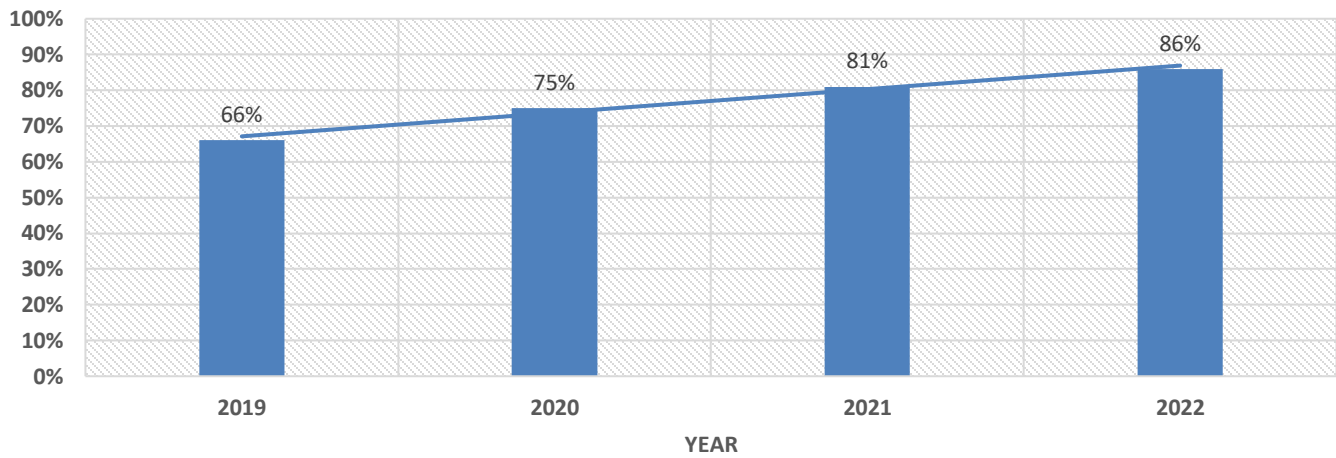
BENCHMARK: Diagnosis (100%); Advice (80%); Next Appointment (100%)

*Advice : Any out of Medicines/Procedures/Surgery/Glass Prescription/Cross Consultation/ External Lab Tests

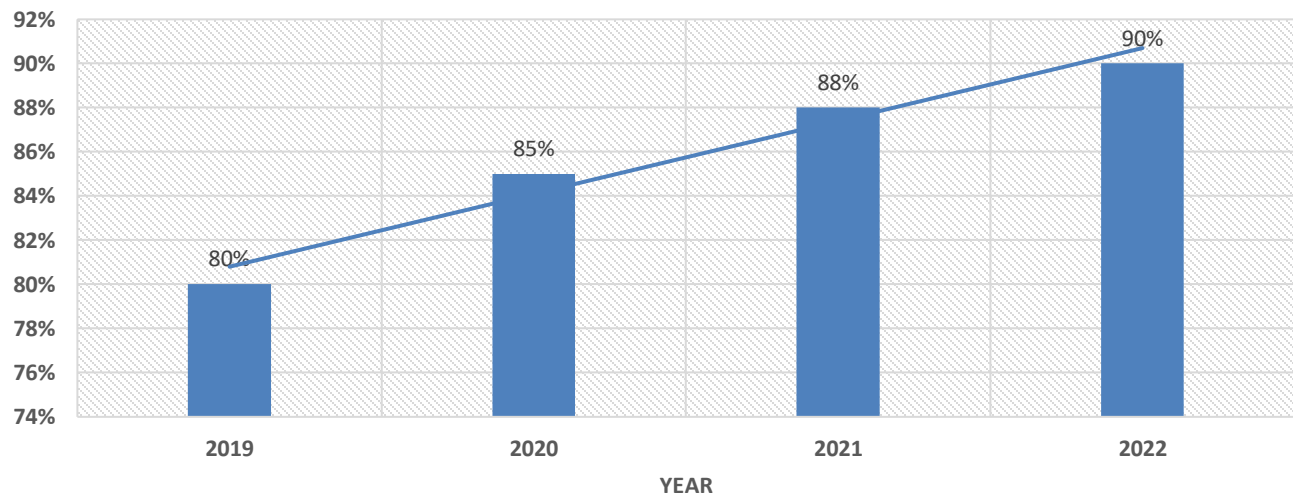
The study reveal the EMR adoption among healthcare providers in eye care hospitals over the last 4 years. It also provide the current level of EMR adoption and compliance among healthcare providers in eye care hospitals.



ADVICE Done (Benchmark 80%)



NEXT APPOINTMENT (Benchmark 100%)



EMR COMPLIANCE (Jan-Dec,2019)

PARAMETERS	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
DIAGNOSIS MENTIONED	53%	63%	65%	66%	75%	85%	88%	89%	90%	91%	91%	90%
ADVICE DONE*	47%	44%	45%	46%	59%	74%	77%	80%	80%	81%	82%	81%
NEXT APPOINTMENT GIVEN	60%	66%	67%	68%	76%	84%	88%	89%	89%	90%	90%	89%

Benchmark : Diagnosis (100%) ; Advice (80%) ; Next Follow Up (100%)

*Advice : Any out of Medicines/Procedures/Surgery/Glass prescription/Cross Consultation/External Lab Tests

The Result shows the growth of the Parameters that influence EMR compliance over the past 4 years

The result also indicates the factors affecting the adoption and compliance of EMRs in eye care hospitals. Availability of technological infrastructure, backing from management, financial resources, training and discussions, and interoperability capabilities.

The result also indicated the challenges faced by eye care hospitals maintaining EMR Compliance. These were resistance to behavioural change among healthcare providers, technical issues, complexities of data, financial constraints, and the need for ongoing training and support.

The major findings from the observations and analysis are as under:

- EMR Adoption Trends: The study demonstrates an upward rise in EMR adoption among healthcare professionals in institutions that specialize in eye care over the previous four years. The adoption rates have risen gradually, showing a positive trend toward engaging electronic medical records for patient care and business operations.

- Adoption Driving Factors: The study reveals a number of adoption- and compliance-promoting EMR driving factors in eye care institutions. These include the availability of technological infrastructure, strong management and leadership support, thorough training and discussions among healthcare providers, and interoperability abilities to enable seamless information exchange.
- Majority of ophthalmologist uses EMR for their consultation this is also because they are been given several trainings by the hospital. The EMR also improved the legibility and accessibility of progress notes and increased the availability of electronic problem lists.
- Shortcomings like slow internet and questionable financial returns, high initial physician time expenses, a preference for paper-based papers, and technological challenges were observed.

CHAPTER-V: CONCLUSION AND RECOMMENDATION

The above study show that throughout the previous four years, healthcare practitioners in eye care facilities have adopted and complied with EMRs in a good trend. EMR has the ability to significantly assist medical professionals, clinical settings, and healthcare systems. The financial effects of using EMR to increase care quality and safety will probably be substantial. With variances in the time needed to prepare a document, EMR can enhance the quality of the documentation. EMR can decrease medication mistakes and increase adherence to recommendations.

RECOMMENDATIONS

- Improve Data Accuracy to Avoid Compliance Pitfalls.
- Regularly conduct internal audits and provide personnel training. Every practise, regardless of size, ought to have a compliance protocol in place and ought to perform routine internal audits to find mistakes in its records. Quarterly audits, followed by staff education and training.
- Maintain a compliance folder. It will add another layer of protection. The more one document the policies, procedures, and education, the more they are protected.
- Continuous Training and Support: Eye care hospitals should set up continuing training and support programmes for healthcare professionals in order to maintain compliance and optimise EMR utilisation.

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