

Summer Training Report

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THE RUTHLESS CONTAINMENT MODEL BY TEXTILE CITY OF RAJASTHAN

ABSTRACT

March 18, the city reported its first case of Coronavirus and within days there were reports that this city could become India's next hotspot for the outbreak of the deadly disease . The basis of suspicion was clinico-eco-epidemiologic-radiological findings , by that time, about 20 COVID19 cases were reported from the state of Rajasthan including a big Italian group of tourists who travelled extensively in Rajasthan, including Udaipur city and few NRI from Oman visited the doctor in Bhilwara .

OBJECTIVE

The article exhibits the action plan and its execution done by State Rapid Response Team (RRT) in emerging epicentre of COVID-19 at Bhilwara.

-How this model turns out to be role model for the entire country?

-Why many places in India failed to replicate this model?

Method: The Article based on one Research article, six News articles and interview of central and state response team involved in running of the Bhilwara Model.

Result: Swift action by the authorities in a very short span of time by implementing aggressive contact tracing, Quarantine, Isolation and follow up were executed by mapping the COVID-19 hotspot reservoir and strict lockdown and curfew in district by district public health team. Taking care of essential services in lockdown of community by the immaculate leadership and strong intersectoral coordination for the ruthless containment plan.

Conclusion: The Bhilwara Model held in transferring an emerging epicentre to zero cases was successful but the need for our is maintaining and modifying this plan in future as well as replicating and filling the loopholes in country to win this battle against SARS COV 2 Pandemic.

INTRODUCTION

WHO had declared COVID-19 as Public health emergency of International concern on 30th Jan 2020, and pandemic on 11th March 2020.

India fight against SARS COV2 Pandemic is facing its greatest social and economic challenge since Independence 1947. All it started from 30 January 2020, when the first case of COVID-19 was reported from Kerala instigating from Wuhan, China, till today, 03rd July 2020, the number of confirmed cases in India has risen to 6,48,315 cases, and there have been 18,655 deaths and India was ranked as 3rd most infected countries globally. Similarly, Rajasthan had reported 18,662 cases with 430 deaths by now and stands on 5th most infected states of India.

For the longest time, Bhilwara was recognized as the textile city of Rajasthan and India but the city had no idea that it was to go through one of the hardest trials in the face of COVID-19 crisis. On March 18, the city reported its first case of Coronavirus and within days there were rumors that this city could be converted into India's next hotspot for the epidemic of the lethal disease. Home to over 30 lakh people according to the 2011 Census, Bhilwara had recorded 227 positive cases and 3 deaths by now. Though, the strategy adopted by the Rajasthan government and the Bhilwara district administration ensured that no new COVID-19 cases were testified in the textile city.

In the meantime, 180 out of the 227, who had tested positive for the coronavirus, had successfully recovered so far.

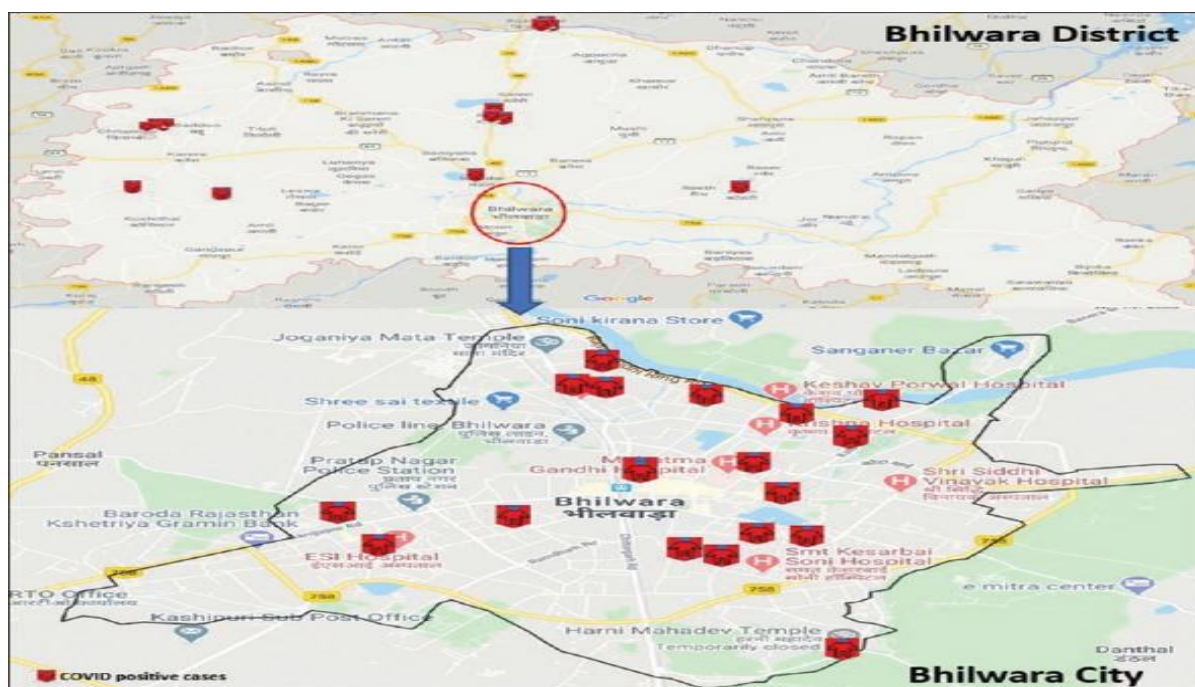
Brijesh Banger Memorial Hospital (BBM), Bhilwara, Rajasthan, reported a bunch of cases of pneumonia amid doctors and paramedical staff. The state got more terrified when a doctor working in the ICU of the hospital was admitted to the isolation ward was found positive for COVID-19. The subsequent day, 9 more cases tested positive from the batch. Recognizing timely threatening signs trailed by timely investigation and act holds the key aspect for containment of any epidemic. Even though the steps implemented were similar as Government of India (GOI) guidelines, its implementation working to the obligation with devoted and sincere health and administration team marked in attaining zero confined case.

MATERIALS AND METHODS

Given study is grounded on one research article, six news article and interview of field experience of the State Rapid Response Teams (RRTs) in the cluster containment at Bhilwara. These officers were involved in the operation and worked very closely with District Public Health Team, Mahatma Gandhi Hospital management , and district administration , and explanations are briefed and analysed.

RESULTS

The article present summary of the contagious spread and actions implemented in altering an developing epicentre to zero confine attained cases and regulating the issue after unlock down in a very brief period of time which turned into the model nationally to fight against COVID-19 .

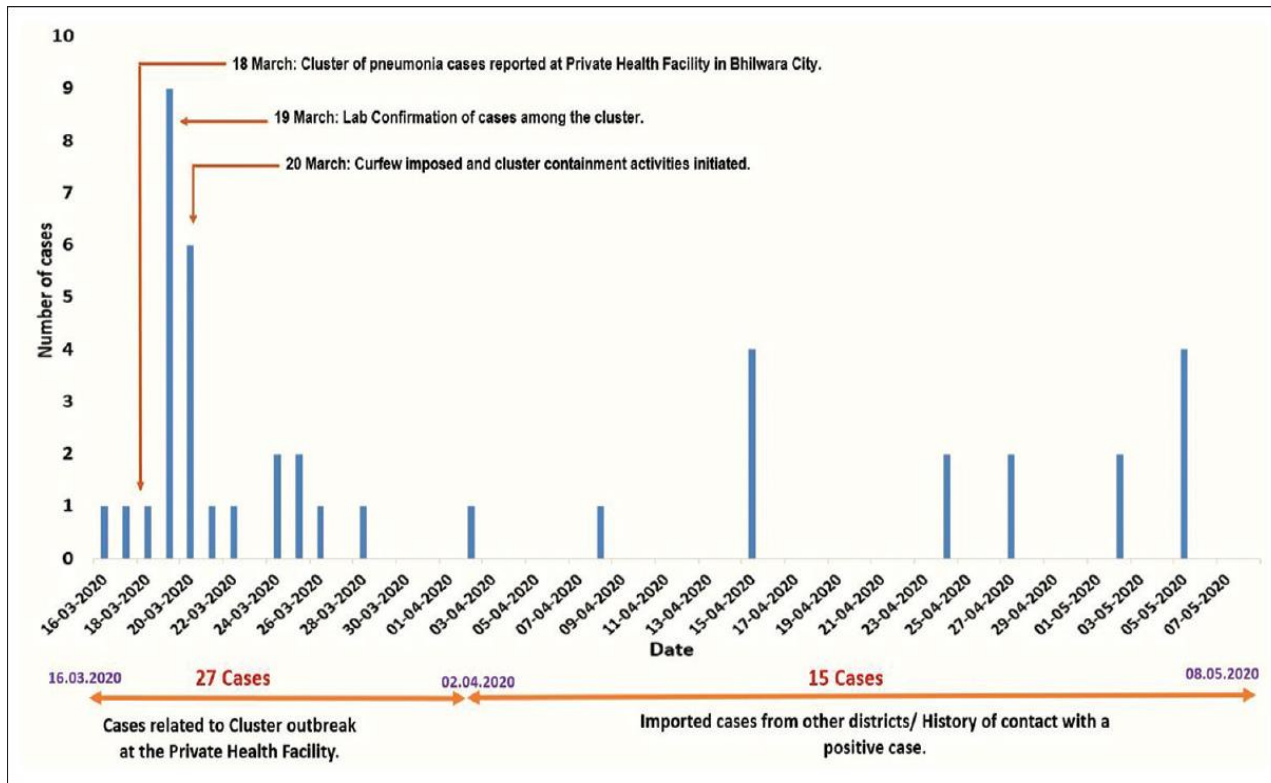


http://www.ijph.in/articles/2020/64/6/images/IndianJPublicHealth_2020_64_6_177_285609_f1.jpg

Spot map showing COVID cases mapping in Bhilwara as on 8th may,2020

The Bhilwara model is centred on six steps

Identifying and rectifying of epidemic and determining in term of time , place and person



http://www.ijph.in/articles/2020/64/6/images/IndianJPublicHealth_2020_64_6_177_285609_f2.jpg

Date wise COVID cases in Bhilwara by 07 may ,2020.

- **Allegiance and obliging administration and public health team**

District collector Rajender Bhatt took charge as soon as he realized outbreak in the city and took swift action by

- Instant mobilizing public and private resources
- Designing a micro plan by public health professionals from national, state medical colleges .
- Health expert from states including specialist from Public Health, Epidemiology, Respiratory Medicine, Paediatrics, General Medicine, Microbiology and Otorhinolaryngology from RNT Medical College, Udaipur; Integrated Disease Surveillance Programme District Epidemiologist; and Surveillance Medical Officer of National Polio Surveillance program , WHO India were also asked to analyse the situation and implement the measures

- **Enclosing the infection and mapping of COVID hotspot**

Bhilwara comprises of 7 administrative subdivision and it was challenge to supervision such large areas

- Source of epicentre was BBM Hospital which was locked immediately
 - All admitted patients were transferred to MG hospital
 - Disinfection drive in every bend of the city in all containment and buffer zone including all police vehicles, ambulances, screening centers, quarantine centers and even police stations were disinfected every day, at consistent intervals.
 - Mapping the COVID19 hotspot zones
 - Screening of all high-risk contact of about 613 inpatient, 96 ICU patient, 5600 outpatient, 350 hospital staff and tracking and quarantine other patient who relocated themselves in other states
 - Three round of aggressive contact tracing, surveys and follow up of all positive cases
- **Safeguarding the uninfected and aggressive contact tracing**
 - Isolating the district and striking strict curfew under section 144 of CrPC.
 - Sealed district borders with 24 checkpoints on all entry and exit points and empower by doctors and HCWs for screening the public passing through checkpoints
 - Halted all rail services and public transport and industries and suspended all essential services
 - Door to door surveillance. According to CMO Rajasthan, 1937 teams were deployed around to survey about 4.41 lacs houses between 22 march and 2nd April, 2020
 - 22.39 lacs people were screened and many of them more than twice
 - 14000 Influenza Like Illness individuals were recognised and marked for consistent screening twice a day.
- **Immediate constituting all degrees of COVID committed healthcare infrastructure**
 - Timely measures to recognize patient facilities requirement were commenced
 - Quarantine centres in about 27 hotels (1500 single isolation rooms), guest houses of big industries, dharamshalas, educational institution hostels with dormitories with around 13000 beds for mild symptomatic patients
 - District hospital with capacity of 200 beds were extended to 400 beds along with other 4 private hospitals for moderate to severe patients.
- **Skill development of the manpower in execution of guidelines**
 - One of the key reasons of success of this model is empowering local administration and ground team by SDM, Block development officer, CM & HO to take needed act for containment of disease.
 - Precise goals settings, explanation and expectations from teams helped to perform their duties without indecisiveness
 - No interference of higher power in operation

- Training all medical, paramedical administrative staff, police workforce, working at frontline was conducted by state and district RRTs
- **Sturdy intersectoral coordination**
 - Sturdy intersectoral coordination from ground level field workers to highest administrative authorities and their pledge to complete the actions.
- **Other novel measures**
 - Rajasthan social media platform application accessible on both android and iOS devices designed for Global Positioning, tagging and localization system of all respondents instructed to quarantine.
 - Shift callings of medical staff offering healthcare comprised of 1-week work and 2-week quarantine to curtail infection amid them.
 - After suspension of vital services, district administrator initiated door to door supply of essential groceries, fruits, vegetables, and milk. Deliver cooked food to poor and needy to about 3900 peoples and distribution of fodder to people involved in animal husbandry and to stray cattles.
 - Monitoring rural areas as there were huge rural areas that could be permeable as public can find ways to move around despite. To counter this, the state administration increased monitoring in rural areas and enforced a complete lockdown and six 24×7 control rooms were set up in the city

GAPS IN INDIA'S OTHER CITIES PREPAREDNESS FOR COVID19 CONTROL

Though the district reported few more cases who were either connected to positive cases or had the record of interstate travel or found exterior to Bhilwara city in other parts of district due to negligence of people to the orders.

Even after the presence of well-established covid19 guidelines by centre still many cities and states of the country were not able to control the outbreak as achieved by Bhilwara.

There have been recurrent reports of individuals evading hospitals or quarantine in the past week. How can this effect the ongoing control measures for COVID 19? One important issue is the faith deficit in the public health system in many parts of the country. Other significant factors include terror of isolation and stigma involved to those who are being quarantined and isolated.

Reasons why many cities were not able to replicate Bhilwara model

- **Failure of extending surveillance beyond the containment zones.**
More than 25% of cases in Delhi outside containment zone and ranging till 80% in other districts which leads to lack of control tracing and more cases as well as in many district of Rajasthan as well like Udaipur, Kota.

In various regions the migrant labourers went unchecked and this led to spread of virus in the remote areas of India.

- **Not enough testing and tracing despite increase in number of cases.**

The testing and tracing is the golden rule in eradicating the extent of this virus, due to lack of kits earlier we could not test much and the virus spread to different region without the knowledge of administration like in Delhi.

Earlier only 5-6 tracing was done in states like Maharashtra, Rajasthan, U.P, M.P, Delhi, Bihar, and 10-15 tracing in states like Tamil Nadu, Andhra Pradesh. Only Karnataka was doing 20-22 tracing.

- **Negligence by the people**

This battle can only win and loss by the effort of the people, so if they are aware and act responsibly then only it will be eliminated. People were manipulating government structure. Proper social distancing rules, no entry to private and public places without masks and proper hand sanitizing.

- **Demographic characteristics.**

India remains the land of diversity and to control it needs much more effort. The negligence by the Tablighi jamaat who attended in large numbers by people of Gujrat at Markaz Nazimuddin in march leads it spread every nook of the nation and led to third phase of community spread.

- **Huge inflow of people from abroad.**

The immigration to India from foreign countries was both of people and virus. The airports were the entry point of virus to the country. If every NRI was checked properly with follow up then the spread could have been avoided like in Maharashtra, Gujrat, Delhi, Kerala, and Tamil Nadu.

- **Large and dense population**

India many cities like Mumbai, Delhi, Kolkata stand the most densely populated regions of the world and has the Asia densest slum (Mumbai) which makes it difficult to control it. Social distancing is not possible everywhere due to lack of resources.

- **Failure to modify the model according to the situation**

Different region needs different solution as they have different problems, every state had different demographic structure and economic condition, so the strategy required was different, but India adopted for a central strategy which resulted rise in cases.

- **Poor public health infrastructure**

A large amount of fund was given to health sector under smart city project and under five year plan it should be completed a long before. Not given importance to health sector and delay in executing orders led to poor health infrastructure, which could have helped up in such pandemic.

- **Delay in Policy making by the government**

Not stringent measures for foreigners and NRI as well as not proper planning before lockdown and for migratory people. Late action taken by government when the first case arrived in January in India and in terms of not strict lockdown in certain cities, not restricting travelers from abroad, not enough availability of testing kits

- **Failure at managing migrants and their movement**

The Migrants were devoid of basic facilities and were rendered helpless by the administration in initial days. Basic health, food, shelter facilities were absent Maharashtra, U.P, M.P, Gujrat are some few of its example.

- **Not having strict tracing**

Contact tracing is most important to curb its further spread but due to lack of infrastructure, resources, human resource, and awareness in initial days the tracing was negligible and in current situation due to unlock down its more difficult.

Earlier only 5-6 tracing was done in states like Maharashtra, Rajasthan, U.P, M.P, Delhi, Bihar, and 10-15 tracing in states like Tamil Nadu, Andhra Pradesh. Only Karnataka was doing 20-22 tracing.

- **Late and indecorous screening at Entry Points**

The screening was also not enough to find the COVID 19 infectant people but this to was absent at many airports and railway station in initial days. The lack of resources with states and high cost of screeners made it vulnerable for them.

- **Lack of inter departmental sectoral coordination**

It requires coordination between health department, local administration, police, politician, but they lacked heavily due to no central system to tackle such pandemic in the country.

- **Failure to maintain strict lockdown and curfew**

The lockdown was followed by people but still in some areas, and workers worked without proper measures, carelessness by people in cities and at borders and lack of penalty were few reasons for the same.

- **Not deploying workforce to check quarantined patient**

The people under quarantine were not followed improperly and were left on their own stake, this increased mortality and further spread to community like in Jaipur Ramganj area.

- **Failure to use technology to track patients.**

Due to developing nation, India lacked technology setup to trace people earlier app came up but and quarantine them after tracing which would have reduced the risk of community spread . Though Arogya Setu people were not following it

- **Lack of state funds.**

All the states lacked funds to tackle this pandemic because of two big reasons , no economic activity and lack of fund allotment to health sector and not using smart city health funds properly within the time, in the country to face such situation resulted in poor health facilities in many states.

- **Lack of implementation of law and order.**

Under Section 3 of epidemic disease act ,1897 which lays down punishment under sec 188 of IPC.

No strict law and order were followed by the government to put in jail those people who broke the rules and if implemented were not followed properly.

- **Improper use of PM care funds**

The lack of transparency in pm care funds had raised many questions and its use is also unknown as well as it is the Purview of RTI.

- **Late results of test reports**

The test reports come very late and the error rate is also high of the testing report which raised the question on working capabilities of staff and administration. The further spread could be curtailed by fast and accurate report delivery.

CONCLUSION

The model have been executed with clockwork accurateness, excellent coordination and extreme efficiency under an immaculate leadership. The six pillars that helped in transferring an emerging epicenter to zero cases by successfully eradicating local transmission in district.

The need of the hour is for the government to respond with extraordinarily aggressive measures to contain expansion of COVID-19 and replicate the 'Bhilwara model' elsewhere in the country and fill the loopholes where we are lacking to win over this battle against SARS COV2 PANDEMIC

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REPORT ON ONLINE COURSE

HEALTH INFORMATICS AND TECHNOLOGY IN DECISION MAKING

Health Informatics Technology (HIT) deals with the acquisition, storage and retrieval of data and is central in addressing the challenges of safety, quality, effectiveness, and efficiency in a healthcare system. Proper management of dynamic data, such as electronic healthcare records, can enable a new approach for clinical workflow, evidence-based decision making and team-based care to improve overall public health.

OBJECTIVES

- Understand the concepts around Health Informatics and how it affects Public and Population Health
- Use informatics to evaluate current healthcare practices
- Discuss emerging trends in health informatics

LEARNING METHODOLOGY

Videos, ppts

CONTENTS

- INTRODUCTION
 - Environment where health informatician work
 - HITECH VISION
 - Healthcare Industry Trends
 - New Models of Care
 - Key Stakeholders
- The Hub of Health Informatics
 - The Hub of Health
 - Clinical Decisions Support (CDS)
 - Computer Based Provider Order Entry
 - HIE and Interoperability
- Emerging Trends
 - Bioinformatics

Key Learnings

“Health informatics is the interdisciplinary study of the design, development, adoption, and application of IT-based innovations in healthcare services delivery, management, and planning as defined by the U.S. National library of medicine.”

TERMINOLOGY

- **Data** are simple symbols, isolated facts, and measurements. When such data are processed, put into a context, and combined within a structure, information emerges.
- **Information** provides the answers to “who, what, when and where.”. When information is given meaning by interpreting it, that is, there is an application of data.
- **Informatics** is the science of information, which focuses on optimal use of meaningful data.
- Information Technology focuses on the tools and machines
- Information management focuses on the organization and dissemination of information
- Information system is an automated system that uses computer hardware and software to record, manipulate, store, recover, and disseminate data” defined by American Health Information Management Association (AHIMA)

From a functional perspective, Health Care Information System (HCIS) has components that support the following purposes:

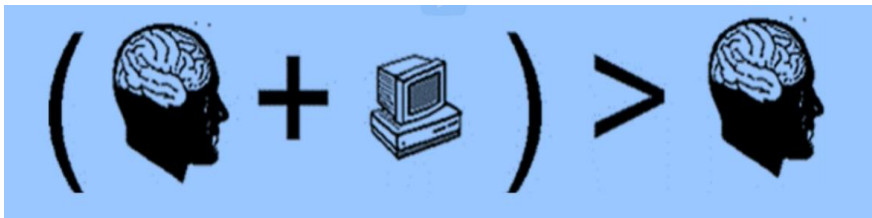
- Patient management and billing systems.

(example, A patient-identifying directory referencing all patients related to an organization and which also serves as a link to the patient record or information, facilitates patient identification, and assists in maintaining a longitudinal patient record from birth to death)

- Care delivery and clinical documentation systems are systems that support the delivery of the care and documentation of that care.
- Clinical information system is “designed to support patient care, including order communications, results reporting, care planning, and clinical documentation”.
- Financial and resource management systems that support the business functions of the organization or practice. An example would be an accounts payable system and financial and employee data are stored in these systems.

Fundamental Theorem of Informatics

“Fundamental Theorem” of informatics which was published by The AMIA in 2009.



According to Dr. Friedman, “Combination of human intellect and computer technology leads to an abundance of opportunities in health care and educational requirement.

Environments Where Health Informaticians Work

Health Informaticists or informaticians are in great demand and may work in many different environments

- Colleges and Universities where role of a professor is focus is on educating in the field of health informatics and conduct research to improve the acquisition, storage, retrieval, representation, and use of information in health and biomedicine.
- Research facilities focus on informatics applications in clinical and translational research for advancing medical science and public health.
- Clinical informatician assist in managing and processing of clinical data, information and knowledge to support clinical practice in their field such as nursing , dentistry, pharmacy informaticist.

HEALTHCARE INDUSTRY TRENDS

- In history technology movements for use of computers in hospitals was improved by using only for fiscal department to laboratory results and then arrival of electronic media record and to use in research purpose .
- Latest trends are use of telehealth for remote monitoring of patients and using research in personalized or précised medicine.

HITECH VISION

HEALTH INFORMATION TECHNOLOGY FOR ECONOMIC AND CLINICAL HEALTH Act of 2009 came up with vision of

- Computerized Provider Order Entry (CPOE)
- Clinical Decision Support (CDS)
- Electronic prescribing (E prescribing)
- Structured documentation of quality measures
- Up to date Problem Lists and Diagnosis
- Provide patients with health information electronically
- Electronic Information exchange
- Clinical quality measures (CMS)

NEW MODELS OF CARE

Volume based care to Value based care are reimbursement for health services is undergoing rapid change.

Few new models of care has been incentivized based on patient centered primary care which leads to development of

- Accountable care organization (Health care organization that provide reimbursement to quality metrics and reduction in cost of care)
- Retail clinics
- Telemedicine
- Health home
- Community based solution
- Patient centered Medical homes (partnership between individual patient and their personal physician or sometimes patient family)

PMCH models came up with 7 principles

- Each patient with personal physician
- Physician directed Medical team to take care of patient
- To consider all aspects of patient health are needs in all stages of life.
- Care is integrated across all sites of care.
- Quality and safety
- Assuring minimum efforts faced by patient to reach healthcare providers through Health IT through online scheduling etc.
- Payment aspect for PMCH care

KEY STAKEHOLDERS

As number of insurance covered population is increasing, one of the way payors have directly incentivized the need for health IT is by program known as “ **PAY FOR PERFORMANCE**”

P4P programs are fundamentally used to improve quality by promising doctors or hospitals bonus payments if they can improve their performance.

These bonuses to providers ranges from 1% to 10% on meeting quality benchmarks till 40% in some cases.

Providers may calculate or check their performance to determine whether the rates measured by payors represent their true performance by using Health IT.

HUB OF HEALTH

- E Health is use of information and communication technologies for health to treat patient , pursue research , educate students , track disease and monitor public health. (WHO 2014)
- Electronic medical record (EMR): Electronic record of health-related information on an individual that can be created, gathered, managed and consulted by authorized clinicians, staffs within healthcare organization.
- Electronic health record (EHR): Electronic record of health-related information that conforms to nationally organized interoperability.
It keys components are administrative, laboratory, radiology, pharmacy system component, CPOE, , clinical documentation.
- Personal health record: controlled by individual that is patient, or their caregivers.

GOALS OF EHR:

- Accessibility
- Improve efficiency
- Reduce cost
- Improve quality of patient care
- Facilitate health service research
- Facilitate claims processing

CLINICAL DECISION REPORT

To enhance health and healthcare CDS is added in EHR to add value or aid in decision making. (E.g., alert to physician about possible drug interaction while writing e prescription.)

Factors involved in CDS

- Time of information
- Push and pull alert
- Frequency of information

Helps in abnormal lab values, drug interaction, saves cost and improve quality care. (E.g. reminder for immunization)

COMPUTERIZED BASED ORDER ENTRY

E prescribing which helps in appropriate choice of drugs, drug interaction, preferred drug for given patient insurance coverage, removes error of reading handwritten prescription, order can be traced again using electronic order if misplaced or with incomplete information

HEALTH INFORMATION EXCHANGE (HIE) AND INTEROPERABILITY

Allows healthcare professionals and patients to appropriately access and securely share a patient's medical information electronically.

Connected Health Care Record helps to reduce records and fragmented reports throughout life time at different stages of life.

Data Standards: To maintain this data standard are there which gives guidelines to describe how the data is to be recorded in order to provide consistency across multiple sources .

Guidelines focuses on 3 different categories:

- Vocabulary standard (standard nomenclature)
- Content exchange standard (sharing clinical information using structured electronic document)
- Privacy and security standard (relate to authentication, access control and transmission security)

BIOINFORMATICS

Biomedical informatics is interdisciplinary field that studies and pursue the effective use of biomedical data, information and knowledge for scientific inquiry, problem solving and decision making, motivated by efforts to improve human health. – AMIA's

Bioinformatics is analysis, interpretation, data mining and integration of heterogenous data and algorithm modeling of biological system

Medical informatics is applied machine learning, computational data integration, advance data visualization , advance prototyping.

