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THE RUTHLESS CONTAINMENT MODEL BY TEXTILE CITY OF RAJASTHAN

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BACKGROUND

WHO had declared COVID19 as Public health emergency of International concern on 30th Jan 2020

30 Jan. 2020

First case of COVID-19 was reported from Kerala originating from Wuhan, China

30 Jan. 2020

Similarly, Rajasthan had reported 18,662 cases with 430 deaths by now and stands on 5th most infected states of India.

now

11 Mar. 2020

pandemic on 11th March 2020

3 July 2020

By 03rd July 2020, the number of confirmed cases in India were risen to 6,48,315 cases , and there have been 18,655 deaths and India was ranked as 3rd most infected countries globally.



OBJECTIVES

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

1. {

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

2. {

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



BHILWARA STORY

For the longest time, Bhilwara was known as the textile city of India. But the city had no idea that it was to go through one of the toughest tests in the face of COVID-19 crisis.

On **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. Home to over 30 lakh people according to the 2011 Census, Bhilwara had **registered 227 positive cases and 3 deaths** by now. However, the strategy adopted by the Rajasthan government and the Bhilwara district administration ensured that no new COVID-19 cases were reported in the textile town.

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



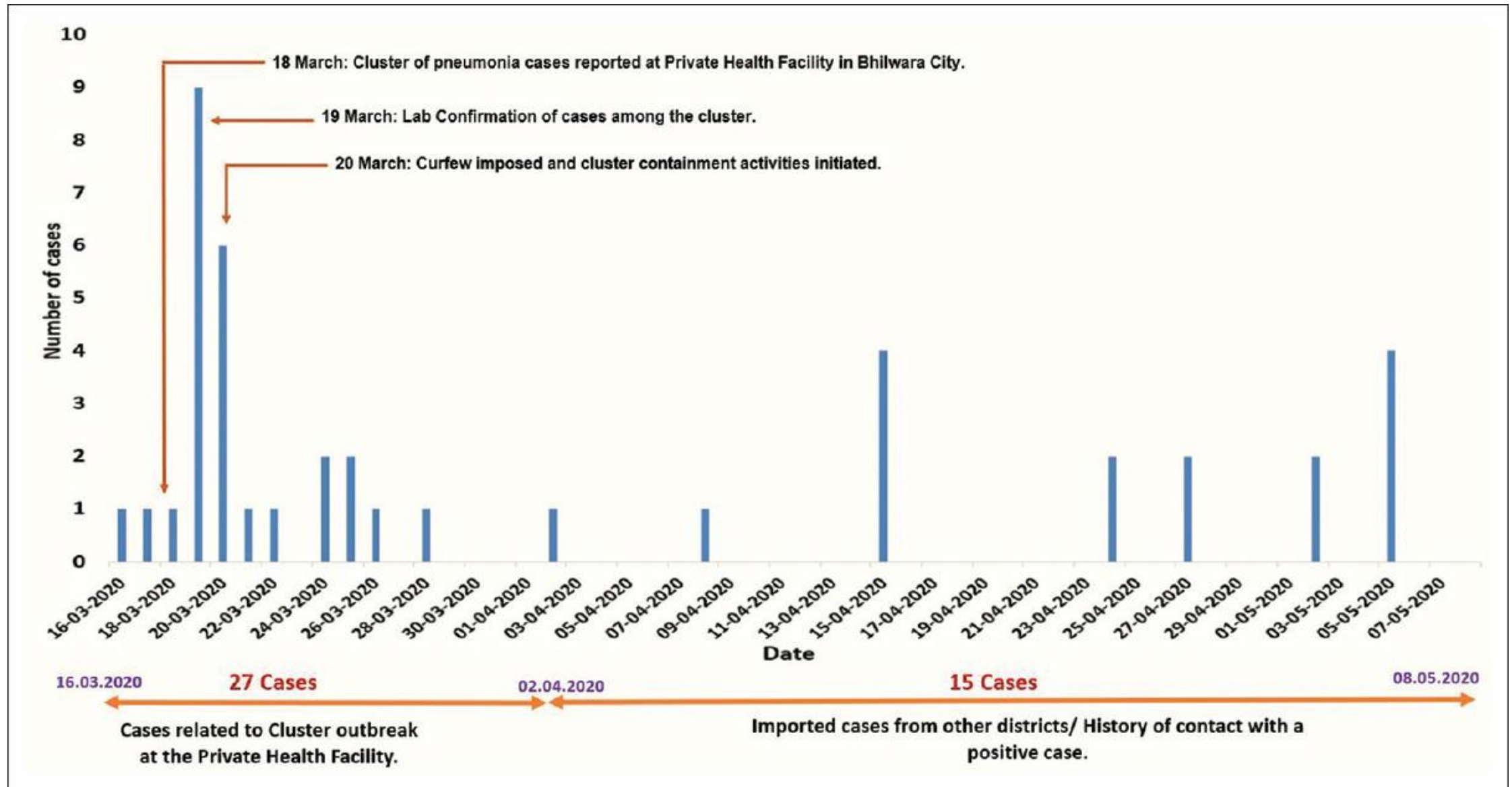
Brijesh Banger Memorial Hospital, Bhilwara, Rajasthan, reported cluster of cases of pneumonia among doctors and paramedical staff.

The situation got more panicked when a **doctor** working in the ICU at the hospital was admitted to the isolation ward was **found positive for COVID-19**.

The next day, **9 more cases tested positive** from the batch. Identifying early threatening signs followed by timely investigation and action holds the major for containment of any epidemic.

Although the steps adopted were same as Government of India guidelines, its execution working to the requirement with dedicated and sincere health and administration team marked in achieving zero local case





MATERIAL AND METHOD

The current study is based on the **research article, news article and interview of field experience of the State Rapid Response Teams (RRTs)** in the cluster containment at Bhilwara.

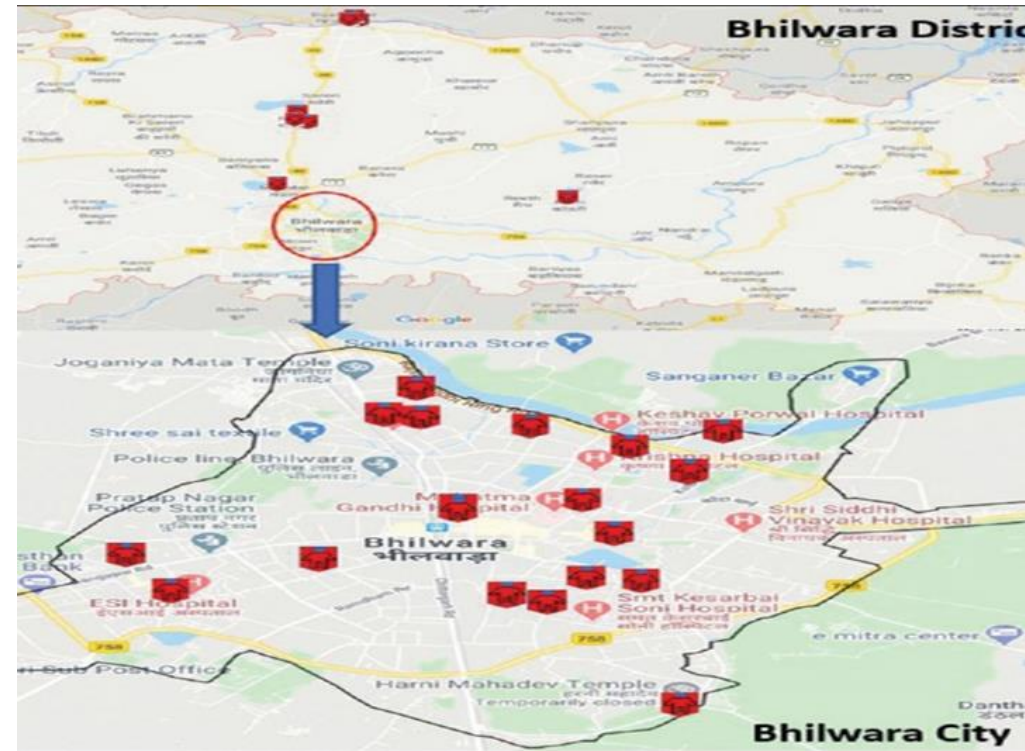
The detailed information of the cases was provided by the Senior Medical Officer In-charge, who was dealing in the crisis at the district hospital. These officers were involved in the operation and worked very closely with District Public Health Team, Mahatma Gandhi Hospital management, and district administration, and observations are summarized and analysed.



THE RUTHLESS MODEL

The Bhilwara model is centred on six steps

- **Identifying and rectifying of outbreak and determining in term of time , place and person**



BHILWARA MODEL SIX PILLARS

Allegiance and obliging
administration and public
health team

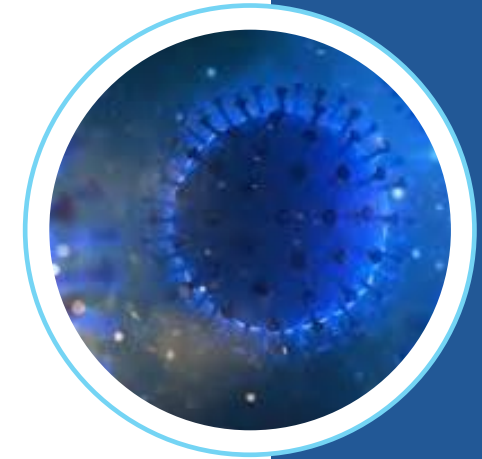
Enclosing the infection and
mapping of COVID hotspot

Immediate constituting all
degrees of COVID committed
healthcare infrastructure

Strong intersectoral
coordination

Skill building of the manpower
in implementation of
guidelines

Safeguarding the uninfected
and aggressive contact tracing



**ISOLATING THE
HOTSPOT**



**Curfew under
Section 144 of CrPc**



**Phase 1: Essential
services open**

PHASE 2: TOTAL SHUTDOWN



City
border
was **sealed**
immediately



District border
was **sealed with**
checkpoints at
all entry/exit
positions



Neighbouring
districts were
requested to seal
their borders with
affected zone



Total ban on
movement
of goods
and private
vehicles



Containment
and buffer zones
were declared
'no-movement'
areas

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 experts from national, state medical colleges.

Health expert from states including specialist from Public Health, Epidemiology, Respiratory Medicine, Pediatrics, 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 analyze 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 corner of city in all containment and buffer zone including all police vehicles, ambulances, screening centers, quarantine centers and even police stations were disinfected daily, at regular 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 imposing strict curfew under section 144 of CrPC

Sealed district borders with 24 checkpoints on all entry and exit points and empowered with doctors and HCWs for screening the population crossing 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

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 building of the manpower in implementation 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 necessary action 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



Strong intersectoral coordination

Strong intersectoral coordination from ground level field workers to highest administrative authorities and their commitment to complete the actions.

Other novel measures

- Rajasthan social media platform application available on both android and iOS devices designed for Global Positioning, tagging and localization system of all suspects advised to quarantine.
- Shift duties of medical staff providing healthcare comprising 1-week work and 2-week quarantine in order to minimize infection among them.
- After suspension of essential services district administrator started 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 large rural areas that could be porous as people 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

- 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 repeated reports of people escaping hospitals or quarantine in the past week. How can this impact the ongoing control measures for COVID 19? One key issue is the trust deficit in the public health system in many parts of the country. Other important factors include fear of isolation and stigma attached 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.

NOT ENOUGH TESTING AND TRACING DESPITE INCREASE IN NUMBER OF CASES.

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 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.

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. 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 nuke of the nation and lead 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 lead to poor health infrastructure, which could have helped up in such pandemic.

Delay in Policy making by government

Not stringent measures for foreigners and NRI as well as not proper planning before lockdown and for migratory people. as in terms of not strict lockdown in certain cities, not restricting travelers from abroad, not enough availability of testing kits and 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

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.

CONCLUSION

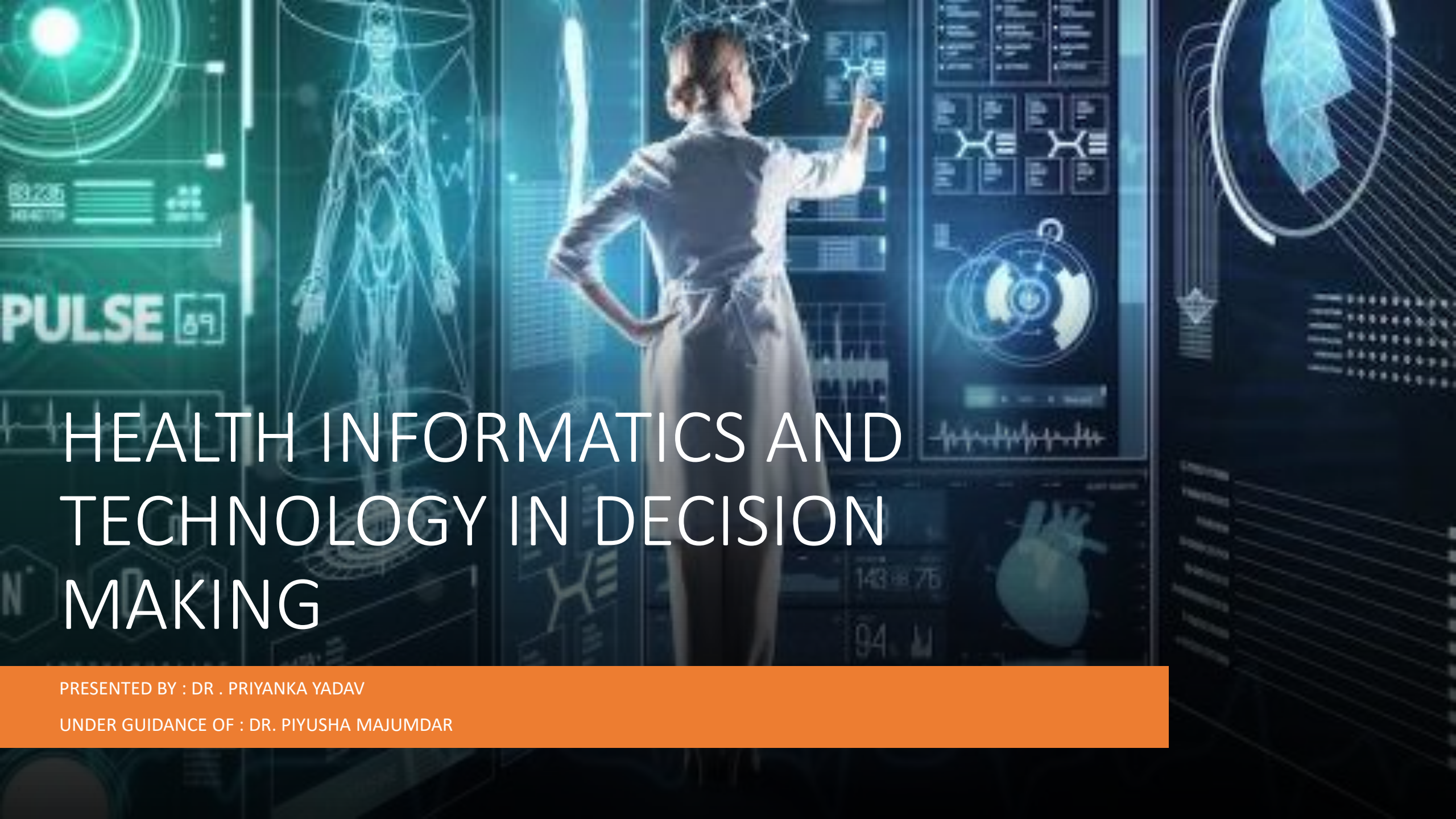
The model have been **executed with clockwork accurateness, excellent coordination and extreme efficiency** under an immaculate leadership. The six pillars that helped in transferring an emerging epicenter to zero cases by effectively eliminating local transmission in district.

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



THANK YOU





HEALTH INFORMATICS AND TECHNOLOGY IN DECISION MAKING

PRESENTED BY : DR . PRIYANKA YADAV

UNDER GUIDANCE OF : DR. PIYUSHA MAJUMDAR

HEALTH INFORMATICS AND TECHNOLOGY



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

INTRODUCTION

“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
Management

Organization &
dissemination of
information

Information
Technology

▶ Tools & Machines

Informatics

Optimal use of
meaningful data

HEALTH CARE INFORMATION SYSTEM

- 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

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 centred Medical homes (partnership between individual patient and their personal physician or sometimes patient family)

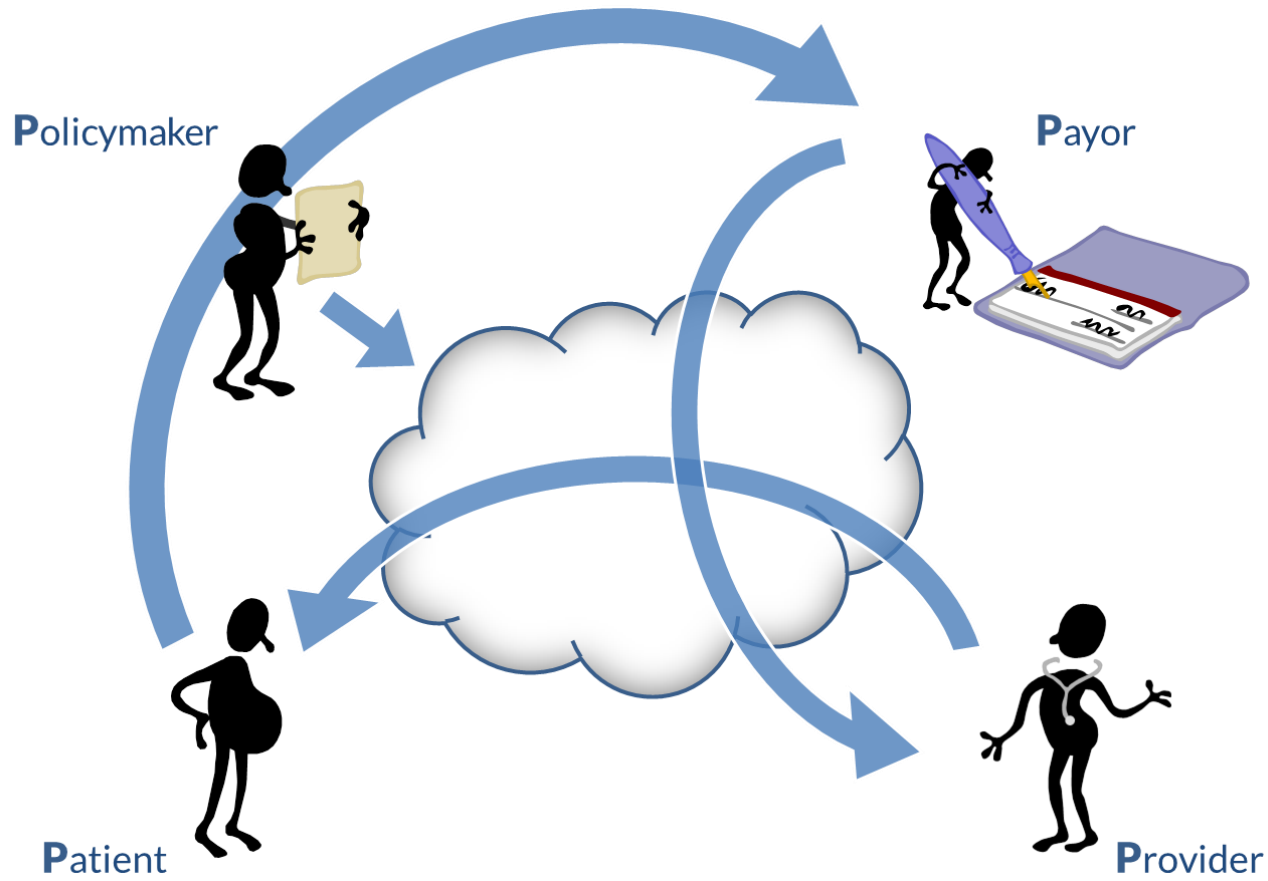


SEVEN PRINCIPLES OF PATIENT CENTERED MEDICAL HOMES



- 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

KEYSTAKEHOLDERS



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

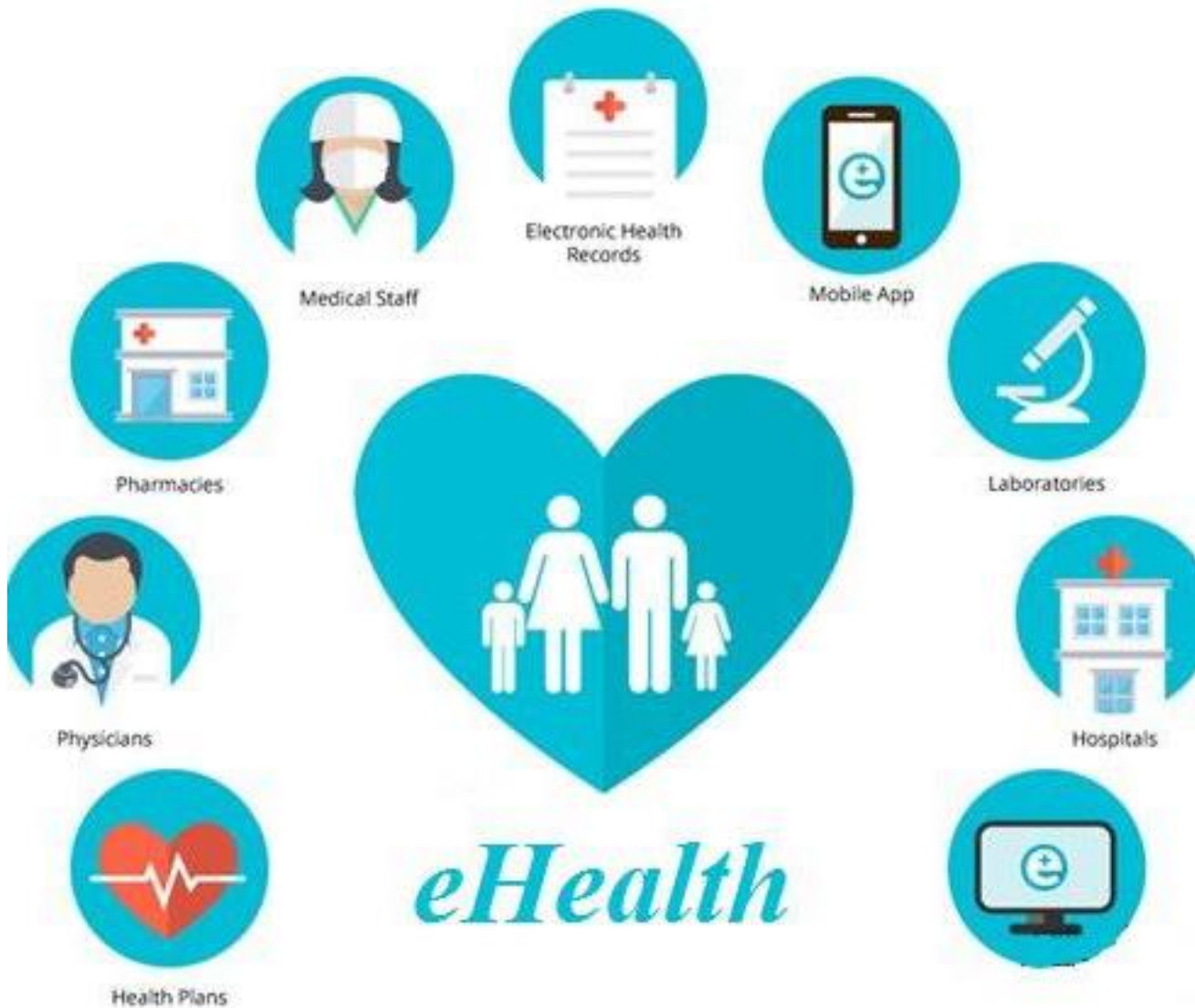
E Health is use of information and communication technologies for health to treat patient , pursue research , educate students , track disease and monitor public health. (WHO 2014)

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 E-HEALTH RECORDS:

Accessibility

Improve efficiency

Reduce cost

Improve quality of patient care

Facilitate health service research

Facilitate claims processing

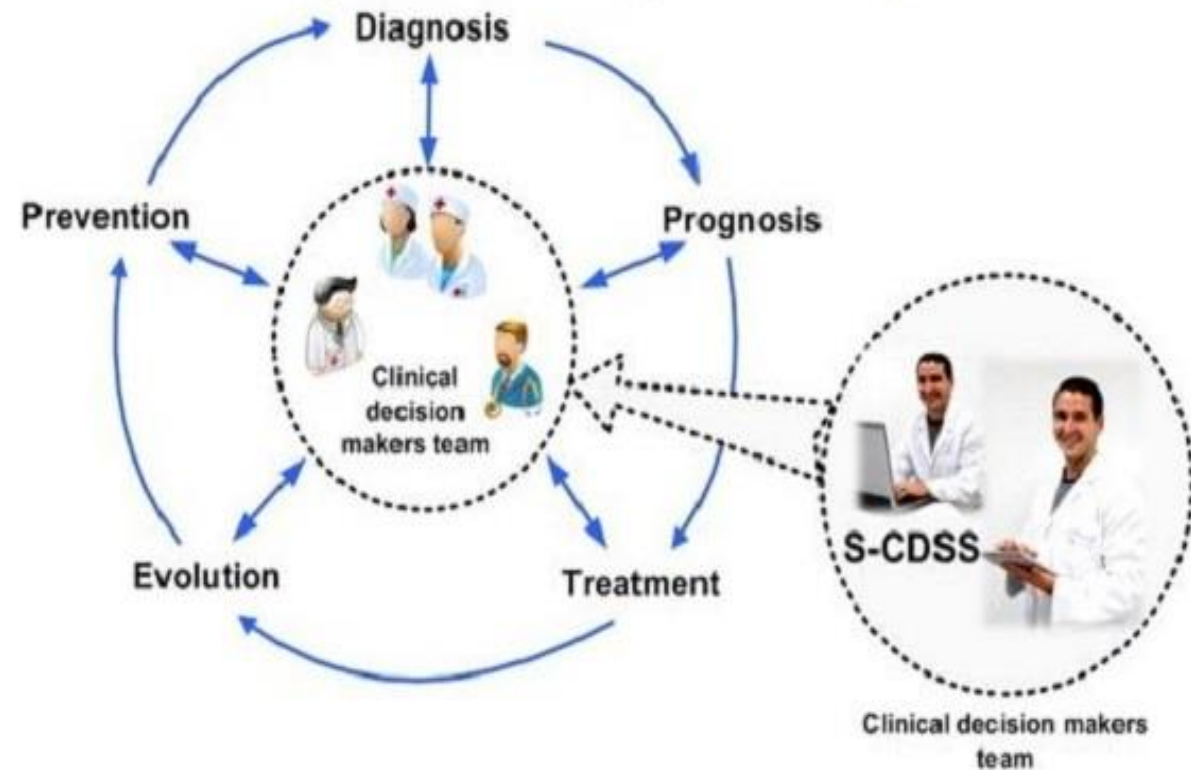
CLINICAL DECISION REPORT

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)

Clinical Decision Support Systems (CDSS)



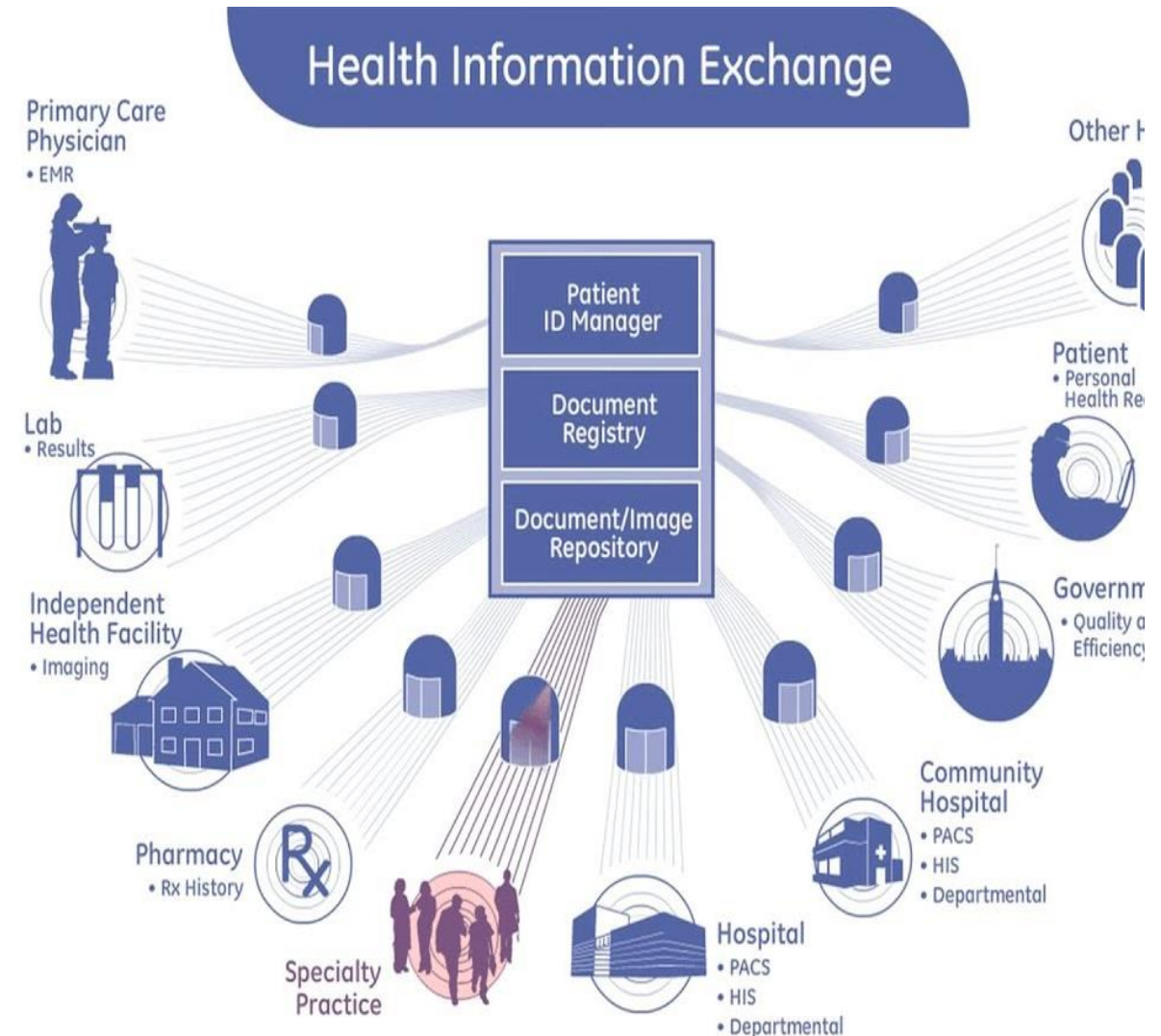


COMPUTERIZED BASED ORDER ENTRY

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 redundant and fragmented reports throughout life time at different stages of life.
- Data Standards: To maintain this data standard are the ones which give guidelines to describe how the data is to be recorded in order to provide consistency across multiple sources.
- Guidelines focus on 3 different categories:
 - Vocabulary standard (standard nomenclature)
 - Content exchange standard (sharing clinical information using structured electronic documents)
 - 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



A large, dark blue, irregular shape resembling a splash or a cloud of ink is centered on a white background. The shape has a textured, slightly grainy appearance. The words "THANK YOU" are written in a clean, white, sans-serif font, centered within the blue shape.

THANK YOU