State level Training of Trainers (ToT) on Corona Virus (COVID-19)

Training Material on

NOVEL CORONAVIRUS (COVID-19)

Department of Health, Medical and Family Welfare
Govt. of Andhra Pradesh
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State level ToT on
NOVEL CORONAVIRUS
(COVID-19)

Training Objectives

Dr T Geetha Prasadini,
Addl. Director, MCH
Training Objectives

2. Explain the strategic approach for managing COVID-19.
3. Describe the key interventions aligned with the strategic approach.
4. Demonstrate and practice important skills required for implementing the interventions.
5. Plan for scale up of similar trainings at state/district level.
Training Objective 1

Sensitize Trainers from Central Government Institutions / States/ UTs about Novel Coronavirus Disease (COVID-19)

• COVID-19 is a new disease, that is fast spreading globally and still there are several critical unknowns.
• understand the key aspects related to the disease emergence, epidemiology, and how to contain further spread in the country.
• Fill the knowledge gaps
• Practice the important skills.
Training Objective 2

Explain the strategic approach for managing COVID-19

India will be following a scenario based approach to manage COVID-19. The strategic approach to each of these scenarios will be explained.

• Travel related case reported in India
• Local transmission of COVID-19
• Community Transmission of COVID-19 disease
• India becomes endemic for COVID-19
Training Objective 3

Describe the key interventions aligned with the strategic approach.

- Surveillance (including at Points of Entry)
- Contact Tracing
- Laboratory surveillance
- Infection Prevention and Control (IPC)
- Clinical Case Management
- Risk Communications and Community Engagement
Training Objective 4

Demonstrate and practice important skills required for implementing the interventions……..

1. Infection prevention control practices
2. Donning and doffing of PPEs
3. Sample collection, packaging and transportation
Training Objective 5

Plan for scale up of similar trainings at state/district level

- The trainers for the National workshop, are expected to carry forward the knowledge and skills gained through this National ToT, for further cascade of trainings at state and district level.

- This needs to be much more comprehensively done at sub-national level, involving all key stakeholders (including the private sector), who are going to play a critical role if a COVID-19 outbreak occurs.
State ToT on

**NOVEL CORONAVIRUS**

*(COVID-19)*

Epidemiology of COVID-19, Global and India Update

Dr S Neelima,
Assistant Professor, Community Medicine, O/o DME
09.03.2020
Cluster of Pneumonia Cases of Unknown Origin in December 2019
Cluster of Pneumonia Cases of Unknown Origin in December 2019
Cluster of Pneumonia Cases of Unknown Origin in December 2019

Of 41 patients, 66% (27) had exposure to a seafood market (Lancet, DOI 10298)

- SARS originated in Guangdong, China in November 2002
- Affected 8096 persons, 774 deaths in 26 countries

![Image of SARS ward sign: Visitor's Not Allowed]
Timeline

12 Dec 2019
Wuhan reported first case

1 Jan 2020
Wuhan Seafood Market closed

31 Dec
Chinese authorities alerted WHO about cases of Pneumonia of unknown etiology

1 Jan
India notified by WHO

7 Jan
2019-nCoV identified

12 Jan
Wuhan’s First Death
Timeline

13 Jan
Thailand confirms first case outside China

11 Feb
Virus renamed SARS-CoV-2 and disease COVID-19

3 Mar
Cases (74 countries) Local transmission (31 countries)

30 Jan
India confirms first case

WHO declared PHEIC

28 Feb
WHO Regional, global risk VERY HIGH
## WHO Risk Assessment

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>China</strong></td>
<td>Very High</td>
</tr>
<tr>
<td><strong>Regional</strong></td>
<td>Very High</td>
</tr>
<tr>
<td><strong>Global</strong></td>
<td>Very High</td>
</tr>
</tbody>
</table>

- **Likelihood of spread**
  - Ongoing human-to-human transmission
  - Confirmed identified in 31 provincial level administrative areas (10 with >100 cases)
  - Majority of cases exported outside China have been epidemiologically linked to Wuhan
  - Human-to-human transmission documented in other countries
  - Source of outbreak remains unknown
  - Disaggregated data is needed to better understand the epidemiology

- **Potential impact to human health**
  - Can causes severe disease and fatalities
  - Severity is not fully understood
  - Transmission from asymptomatic cases

- **Likelihood of insufficient control capacities**
  - China has implemented major control measures
  - Currently affected countries have strong public health systems
  - Some countries may be less prepared to manage cases
Coronavirus

• Large family of enveloped, positive-strand RNA viruses
• Ecologically diverse, circulates in humans and animals
• Divided into 4 genera: alpha, beta, delta, and gamma
  • alpha and beta CoVs infect humans
• Four HCoVs (HCoV 229E, NL63, OC43, and HKU1) endemic globally
  • 10-30% of upper respiratory tract infections in adults
• Rarely, animal coronaviruses evolve and infect people and then spread between people—SARS (2002) and MERS (2012)
Phylogenetic analysis of the 2019-nCoV and other *Beta coronavirus* genomes under the Orthocoronavirinae subfamily

- Phylogeny – Closest genetic similarity was found in a coronavirus that had been isolated from bats
  - CoVZC45 (MG772933.1) and
  - BM48-31/BGR/2008(GU190215.1) branches

Source: WHO
Coronavirus – Transmissibility

- Infected droplets
  - $>5 \mu m$, travel $<1m$
- Aerosols
  - $<5 \mu m$, travel $>1m$
- Contact
  - Hands, surfaces

Figure 1. Transmission routes: droplet, airborne, direct contact, and indirect contact. (Indirect contact: routes involving a combination of hand and surface.) Definitions of ‘droplet’ and ‘droplet nuclei’ are from Atkinson et al.\textsuperscript{5}
Coronavirus – Transmissibility

Survivability outside body:
- 1-2 days on nonporous surfaces
- 8-12 hours on porous surfaces
- Currently this information on 2019-nCoV not clear

Incubation period:
Current estimates of the incubation period of SARS-CoV-2 range from 2-14 days.
# Cases and Deaths—China

<table>
<thead>
<tr>
<th></th>
<th>Cases</th>
<th>Deaths</th>
<th>CFR (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hubei</td>
<td>67,332</td>
<td>2,871</td>
<td>4.2</td>
</tr>
<tr>
<td>Outside Hubei</td>
<td>13,090</td>
<td>113</td>
<td>0.8</td>
</tr>
<tr>
<td>China</td>
<td>80,422</td>
<td>2,984</td>
<td>3.7</td>
</tr>
</tbody>
</table>

Source: WHO  
As on 04 March, 2020
Comparison of Cases and Deaths in China–Hubei and other Provinces

Cases

Deaths

Source: WHO
As on 04 March, 2020
Distribution of Cases – Outside China

Number of Countries reporting*  77
Cases  12,668
Deaths  214
CFR %  1.7
Local Transmission %  42

* Includes one international conveyance

Source: WHO
As on 04 March, 2020
Age Distribution of Cases in China, Surveillance Data (n=72,314)

- Median age: 51 years
- Interquartile range=39-63 years
- Range= 2 days-100 years
- Males: 51%
- Health care workers: 3.8%
  - 88% reported from Hubei
Signs and Symptoms of Cases in China

Report of WHO China Joint Mission, Feb 2020
Epidemiology—Presentation of Illness (n=72,314)

- Critical: 4.7%
- Severe: 14%
- Mild: 81%

China CDC Weekly Vol2 (8)
Epidemiology–Severity of Illness (n=72,314)

Case Fatality Rate (%)

- >=80
- 60-69
- 40-49
- 20-29
- 0-9

China CDC Weekly Vol2 (8)
Epidemiology–Severity of Illness (n=72,314)

- CORMORBIDITY: 74%
- NO COMORBIDITY: 26%
Pattern of Disease Progression

Report of WHO China Joint Mission, Feb 2020
Comparison of Severity and Transmissibility of Human Infection with Coronavirus and Influenza virus

<table>
<thead>
<tr>
<th>Virus</th>
<th>Transmissability ($R_0$)</th>
<th>Severity (CFR %)</th>
</tr>
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<tbody>
<tr>
<td>COVID-19i</td>
<td>2.00</td>
<td>3.00</td>
</tr>
<tr>
<td>SARS</td>
<td>3.00</td>
<td>9.00</td>
</tr>
<tr>
<td>MERS</td>
<td>1.05</td>
<td>36.00</td>
</tr>
<tr>
<td>IFL-Sii</td>
<td>1.27</td>
<td>NA</td>
</tr>
<tr>
<td>IFL-P</td>
<td>1.45</td>
<td>0.02</td>
</tr>
<tr>
<td>HCoVsiii</td>
<td>1.00</td>
<td>NA</td>
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</tbody>
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Source: Communicable Disease Manual
Comparison of Severity and Transmissibility of Human Infection with Coronavirus and Influenza virus

• Source: Communicable Disease Manual

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Source: Communicable Disease Manual
Risk of Disease Transmission in COVID-19 Patients following Onset of Illness (n=18)

(NEJM, DOI 10.1056)
Risk of Disease Transmission in COVID-19 Patients following Onset of Illness (n=18)

- High viral load detected soon after symptom onset up to day 21 of illness onset
- More in nose than throat
- Viral shedding similar to Influenza as opposed to SARS

(NEJM, DOI 10.1056)
Asymptomatic Stage in COVID-19

- China Surveillance record of 72,314 cases shows 1.2% asymptomatic cases

- Diamond Princess ship with 3712 crew and staff reported 2.9% asymptomatic cases
Role of Asymptomatic COVID-19 Cases in Disease Transmission

Findings from two case reports indicate possibility of transmission in asymptomatic stage

A familial cluster of 5 patients in Anyang, China, had contact before their symptom onset with one asymptomatic family member who had traveled from the epidemic center of Wuhan. Asymptomatic patient turned PCR positive 20 days after contact with index case (JAMA, Feb 21, 2020)

Two family cluster of 18 cases in Guangdong were examined for viral load in specimens, one asymptomatic contact turned PCR positive 7 days after contact (NEJM, DOI 10.1056)

Possible viral shedding and role of asymptomatic cases in driving transmission by in community
COVID-19 Epidemic Curve and Major Interventions implemented in China

- A novel coronavirus was isolated by China CDC
- NCIP incorporated as a notifiable disease in the Infectious Disease Law and Health and Quarantine Law in China
- WHO announced PHEIC
- Two new hospitals were established in Wuhan
- Enhanced admission and isolated treatment of cases in Hubei
- Resumption of labor and rehabilitation
- Strategy and response adjustment

**First Stage (before Jan. 19, 2020)**

- Outbreak announced by WHC, NHC and China CDC involved in investigation and response
- Huanan seafood wholesale market closed

**Second Stage (Jan. 20-Feb. 7, 2020)**

- WHO issued diagnostic and control technical protocols
- NHC started officially daily disease information release
- State council initiated joint multisectoral mechanism
- Wuhan implemented strict traffic restrictions

**Third Stage (after Feb. 8, 2020)**

- China CDC publicly shared the gene sequence of the novel coronavirus
- NHC notified WHO and relevant countries and regions
- Gene sequencing completed by China CDC
- Wuhan implemented strict traffic restrictions
COVID-19 Epidemic Curve outside China

Source: WHO Sitrep
COVID-19 Epidemic Curve, India (n=29)
COVID-19 Epidemic Curve, India (n=29)

• Median age: 37 years
• Range: 20-77 years
• Males: 59%
• Proportion with history of travel: 83%
Conclusions

• COVID-19 respiratory pathogen, easily transmissible from person to person
• Elderly and co-morbid are high risk
• Cases rising outside China, including India, with limited local transmission
• Containment for elimination possible
  • Case management
  • Contact tracing
  • Health system strengthening (isolation wards, medical supplies)
  • Public risk communication
State ToT on

NOVEL CORONAVIRUS (COVID-19)

Rapid Risk Assessment

Dr S Neelima,
Assistant Professor, Community Medicine, O/o DME
09.03.2020
Content

1. Definition and rationale for Rapid Risk Assessment (RRA)
2. Risk assessment methods, tools and process
3. Risk assessment components, risk matrix
4. Risk assessment outputs
5. Examples of risk questions for India
Risk = likelihood and consequences
Definition and rationale for RRA

What is risk assessment?
A systematic process for gathering, assessing and documenting information to assign a level of risk

Why to conduct risk assessment?

- Characterize the risk (low-moderate-high-very high)
- Support and direct decision-making
- Implement appropriate and timely control measures
- Support effective operational and risk communication
- Improve preparedness
Risk assessment methods, tools and process
Methods & Tools for Rapid Risk Assessment

SMART goals: simple, measurable, achievable, relevant and time-bound
- Minimum number of methods for common understanding
- Simple but not simplistic
- Appropriate to the people undertaking the risk assessment
- Appropriate to the timeframe required for action
- Examples of methods/tools for acute public health events.
Rapid Risk Assessment Process

• Assembling Risk Assessment team (multidisciplinary team)
• Formulating risk questions
• Undertaking Risk Assessment (components)
  1. Assess hazard/threat
  2. Assess exposure(s)
  3. Assess context (vulnerabilities and threat-specific factors that increase or decrease risk)
• Assigning level of risk
Risk assessment components, risk matrix
Risk assessment components

Hazard/threat
- Hazard can be known or unknown
- If unknown, prioritise potential hazards (biological, chemical, physical and radionuclear hazards)

Exposure
- Number of people likely to have been exposed
- Number of people exposed likely to be affected

Context (capacity and control)
- Factors associated with social, health status, behaviour (population density and movement)
- Factors associated with health system (Surveillance, diagnosis, treatment)
- Context (political, conflict, economical)

Documented evidence
Risk Matrix

Likelihood
- Almost certain
- Highly likely
- Likely
- Unlikely
- Very unlikely

Consequences
- Minimal
- Minor
- Moderate
- Major
- Severe

- Common cold
- COVID-19
- SARS
## Risk assessment – characterizing risk

<table>
<thead>
<tr>
<th>Risk level</th>
<th>Level of management to be undertaken</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Green</strong></td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Manage through routine procedures.</td>
</tr>
<tr>
<td><strong>Yellow</strong></td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td>Routine procedures may not be sufficient. Management responsibility must be specified; specific monitoring or procedures required.</td>
</tr>
<tr>
<td><strong>Orange</strong></td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Local capacity surpassed requiring next level of management, and perhaps government to assist. Establish command and control structure.</td>
</tr>
<tr>
<td><strong>Red</strong></td>
<td>Very high</td>
</tr>
<tr>
<td></td>
<td>Local capacity overwhelmed requiring highest level of management and government to assist (perhaps international). Activate Emergency Operations Centre (EOC).</td>
</tr>
</tbody>
</table>
Outputs of risk assessment
Risk statement and limitations of RRA

Risk statement
• Make a concise statement about the level of risk and give evidence-based reasons using key information on likelihood of the event occurring and the impact the event will have

Limitations
• Make a brief statement about limitations of the risk assessment
• These limitations should be documented as they will also assist in decisions and follow-up actions

Recommendations
• Communicate timely and regularly
• Acknowledge uncertainty
• Understand stakeholders’ perceptions
• Translate science into non-expert language
Limitations and level of confidence

Incomplete information can lead to low confidence in the outcome

*BUT*

decisions for intervention still have to be made

• As data improves confidence increases
• At all stages of an event the most reliable data available should be used and key limitations should be documented
• This is a cyclical process
Examples of risk questions for India
In scenario of first cases and clusters

• What is the risk of infection for Indian citizens travelling in areas with/without ongoing community transmission?

• What is the risk of introduction of COVID-19 in state X?

• What is the risk of health care associated transmission?

• What is the risk of clusters associated with COVID-19 occurring in other states of India in the coming weeks?
In scenario of community transmission

- What is the risk associated with COVID-19 infection for people in state/city X?

- What is the risk of widespread and sustained transmission in India in the coming weeks?

- What is the risk for healthcare systems capacity in India in the coming weeks?

- What is the risk of severe impact on the Indian society?
Key messages

Risk assessment:
1. Supports defendable and proportional decision making, especially where information is limited and the level of uncertainty high
2. Is a continuous process – should occur many times during an event
3. Helps to predict, plan and understand what levels of risk to accept
4. Helps communicate levels of risk and rationale for decision making to a technical and wider audience
State ToT on

NOVEL CORONAVIRUS
(COVID-19)

Strengthening Community Surveillance For Covid-19

Dr Savitri,
Addl. Director/SSO
09.03.2020
Epidemiology of COVID-19

• Agent - Corona viruses belong to a large family of viruses, some causing illness in people and others that circulate among animals, including camels, cats, bats etc.

• The etiologic agent responsible for present outbreak of COVID-19 is SARS-CoV-2 which is a novel coronavirus.

• Transmission of coronaviruses can occur via respiratory secretions. Nosocomial transmission has been documented in COVID-19.

• Current estimates of the incubation period of 2019-nCoV range from 2-14 days.

• Most common symptoms include fever, fatigue, dry cough and breathing difficulty. Upper respiratory tract symptoms like sore throat, rhinorrhea, and gastrointestinal symptoms like diarrhea and nausea/ vomiting are seen in about 20% of cases.
Case definitions – Suspect case

• A patient with **acute respiratory illness** {fever and at least one sign/symptom of respiratory disease (e.g., cough, shortness of breath)}, **AND** a **history of travel** to or residence in a country/area or territory reporting local transmission (See NCDC website for updated list) of COVID-19 disease during the 14 days prior to symptom onset;

  OR

• A patient/Health care worker with **any acute respiratory illness** **AND** having been in **contact with a confirmed** COVID-19 case in the last 14 days prior to onset of symptoms;

  OR

• A patient with **severe acute respiratory infection** {fever and at least one sign/symptom of respiratory disease (e.g., cough, shortness breath)} **AND requiring hospitalization** **AND with no other etiology** that fully explains the clinical presentation;

  OR

• A case for whom **testing for COVID-19 is inconclusive.**
Case definitions – Laboratory confirmed case

- A person with laboratory confirmation of COVID-19 infection, irrespective of clinical signs and symptoms.
Definition of Contact

A contact is a person that is involved in any of the following:

• Providing direct care *without proper* personal protective equipment (PPE) for COVID-19 patients

• **Staying in the same** close environment of a COVID-19 patient (including workplace, classroom, household, gatherings).

• Traveling together in **close proximity** (1 m) with a **symptomatic person** who later tested **positive** for COVID-19.
Types of contacts

High Risk

- **Touched** body fluids of the patient (Respiratory tract secretions, blood, vomit, saliva, urine, faeces)
- Had **direct physical contact** with the body of the patient including physical examination **without PPE**.
- **Touched or cleaned** the linens, clothes, or dishes of the patient.
- Lives in the **same household** as the patient.
- Anyone in **close proximity (within 3 ft)** of the confirmed case **without precautions**.
- Passenger in close proximity (within 3 ft) of a conveyance with a **symptomatic person who later tested positive** for COVID-19 for more than 6 hours.

Low Risk

- Shared the same space (Same class for school/worked in same room/similar and **not having a high risk exposure** to confirmed or suspect case of COVID-19).
- Travelled in same environment (bus/train/flight/any mode of transit) but not having a high-risk exposure.
Key considerations – Surveillance

- Surveillance period is for 28 days – (14 days quarantine at home or hospital or a designated facility and next 14 days is for self reporting).

- Testing –
  - All high risk contacts to be tracked, quarantined and lab-tested as per the protocol.
  - For low risk contacts – lab-test only when the person under surveillance develops symptoms.

- Sample – Throat swab (Details in the session on lab)

- Treatment – No drug(s) or vaccine recommended presently.
Key considerations – Surveillance (Contd.)

• **Indian Nationals** – Irrespective of the location of the health care facility where the suspect/confirmed case is admitted, it will be included in the line list of the State where the case resided during the last 14 days (prior to or after the onset of the symptoms).

• In case of any conflict, the States may discuss the matter amongst themselves and take a decision.

• **Foreign Nationals** - An individual or a group of foreign nationals if found positive and admitted in a designated health facility in a particular State, that state to include such foreigners in its line list.
Key consideration – Contact Tracing

• A positive case may have contacts in multiple States/UTs.

• Tracking of all the contacts located in a particular State/UT will be the responsibility of that State/UT.

• In case of any high risk contact found in the particular State/UT, sampling to be carried out by respective State/UT along with Home/Hospital quarantine of the said contact.

• Sampling to be carried out strictly in accordance with the guidelines.
Cluster containment Strategy

Scenarios:

• Travel related cases reported in India

• Local transmission of COVID-19 (Single Cluster)

• Large outbreaks of COVID-19 disease (Multiple cluster)

• India becomes endemic for COVID-19

  • IDSP, will be involved in community surveillance in all of the above mentioned scenarios.
Containment zone

• A Central RRT will help the State/ District administration in mapping the Containment Zone.

• The containment zone will be defined based on
  • The index case / cluster, which will be the designated epicenter.
  • Geographical distribution of cases around the epicenter.
  • Local administrative boundaries of urban cities /town

• A scenario based approach (e.g. a small cluster in a closed environment or single cluster in a residential colony) while deciding the perimeter of containment zone.

• The decision on perimeter of the containment zone is to be guided by continuous real time risk assessment.
Containment zone Cont...

• Implementation of strict perimeter control is vital for the containment of COVID-19.

• Perimeter control is primarily an administrative measure – Enhanced surveillance within the perimeter is a part of the larger administrative response.

• Rapid Response Teams (RRTs) needs to be oriented on the enhanced surveillance & contact tracing.
Buffer Zone

• Buffer Zone is an area around the Containment Zone, where new cases most likely to appear.

• There will not be any perimeter control for the buffer zone.
Surveillance Activities in Containment Zone
The residential areas will be divided into sectors for the ASHAs/Anganwadi Workers/ANMs each covering 50 households (30 households in difficult areas).

Supervisory officers (PHC/CHC doctors) in the ratio of 1:4.

The field workers (FW) will be performing active house to house surveillance daily in the containment zone from 8:00 AM to 2:00 PM and also encourage self reporting.

The suspect will be isolated till such time he/she is examined by the supervisory officer.

The field worker will provide a mask to the suspect case and to the care giver identified by the family.

Follow up contacts identified by the RRTs within the sector allocated to the FWs. As per case definition the supervisory officer, visit house, make arrangements to shift the suspect case to the designated treatment facility.

The supervisor officer will collect data from the health workers under him/ her, collate and provide the daily and cumulative data to the control room by 4.00 P.M. daily.

Line list the family members, contact listing, identification of close contacts and all those having symptoms.
Travel related cases reported in India

<table>
<thead>
<tr>
<th>Containment Zone</th>
<th>Buffer Zone</th>
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<tbody>
<tr>
<td>• Isolation &amp; management of case</td>
<td>• Enhanced Passive ARI/ILI Surveillance</td>
</tr>
<tr>
<td>• Quarantine of contacts</td>
<td>• Enhanced Self reporting</td>
</tr>
<tr>
<td>• Enhanced IEC</td>
<td></td>
</tr>
<tr>
<td>• Active ARI/ILI Surveillance</td>
<td></td>
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<tr>
<td>• Enhanced self reporting</td>
<td></td>
</tr>
<tr>
<td>• Enhanced personal hygiene, hand hygiene &amp; cough etiquettes</td>
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Local transmission – Single cluster

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<tr>
<td>• Establish control room in the local health facility</td>
</tr>
<tr>
<td>• Ban local mass gathering</td>
</tr>
<tr>
<td>• Lockdown of identified cluster for e.g. Schools/residential building/Hotel</td>
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<td>• Enhanced Self reporting.</td>
</tr>
<tr>
<td>• Enhanced media surveillance</td>
</tr>
<tr>
<td>• Trainings on case definitions and contacts</td>
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</table>
## Large outbreak – Multiple clusters

### Containment zone

- Isolation & management of case
- Quarantine of contacts
- Enhanced IEC
- Active ARI/ILI Surveillance
- Enhanced self reporting
- Enhanced personal hygiene, hand hygiene & cough etiquettes
- Ban local mass gathering
- Closure of schools, offices, colleges
- Environment disinfection
- Refrain from leaving home + Border measures
- Establishment of control room at the block and district level
- Enhanced media surveillance in and surrounding blocks/districts
- Monitoring of rumour register
- Mobile specimen collection units
Large outbreak – Multiple clusters

- Buffer zone
- Isolation & management of case
- Quarantine of contacts
- Enhanced IEC
- Active ARI/ILI Surveillance
- Enhanced self reporting
- Enhanced personal hygiene, hand hygiene & cough etiquettes
- Border measures
- Ban all mass gatherings in buffer zone
- Media surveillance
- Mobile specimen collection units
Endemic

- Isolation & management of cases as per guidelines
- Enhanced IEC
- Routine Lab ARI/ILI Surveillance
- Enhanced self reporting
- Enhanced personal hygiene, hand hygiene & cough etiquettes
- Categorisation & Treatment
- Other Lab tests/Serological tests as per availability
- Research
- Vaccination as per availability
- Media scanning and verification
- Rumour register monitoring
Border measures

• Refrain from leaving their homes and moving around from the containment zone for at least 14 days
• Refrain participating in events held in indoor venues when fever or respiratory symptoms are detected.
• Employers to cooperate for leaves or absence without a written diagnosis
• Enhanced entry screening for travellers from containment zone
• Involvement of all concerned departments.
IEC/BCC activities

• Education department
• Women and Child Development Department
• Transport Department
• Food safety Department
• DADF
• Tourism Department
• Other stakeholders like medical associations, nursing associations, hotel association etc.
Surge capacities – (Human resource, Hospitals Logistics etc.)

• Triage for hospitalization of cases.

• Additional workforce may be mobilised from neighbouring Districts/Medical colleges/private hospitals/NGOs/Trained Volunteers to cover household in containment zone.

• Nursing students/other paramedical workers may be oriented in advance for proper mobilisation of the staff during the containment procedures.

• Adequate logistics to be maintained at State and District levels.

• Mobile specimen collection teams (Involving medical and paramedical students) may be identified and oriented.

• Identification of Govt./Non Governmental buildings to be designated as quarantine centres or isolation wards at a short span of time.
State level ToT on NOVEL CORONAVIRUS (COVID-19)

Environmental cleaning, disinfection and bio-medical waste management

Dr Prashanthi, Associate Professor, Micro Biologist, GMC, Guntur on 09.03.2020
Learning Objectives

• Environmental cleaning and Disinfection
  • Environmental decontamination
  • Cleaning of medical equipment
  • Cleaning soiled bedding, towels and clothes from patients with COVID-19
  • Cleaning and disinfection of occupied patient rooms
  • Cleaning and disinfection after patient discharge and transfer
  • Prevent environment contamination: contain respiratory secretions

• Bio-medical waste management
Environmental Cleaning and Disinfection
Environmental Decontamination (1)

General Principles

• Healthcare environment contains a diverse population of microorganisms, but only few are significant pathogens.
• Microbiologically contaminated surfaces can serve as reservoirs of potential pathogens.
• Contaminated surfaces not directly associated with transmission of infections to either staff or patients.
• Transfer of microorganisms from environmental surfaces to patients is mostly via hand contact with the surface.
• Hand hygiene is important to minimize the impact of this transfer.
• Cleaning and disinfecting environmental surfaces is fundamental in reducing healthcare-associated infections.
Environmental Decontamination (2)

- COVID-19 virus can potentially survive in the environment for several hours/days
- Premises and areas potentially contaminated with the virus to be cleaned before their re-use
- Products containing antimicrobial agents known to be effective against coronaviruses may be used
- Established cleaning strategies to be used
  - Remove the majority of bioburden, and
  - Disinfect equipment and environmental surfaces
Environmental Decontamination (3)

- Housekeeping surfaces can be divided into two groups
  - Those with minimal hand contact (e.g. floors and ceilings)
  - “High touch surfaces” – those with frequent hand-contact

- High touch housekeeping surfaces in patient-care areas should be cleaned and/or disinfected more frequently
  - Doorknobs
  - Bedrails
  - Light switches
  - Wall areas around the toilet in the patient’s room
  - Edges of privacy curtains
Cleaning/disinfection of medical equipment (1)

• Wear gloves when handling and transporting used patient care equipment

• Before removing equipment from patients room, medical equipment must be disinfected

• Non-critical medical equipment:
  • E.g., stethoscopes, blood pressure cuffs, dialysis machines and equipment knobs and controls
  • Usually only require cleansing followed by low- to intermediate-level disinfection, depending on the nature and degree of contamination
Cleaning/disinfection of medical equipment (2)

• In absence of manufacturer instructions regarding cleaning/disinfection of equipment
  • Ethyl alcohol or isopropyl alcohol (60%–90%, v/v) often used to disinfect small surfaces (rubber stoppers of multiple-dose medication vials, and thermometers) and occasionally external surfaces of equipment (stethoscopes and ventilators)
  • Alcohol causes discoloration, swelling, hardening and cracking of rubber and certain plastics after prolonged and repeated use
    • Cover mattresses for easier disinfection
Cleaning/disinfection of medical equipment (3)

• Barrier protection of difficult to clean surfaces and equipment is useful, especially if these surfaces are
  • Touched frequently by gloved hands during the delivery of patient care
  • Likely to become contaminated with body substances, or
• Impervious-backed paper, plastic or fluid-resistant covers are suitable for use as barrier protection
• Remove and discard coverings with gloved hands
• Perform hand hygiene after ungloving
• Cover these surfaces with clean materials before the next patient encounter
## Cleaning/disinfection of medical equipment (4)

<table>
<thead>
<tr>
<th>Area/Items</th>
<th>Inputs</th>
<th>Process</th>
<th>Method/ procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stethoscope</td>
<td>Alcohol-based rub/Spirit swab</td>
<td>Cleaning</td>
<td>○ Should be cleaned with detergent and water&lt;br&gt;○ Should be wiped with alcohol-based rub/spirit swab before each patient contact</td>
</tr>
<tr>
<td>BP cuffs &amp; covers</td>
<td>Detergent Hot water</td>
<td>Washing</td>
<td>○ Cuffs should be wiped with alcohol-based disinfectant and regular laundering is recommended for the cover</td>
</tr>
<tr>
<td>Thermometer</td>
<td>Detergent and water&lt;br&gt;Alcohol rub&lt;br&gt;Individual thermometer holder</td>
<td>Cleaning</td>
<td>○ Should be stored dry in individual holder&lt;br&gt;○ Clean with detergent and tepid water and wipe with alcohol rub in between patient use&lt;br&gt;○ Store in individual holder inverted&lt;br&gt;○ Preferably one thermometer for each patient</td>
</tr>
<tr>
<td>Injection and dressing trolley</td>
<td>Detergent and water&lt;br&gt;Duster&lt;br&gt;Disinfectant (70% alcohol)</td>
<td>Cleaning</td>
<td>○ To be cleaned daily with detergent and water&lt;br&gt;○ After each use should be wiped with disinfectant</td>
</tr>
</tbody>
</table>
Cleaning soiled bedding, towels and clothes from patients with COVID-19 (1)

• Clean the laundry and surfaces in all environments in which COVID-19 cases receive care – at least once a day and when a patient is discharged

• Hospital disinfectants:
  • 70% ethyl alcohol for small areas – reusable dedicated equipment (e.g. thermometers)
  • Sodium hypochlorite at 0.5% (equivalent 5000 ppm) for surface disinfection

• Individuals/staff dealing with soiled bedding, towels and clothes from patients with COVID-19 should:
  • Wear appropriate PPE – heavy duty gloves, mask, eye protection (goggles/face shield), long-sleeved gown, apron (if gown is not fluid resistant), and boots or closed shoes
  • Never carry soiled linen against body; place soiled linen in a leak-proof bag or bucket
  • Perform hand hygiene after blood/body fluid exposure and after PPE removal
Cleaning soiled bedding, towels and clothes from patients with COVID-19 (2)

- Soiled linen should be placed in clearly labelled, leak-proof bags or containers, carefully removing any solid excrement and putting in covered bucket to dispose of in the toilet or latrine

- Washing machine
  - Wash at 60-90°C with laundry detergent followed by soaking in 0.1% chlorine for approximately 30 minutes and dried

- No machine washing
  - Soaked in hot water with soap/detergent in a large drum
  - Use a stick to stir and avoid splashing
  - Empty the drum and soak linen in 0.1% chlorine for approx. 30 minutes
  - Rinse with clean water and let linens dry fully in the sunlight
Cleaning and disinfection of occupied patient rooms

• Designate specific well-trained staff for cleaning environmental surfaces
• Cleaning personnel should wear PPE and must be trained on proper use of PPE and hand hygiene
• Define the scope of cleaning to be done each day
• Use a checklist to promote accountability for cleaning responsibilities
• Keep cleaning supplies outside the patient room
Cleaning of Housekeeping surfaces and eating utensils

• Housekeeping surfaces:
  • Require regular cleaning and removal of soil and dust
  • Personal protective equipment (PPE) used during cleaning and housekeeping procedures
  • Need to be cleaned only with soap and water or a detergent/disinfectant, depending on the nature of the surface and the degree of contamination

• Dishes and eating utensils used by a patient with known or suspected infection
  • No special precautions other than standard precautions
  • Wear gloves when handling patient trays, dishes and utensils
Spill management

- Worker assigned to clean the spill should wear gloves and other personal protective equipment
- Most of the organic matter of the spill to be removed with absorbent material
- Surface to be cleaned to remove residual organic matter
- Use disinfectant: hypochlorite
  - 1% for small spills
  - 10% for large spills
Cleaning and disinfection after patient discharge or transfer

- Clean and disinfect all surfaces that were in contact with patient or may have become contaminated during patient care
- Do not spray or fog occupied or unoccupied rooms with disinfectant – potentially dangerous practice that has no proven benefits
Prevent environment contamination: contain respiratory secretions (1)

Ensure early recognition and prevention of transmission of the respiratory virus at the initial encounter with a healthcare setting

- Post **visual alerts** (in appropriate languages) at the entrance to outpatient facilities (e.g., emergency departments, physicians’ offices, outpatient clinics) instructing patient and the persons who accompany them to:
  - Inform healthcare personnel of symptoms of a respiratory infection when they first register for care, and
  - Practice **respiratory hygiene/cough etiquette**
Respiratory hygiene/cough etiquette

• All persons with signs and symptoms of a respiratory infection (regardless of presumed cause) must follow respiratory hygiene/cough etiquette
  • Cover the nose/mouth when coughing or sneezing
  • Use tissues to contain respiratory secretions
  • Dispose of tissues in the nearest waste receptacle after use
  • Perform hand hygiene after contact with respiratory secretions and contaminated objects/materials
Prevent environment contamination: contain respiratory secretions (2)

Ensure availability of materials for adhering to respiratory hygiene/cough etiquette in waiting areas for patients and visitors:

- Provide tissues and no-touch receptacles (i.e. waste container with foot-operated lid or uncovered waste container) for used tissue disposal
- Provide conveniently located dispensers of alcohol-based hand rub
- Provide soap and disposable towels for hand washing where sinks are available
Prevent environment contamination: contain respiratory secretions (3)

*Masking and separation of persons with symptoms of respiratory infection*

- During periods of increased respiratory infection in the community, offer triple-layer masks to persons who are coughing
- Encourage coughing persons to sit at least 3 feet (1 metre) away from others in common waiting areas

*Droplet precautions*

- Healthcare workers should practice droplet precautions, in addition to standard precautions, when examining a patient with symptoms of a respiratory infection
- Droplet precautions should be maintained until it is determined that they are no longer needed
Biomedical Waste Management

• Environment (Protection) Act, 1986

• Apply to all persons who generate, collect, receive, store, transport, treat, dispose, or handle any bio-medical waste

• "Occupier" means a person having administrative control over the institution and the premises generating bio-medical waste

• Responsibility of every occupier – safe and proper identification, handling, storage and disposal of biomedical waste from laboratories and related facilities
Segregation, packaging, transportation and storage

• Untreated bio-medical waste should not be mixed with other wastes
• Bio-medical waste shall be segregated into containers or bags at point of generation (as per BMWM Rules 2016)
• Bio-medical waste containers or bags should be prominently labelled with biohazard symbol (and other details as per Rules)
• Untreated bio-medical waste must not be stored >48 hrs
• Ensure no spillage occurs during handling and transit of bio-medical waste
Yellow bag

- Anatomical waste – human, animal body parts & tissue
- Soiled waste – items contaminated with blood or body fluids – like dressings, cotton swabs and bags containing residual blood/blood components
- Chemical waste – chemicals used in production of biologicals
- Microbiology, biotechnology and other clinical laboratory waste (to be pre-treated by autoclaving before discarding):
  - Blood bags
  - Laboratory cultures
  - Stocks or specimens of microorganisms
  - Live or attenuated vaccines
  - Human and animal cell cultures
  - Discarded linen contaminated with blood or body fluid including mask and gown
Red Bag

- Contaminated recyclable waste
- Waste from disposable items:
  - Tubing and bottles
  - Intravenous tubes and sets
  - Catheters and urine bags
  - Syringes (without needles), vacutainers
  - Gloves
- Plastic petri-plates containing infectious material to be pre-treated by autoclaving and discarded in red bags
Translucent white box

- Puncture, leak and tamper proof
- Sharps waste (used, discarded and contaminated metal sharps)
  - Needles
  - Syringes with fixed needles
  - Needles from needle tip cutter or burner
  - Scalpels
  - Blades
- Any other contaminated sharps
Blue box

• Or containers with blue coloured marking

• Puncture and leak proof boxes

• Glassware
  • Broken or discarded glass including medicine vials & ampoules (except those contaminated with cytotoxic waste)
  • Broken or discarded contaminated glass
# Labelling of BMW bags

Label should be non-washable and prominently visible

<table>
<thead>
<tr>
<th>Waste category Number ...........</th>
<th>Day ........... Month ............</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste quantity..................</td>
<td>Year ...................</td>
</tr>
<tr>
<td>Sender's Name and Address:</td>
<td>Date of generation ...................</td>
</tr>
<tr>
<td></td>
<td>Receiver's Name and Address:</td>
</tr>
<tr>
<td>Phone Number ............</td>
<td>Phone Number:........................................</td>
</tr>
<tr>
<td>Fax Number .....................</td>
<td>Fax Number:........................................</td>
</tr>
<tr>
<td>Contact Person ............</td>
<td>Contact Person:.................................</td>
</tr>
<tr>
<td>In case of emergency please contact:</td>
<td></td>
</tr>
<tr>
<td>Name and Address :</td>
<td></td>
</tr>
<tr>
<td>Phone No.</td>
<td></td>
</tr>
</tbody>
</table>

Phone No.
# Disposal of BMW

<table>
<thead>
<tr>
<th>Category</th>
<th>Type of bag/container</th>
<th>Type of waste</th>
<th>Treatment disposal options</th>
</tr>
</thead>
</table>
| **Yellow** | Non chlorinated colour coded bags in coloured bins | • Human anatomical waste  
• Animal anatomical waste  
• Soiled waste  
• Expired or discarded medicines  
• Chemical waste  
• Micro, biotech & clinical lab waste  
• Chemical liquid waste | Incineration/deep burial |
| **Red** | Non chlorinated plastic bags in coloured bins/containers | Contaminated waste (recyclable) tubing, bottles, urine bags, syringes (without needles) and gloves | Auto/micro/hydro and then sent to recycling |
| **White** | Translucent, puncture, leak & tamper proof | Waste sharps including metals | Auto/dry heat sterilization followed by shredding/mutilation/encapsulation |
| **Blue** | Water proof card board boxes/containers | Glassware waste | Disinfection or auto/micro/hydro then sent to recycling |

*Disposal by deep burial is permitted only in rural or remote areas where there is no access to common biomedical waste treatment facility. This will be carried out with prior approval from the prescribed authority.*
Conclusion

• Cleaning and disinfecting environmental surfaces is fundamental in reducing healthcare-associated infections

• Established cleaning strategies to be used

• Cleaning staff must be protected by use of standard precautions including use of appropriate PPE

• Prevent environment contamination by containing respiratory secretions

• Manage biomedical waste as per existing Biomedical waste management Rules
State ToT on

NOVEL CORONAVIRUS
(COVID-19)

Infection Prevention and Control

Dr Prashanthi,
Associate Professor, Micro Biologist,
GMC, Guntur on 09.03.2020
What is infection prevention and control?

Infection prevention and control is:

• a scientific approach with

• practical solutions designed to prevent harm, caused by infections, to patients and health care workers

• grounded in principles of infectious disease, epidemiology, social science and health system strengthening, and

• rooted in patient safety and health service quality

• Source: WHO Infection Prevention and control web pages; https://www.who.int/gpsc/ipc/en/
Who is at risk of infection?
Benefits of IPC

- Protecting yourself
- Protecting your patients
- Protecting your family, community & environment

• WHO2015 Safe & Quality Health Services Package
IPC goals in outbreak preparedness

1. To reduce transmission of health care associated infections
2. To enhance the safety of staff, patients and visitors
3. To enhance the ability of the organization/health facility to respond to an outbreak
4. To lower or reduce the risk of the hospital (health care facility) itself amplifying the outbreak
Role of the IPC focal point, team or committee

- Knowledge: have an understanding of the IPC strategies needed for outbreaks/epidemics, etc
- Assessment, preparedness and readiness
- Policy and SOPs development
- Participate in response and recovery
- Participate in surveillance & monitoring
- Patient management
- Infrastructure for patient management
- Education
General advice for COVID-19

- Avoid close contact with people suffering from acute respiratory infections
- Frequent hand hygiene, especially after direct contact with ill people or their environment
- People with symptoms of acute respiratory infection should practice
  - respiratory etiquette
  - wear a medical mask
  - seek medical care for advice
IPC strategies
IPC strategies for preventing/limiting the spread of COVID-19

• Applying standard precautions for all patients

• Ensuring triage, early recognition, and source control

• Implementing empiric additional precautions for suspected cases of COVID-19 infection

• Implementing administrative controls

• Using environmental and engineering controls.
Standard Precautions
Standard precautions

• The *basic level of IPC precautions*, to be used for **ALL** patients at **ALL** times regardless of suspected or confirmed status of the patient

• **Risk assessment** is critical for all activities, i.e. assess each health care activity and determine the personal protective equipment (PPE) that is needed for adequate protection
Elements of Standard Precautions

1. Hand hygiene
2. Respiratory hygiene (etiquette)
3. PPE according to the risk
4. Safe injection practices, sharps management and injury prevention
5. Safe handling, cleaning and disinfection of patient care equipment
6. Environmental cleaning
7. Safe handling and cleaning of soiled linen
8. Waste management
Chain of Transmission

- For an infection to spread, all links must be connected

- Breaking any one link, will stop disease transmission!
Hand Hygiene

- Best way to prevent the spread of germs in the health care setting and community
- Our hands are our main tool for work as health care workers and they are the key link in the chain of transmission
Hand hygiene: WHO 5 moments

Hand hygiene: HOW

- Use appropriate product and technique

- An alcohol-based hand rub product is preferable, if hands are not visibly soiled
  - Rub hands for 20–30 seconds!

- Soap, running water and single use towel, when visibly dirty or contaminated with proteinaceous material
  - Wash hands for 40–60 seconds!

How to handrub?

RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED

Duration of the entire procedure: 20-30 seconds

1a Apply a palmful of the product in a cupped hand, covering all surfaces;
1b Rub hands palm to palm;
2 Right palm over left dorsum with interlaced fingers and vice versa;
3 Palm to palm with fingers interlaced;
4 Backs of fingers to opposing palms with fingers interlaced;
5 Rotational rubbing of left thumb clasped in right palm and vice versa;
6 Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;
7 Once dry, your hands are safe.

How to handwash?

WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB

Duration of the entire procedure: 40-60 seconds

0 Wet hands with water;
1 Apply enough soap to cover all hand surfaces;
2 Rub hands palm to palm;
3 Right palm over left dorsum with interlaced fingers and vice versa;
4 Palm to palm with fingers interlaced;
5 Backs of fingers to opposing palms with fingers interlaced;
6 Rotational rubbing of left thumb clasped in right palm and vice versa;
7 Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;
8 Rinse hands with water;
9 Dry hands thoroughly with a single use towel;
10 Use towel to turn off faucet;
11 Your hands are now safe.

Respiratory hygiene/etiquette

Reduces the spread of microorganisms (germs) that cause respiratory infections (colds, flu).

• Turn head away from others when coughing/sneezing
• Cover the nose and mouth with a tissue.
• If tissues are used, discard immediately into the trash
• Cough/sneeze into your sleeve if no tissue is available
• Clean your hands with soap and water or alcohol based products

Do not spit here and there

Promoting respiratory hygiene

• Encourage handwashing for patients with respiratory symptoms
• Provide masks for patients with respiratory symptoms
• Patients with fever + cough or sneezing should be kept at least 1m away from other patients
• Post visual aids reminding patients and visitors with respiratory symptoms to cover their cough
PPE for use in health care for COVID-19

- Face Mask
  - Nose + mouth

- N95 Mask
  - Nose + mouth

- Face shield
  - Eyes + nose + mouth

- Goggle
  - Eyes

- Gown
  - Body

- Apron
  - Body

- Gloves
  - Hands

- Head cover
  - Head + hair
Risk Assessment and Standard Precautions

- **Risk assessment**: risk of exposure and extent of contact anticipated with blood, body fluids, respiratory droplets, and/or open skin
  - Select which PPE items to wear based on this assessment
  - Perform hand hygiene according to the WHO “5 Moments”
  - Should be done for each patient, each time

**Make this routine!**
Minimize direct unprotected exposure to blood and body fluids

<table>
<thead>
<tr>
<th>SCENARIO</th>
<th>HAND HYGIENE</th>
<th>GLOVES</th>
<th>GOWN</th>
<th>MEDICAL MASK</th>
<th>EYEWEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Always before and after patient contact, and after contaminated environment</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If direct contact with blood and body fluids, secretions, excretions, mucous membranes, non-intact skin</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If there is risk of splashes onto the health care worker’s body</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If there is a risk of splashes onto the body and face</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>
Principles for using PPE (1)

- Always clean your hands before and after wearing PPE
- PPE should be available where and when it is indicated
  - in the correct size
  - select according to risk or per transmission based precautions
- Always put on before contact with the patient
- Always remove immediately after completing the task and/or leaving the patient care area
- NEVER reuse disposable PPE
- Clean and disinfect reusable PPE between each use
Principles for using PPE (2)

- Change PPE immediately if it becomes contaminated or damaged

- PPE should not be adjusted or touched during patient care; specifically
  - never touch your face while wearing PPE
  - if there is concern and/or breach of these practices, leave the patient care area when safe to do so and properly remove and change the PPE
  - Always remove carefully to avoid self-contamination (from dirtiest to cleanest areas)
The seven steps to safe injections

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Clean work space</td>
</tr>
<tr>
<td>2</td>
<td>Hand hygiene</td>
</tr>
<tr>
<td>3</td>
<td>Sterile safety-engineered syringe</td>
</tr>
<tr>
<td>4</td>
<td>Sterile vial of medication and diluent</td>
</tr>
<tr>
<td>5</td>
<td>Skin cleaning and antisepsis</td>
</tr>
<tr>
<td>6</td>
<td>Appropriate collection of sharps</td>
</tr>
<tr>
<td>7</td>
<td>Appropriate waste management</td>
</tr>
</tbody>
</table>

Environment cleaning, disinfection and BMWM

• It is important to ensure that environmental cleaning and disinfection procedures are followed consistently and correctly.

• Thorough cleaning environmental surfaces with water and detergent and applying commonly used hospital level disinfectants (such as sodium hypochlorite, 0.5%, or ethanol, 70%) are effective and sufficient procedures.

• Medical devices and equipment, laundry, food service utensils and medical waste should be managed in accordance with safe routine procedures.
Triage, early recognition, and source control
Manage ill patients seeking care

Use clinical triage in health care facilities for early identification of patients with acute respiratory infection (ARI) to prevent the transmission of pathogens to health care workers and other patients.
Triage (1)

- Prevent overcrowding.
- Conduct rapid triage.
- Place ARI patients in dedicated waiting areas with adequate ventilation.
- In addition to standard precautions, implement droplet precautions and contact precautions (if close contact with the patient or contaminated equipment or surfaces/materials).
- Ask patients with respiratory symptoms to perform hand hygiene, wear a mask and perform respiratory hygiene.
- Ensure at least 1 m distance between patients.
The triage or screening area requires the following equipment:

- Screening questionnaire
- Algorithm for triage
- Documentation papers
- PPE
- Hand hygiene equipment and posters
- Infrared thermometer
- Waste bins and access to cleaning/disinfection
- Post signage in public areas with syndromic screening questions to instruct patients to alert HCWs.
Triage (3)

Set up of the area during triage:

1. Ensure adequate space for triage (maintain at least 1 m distance between staff screening and patient/staff entering)
2. Waiting room chairs for patients should be 1m apart
3. Maintain a one way flow for patients and for staff
4. Clear signage for symptoms and directions
5. Family members should wait outside the triage area- prevent triage area from overcrowding
Hospital admission

- Place patients with ARI of potential concern in single, well ventilated room, when possible

- Cohort patients with the same diagnosis in one area

- Do not place suspect patients in same area as those who are confirmed.

- Assign health care worker with experience with IPC and outbreaks.
Additional Precautions
Patients suspected or confirmed COVID-19 (1)

- **Contact and droplet precautions** for all patients with suspected or confirmed COVID-19
- Airborne precautions are recommended **only for aerosol generating procedures** (i.e. open suctioning of respiratory tract, intubation, bronchoscopy, cardiopulmonary resuscitation).
- Preferably patient should be in a single room:
  - natural ventilation with air flow of at least 160 L/s per patient or
  - in negative pressure rooms with at least 12 air changes per hour and controlled direction of air flow when using mechanical ventilation
- Cohort: All patients with respiratory illness should be in a single room, or **minimum 1m away from other patients** when waiting for a room
- Dedicated & trained HCW
- **HCW to wear PPE**: a medical mask, goggles or face shield, gown, and gloves
- **Hand hygiene** should be done **any time the WHO “5 Moments” apply**, and **before** PPE and **after** removing PPE
Patients suspected or confirmed COVID-19 (2)

- Equipment should be single use when possible, dedicated to the patient and disinfected between uses.
- Avoid transporting suspected or confirmed cases – if necessary, have patients wear masks. HCW should wear appropriate PPE.
- Routine cleaning of the environment is crucial.
- Limit the number of HCW, visitors, and family members who are in contact with the patient. If necessary, everyone must wear PPE.
- All persons entering the patients room (including visitors) should be recorded (for contact tracing purposes).
- Precautions should continue until the patient is asymptomatic.
Outpatient Care

• The basic principles of IPC and standard precautions should be applied in all health care facilities, including outpatient care and primary care.

• Triage and early recognition

• emphasis on hand hygiene, respiratory hygiene and medical masks to be used by patients with respiratory symptoms (consider having signage);

• if possible – place patients in separate rooms or away from other patients in the waiting rooms, and wear mask, gloves and gown if possible when seeing them in the clinic (as much of contact and droplet precautions as possible);

• when symptomatic patients are required to wait, ensure they have a separate waiting area (1m separation);

• prioritization of care of symptomatic patients;

• educate patients and families about the early recognition of symptoms, basic precautions to be used and which health care facility they should refer to.
Additional Control Measures
Hierarchy of Controls

1. **Elimination**
   - Physically remove the hazard

2. **Substitution**
   - Replace the hazard

3. **Engineering Controls**
   - Isolate people from the hazard

4. **Administrative Controls**
   - Change the way people work

5. **PPE**
   - Protect the worker with Personal Protective Equipment
Administrative Controls

• Provision of adequate training for HCWs;
• Ensuring an adequate patient-to-staff ratio;
• Establishing a surveillance process for acute respiratory infections potentially caused by COVID-19 among HCWs;
• Ensuring that HCWs and the public understand the importance of promptly seeking medical care;
• Monitoring HCW compliance with standard precautions and providing mechanisms for improvement as needed.
Home care for patients with suspected COVID-19 infection with mild symptoms

• Place the patient in a well-ventilated single room (i.e., with open windows and an open door).
• Limit the movement of the patient & minimize shared space.
• Household members should stay in a different room or, if that is not possible, maintain a distance of at least 1 m from the ill person (e.g., sleep in a separate bed).
• Limit the number of caregivers - good health and has no underlying disease.
• Visitors should not be allowed.
• Perform hand hygiene after contact with patients or their immediate environment, before and after preparing food, before eating, after using the toilet and whenever hands look dirty.
• To contain respiratory secretions, provide medical mask to the patient.
Home care for patients with suspected COVID-19 infection with mild symptoms

• Individuals who cannot tolerate a medical mask should use rigorous respiratory hygiene
• Caregivers should wear a tightly fitted medical mask that covers their mouth and nose when in the same room as the patient
• Avoid direct contact with body fluids. Use disposable gloves and a mask when providing oral or respiratory care and when handling stool, urine and other waste. Perform hand hygiene before and after removing gloves and the mask.
• Use dedicated linen and eating utensils for the patient; these items should be cleaned with soap and water after use and may be re-used instead of being discarded.
• Clean and disinfect daily surfaces that are frequently touched in the room where the patient is being cared for (Household soap or detergent should be used first for cleaning, and then, after rinsing, regular household disinfectant-sodium hypochlorite)
• Clean the patient’s clothes, bed linen, and bath and hand towels using regular laundry soap and water or machine wash at 60–90 °C with common household detergent, and dry thoroughly
Use of masks

• Use of Mask- limit spread of certain respiratory diseases
• Mask alone is insufficient to provide the adequate level of protection and other equally relevant measures should be adopted – Hand hygiene

• Wearing medical masks when not indicated may cause
  • unnecessary cost
  • procurement burden
  • create a false sense of security that can lead to neglecting other essential measures such as hand hygiene practices.

• Using a mask incorrectly may hamper its effectiveness to reduce the risk of transmission.
Use of Mask: Community setting

- Individuals without respiratory symptoms
  - Avoid closed crowded spaces
  - Maintain distance – 1m
  - Practice hand and respiratory hygiene
  - Refrain from touching face, nose, mouth
  - No need of mask

- Individuals with respiratory symptoms
  - Wear a medical mask
  - Seek medical care
  - Learn mask management
Use of Mask: Home care

• Individuals with suspected infection with mild respiratory symptoms
• Relatives or caregivers

Along with
• hand hygiene
• keep distance from affected individual as much as possible (at least 1 meter)
• improve airflow in living space by opening windows as much as possible
• Mask management
Use of Mask : Health Care Settings

Individuals with respiratory symptoms should:

• wear a medical mask while waiting in triage or waiting areas or during transportation within the facility;
• wear a medical mask when staying in cohorting areas dedicated to suspected or confirmed cases;
• do not wear a medical mask when isolated in single rooms but cover mouth and nose when coughing or sneezing with disposable paper tissues.

Health care workers should:

• wear a medical mask while providing care to the patient
• Use a particulate respirator N95 (NIOSH certified) , FFP2 (EU standard), or equivalent, when performing aerosol generating procedures (tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy.)
Masks management

• place mask carefully to cover mouth and nose and tie securely to minimise any gaps between the face and the mask
• while in use, avoid touching the mask
• remove the mask by using appropriate technique (i.e. do not touch the front but remove the lace from behind)
• after removal or whenever you inadvertently touch a used mask, clean hands by using an alcohol-based hand rub or soap and water if visibly soiled
• replace masks with a new clean, dry mask as soon as they become damp/humid
• do not re-use single-use masks
• discard single-use masks after each use and dispose of them immediately upon removal
Conclusions

• IPC is key for containment
• Based on key principles- Hand Hygiene, Respiratory etiquette, safe distance
• Hospital Infection Prevention & control- Standard & Additional precautions
  • Protect Yourself and the community
  • Triage & Admissions
  • PPE
    • Judicious and Appropriate use
    • Pay attention to donning and doffing
• Home care precautions
Resources

• WHO Coronavirus Homepage
  • https://www.who.int/emergencies/diseases/novel-coronavirus-2019
• All coronavirus (COVID-19) technical guidance documents
  • https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance
• IPC documents
  • https://www.who.int/infection-prevention/publications/en/
• Questions and Answers
  • https://www.who.int/news-room/q-a-detail/q-a-coronaviruses
Thank you
Wash your hands with soap and running water when hands are visibly dirty.

If your hands are not visibly dirty, frequently clean them by using alcohol-based hand rub or soap and water.
Protect yourself and others from getting sick

Wash your hands

- after coughing or sneezing
- when caring for the sick
- before, during and after you prepare food
- before eating
- after toilet use
- when hands are visibly dirty
- after handling animals or animal waste
Protect others from getting sick

When coughing and sneezing, cover mouth and nose with flexed elbow or tissue.

Throw tissue into closed bin immediately after use.

Clean hands with alcohol-based hand rub or soap and water after coughing or sneezing and when caring for the sick.

World Health Organization
Protect others from getting sick

Avoid close contact when you are experiencing cough and fever

Avoid spitting in public

If you have fever, cough and difficulty breathing seek medical care early and share previous travel history with your health care provider
Reduce the risk of Coronavirus infection
Follow these important precautions

1. Avoid travel if you are suffering from fever and cough
2. Wash your hands frequently with soap and water
3. Share your travel history with your health worker (ASHA/ANM)

Stay protected! Stay safe from Coronavirus!

If you have returned from Wuhan China after January 13, then get yourself tested for 2019-nCoV. To know about the centres for testing, call the Ministry of Health and Family Welfare Helpline +91-11-23978046

If you have returned from China in the last 14 days or have been in contact with anyone affected by Coronavirus, then limit your contact with others and use a separate room for sleeping.

If you develop fever, cough and difficulty in breathing within 28 days of return from China, immediately call the Ministry of Health and Family Welfare Helpline.
Reduce the risk of Coronavirus infection
Follow these important precautions

Coronavirus is a new disease which is happening in China and has affected other countries. The virus has flu like symptoms such as:

1. Fever
2. Cough
3. Difficulty in breathing

If you have returned from Wuhan, China after January 15, then get yourself tested for 2019-nCoV. To know about the centres for testing, call the Ministry of Health and Family Welfare Helpline +91-11-23978046

If you have returned from China in the last 15 days or have been in contact with any person affected by Coronavirus, then limit your contact with others and follow these important steps:

1. Limit contact with everybody for the next 14 days and sleep in a separate room
2. Cover your nose and mouth while sneezing
3. Wash your hands with soap regularly
4. Stay far away from persons who have cough, cold and fever

If you develop fever, cough and difficulty in breathing within 28 days of return from China, immediately call the Ministry of Health and Family Welfare Helpline +91-11-23978046

Stay protected! Stay safe from Coronavirus!

www.mohfw.nic.in
www.megovic.in
www.pmindia.gov.in

@mohfw
@MoHFW_INdia
@ncdcgovin
@Director_NCDC

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Reduce the risk of Coronavirus infection
Follow these important precautions

1. After coughing and sneezing
2. Clean your hands before and after caring for sick person
3. Before cooking, after cooking and before eating food
4. After using toilet

Stay protected!
Stay safe from Coronavirus!

If you have returned from Wuhan, China after January 15, then get yourself tested for
2019-nCoV. To know about the centres for testing, call the Ministry
of Health and Family Welfare Helpline

If you have returned from China in the last 28 days or have been in
contact with any person affected by Coronavirus, then limit your contact
with others and use a separate room for
sleeping.

If you develop fever, cough and difficulty in breathing within
28 days of return from China, immediately call the
Ministry of Health and Family Welfare Helpline

+91-11-23978046
Reduce the risk of Coronavirus infection
Follow these important precautions

1. Wash hands with soap and water frequently.
2. When coughing and sneezing, cover mouth and nose with handkerchief, tissue or elbow.
3. Avoid close contact with anyone with cold, cough or flu like symptoms.

Stay protected! Stay safe from Coronavirus!

- If you have cough, fever or difficulty in breathing, contact a doctor immediately.
- If you have returned from Wuhan, China after January 15, then get yourself tested for 2019-nCoV. To know about the centres for testing, call the Ministry of Health and Family Welfare Helpline.
- If you have returned from China in the last 14 days or have been in contact with anyone affected by Coronavirus, then limit your contact with others and use a separate room for sleeping.
- If you develop fever, cough and difficulty in breathing within 28 days of returning from China, immediately call the Ministry of Health and Family Welfare Helpline.

+91-11-23978046

For more information:
- www.mohfw.nic.in
- www.mycov.in
- www.pmindia.gov.in
- www.mohfw.india.gov.in
- @Director_CDC
- @HFW_INDIA
- ncdc.gov.in
State ToT on

NOVEL CORONAVIRUS (COVID-19)

Information Management

Mr Jagan Mohan Rao,
IDSP Training Consultant
09.03.2020
Rational for Data and Information for COVID-19 preparedness and response

• For tracking of cases and contacts and to provide care and treatment
• For rapid detection of new cases where the SARS-CoV-2 is not circulating;
• To provide epidemiological information to conduct risk assessments at all levels; and
• To provide epidemiological information to guide preparedness and response measures at all levels.
Types of Data and Information needed for COVID-19 preparedness and response

• List and details of cases and contacts
• Location and details of health facilities
• Location and details of laboratories
• List of health workforce (all cadre)
• List of contacts of partners

• List of information products (line lists, situation reports)
• Data dictionary with metadata
• Up-to-date case definitions
Characters of Data and Information needed for COVID-19 preparedness and response

Essential attributes

- Timely
- Accurate
- Reliable
- Complete
- Private
- Confidential
- Secure
Special Surveillance Information System
for managing COVID-19

National web-enabled information platform
Special Surveillance Information System
for managing COVID-19

To have near to real time Single Integrated Portal to access information on 2019 nCoVs (a single source of truth) data

Bird-eye-visualization to support data based Decision making

National-level monitoring and Status of implementation, To provide better care in terms of availability of equipments and Preparedness Healthcare
Special Surveillance Information System
for managing COVID-19

URL:  http://ncdc.nhp.gov.in/

Login Credentials will be shared separately

The Application mainly build for two level users:

Data entry and dashboard at State level

(all data entry officers will be provided with credentials of this application for making entries)

Dashboard for data viewing at both State and National Level
Special Surveillance Information System for managing COVID-19  National Level User’s Dashboard: Community Surveillance

National Level Data - Majority of community surveillance

- **290**
  - No. under surveillance < 50

- **375**
  - No. under surveillance < 50-100

- **6140**
  - No. under surveillance > 100

- **1136**
  - No. who have completed 14 days

- **577**
  - No. who have completed 28 days

State Level Data - Majority of community surveillance

<table>
<thead>
<tr>
<th>S.No.</th>
<th>State</th>
<th>No. under surveillance</th>
<th>No. who have completed 14 days</th>
<th>No. who have completed 28 days</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>50 50-100 &gt;100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Special Surveillance Information System

for managing COVID-19

National Level User’s Dashboard:
Surveillance Report (Date of Arrival from Affected Country)

SPECIAL SURVEILLANCE SYSTEM - S3 (AS ON 05-03-2020)

<table>
<thead>
<tr>
<th>Surveillance Report (Traceable - Reference Date of Arrival from Affected Country)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Migrated In</td>
</tr>
<tr>
<td>From China</td>
</tr>
<tr>
<td>Other Country</td>
</tr>
<tr>
<td>Observation</td>
</tr>
<tr>
<td>Under Surveillance</td>
</tr>
<tr>
<td>Home Quarantined</td>
</tr>
<tr>
<td>Hospitalized</td>
</tr>
<tr>
<td>Surveillance Completed</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>Is-Hospitalized</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>Sample Collected</td>
</tr>
<tr>
<td>Positive</td>
</tr>
<tr>
<td>Negative</td>
</tr>
<tr>
<td>Invalid</td>
</tr>
<tr>
<td>Sample rejected</td>
</tr>
</tbody>
</table>

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Special Surveillance Information System
for managing COVID-19

State Level User’s Dashboard

Dashboard (State Level Logistics Data) : Tamil Nadu

- Number of beds available: 235
- Number of Ventilators available: 65
- Number of PPEs available (Cumulative): 15,344
- Number of N95 masks available (Cumulative): 55,762

State / District Level Logistics Data

<table>
<thead>
<tr>
<th>S.No.</th>
<th>State / District</th>
<th>Number of beds available in the designated isolation wards for suspected Corona virus patients</th>
<th>Number of Ventilators available in the designated isolation wards for suspected Corona virus patients</th>
<th>Number of PPEs available in the designated hospital</th>
<th>Number of N95 masks available in the designated hospital</th>
<th>Number of PPE buffer Stocks</th>
<th>Number of N95 masks buffer Stocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>State Designated Hospital</td>
<td>12</td>
<td>3</td>
<td>540</td>
<td>800</td>
<td>9287</td>
<td>48715</td>
</tr>
<tr>
<td>2</td>
<td>MADURAI</td>
<td>8</td>
<td>2</td>
<td>469</td>
<td>172</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Special Surveillance Information System
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State Level Users: Data Entry pages

Data entry forms

- State nCoV Passengers
- State Logistics per Hospital
- District Logistics per Hospital
- State Level Buffer Stocks
- District Level Buffer Stocks
**Special Surveillance Information System**  
for managing COVID-19  

**State Level User: State nCoV Passengers (line listing)**  

**Special Surveillance System - S3** (As on 05-03-2020)

---

**State wise line list nCoV Passengers**

Total no of Passengers listed: 3121

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Action</th>
<th>District</th>
<th>Name</th>
<th>Age</th>
<th>Sex</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>NAGAPATTINAM</td>
<td></td>
<td>0</td>
<td>Male</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>KANCHIPURAM</td>
<td></td>
<td>37</td>
<td>Male</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>KANNIYAKUMARI</td>
<td></td>
<td>10</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>KANNIYAKUMARI</td>
<td></td>
<td>40</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>KANNIYAKUMARI</td>
<td></td>
<td>14</td>
<td>Male</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>KANNIYAKUMARI</td>
<td></td>
<td>37</td>
<td>Male</td>
<td></td>
</tr>
</tbody>
</table>
Special Surveillance Information System
for managing COVID-19

State Level User: State Line list Dashboard

Dashboard (State Level Line list Data): Tamil Nadu

- **New passengers enrolled for observation Today**: 0
- **Total Passengers Under Surveillance (Cumulative)**: 2958
- **Total Number of passengers found symptomatic (Cumulative)**: 32
- **Number of passengers Hospitalized (Cumulative)**: 4
- **Number of passengers hospitalized Today**: 3
- **Total passengers Traveled From Wuhan after 15th January 2020**: 83
- **No. of passengers completed observation period**: 1612
- **No. of passengers Migrated Out**: 64

Cumulative Linelist Data Report (District wise nCoV Passengers):

<table>
<thead>
<tr>
<th>S.No.</th>
<th>District Name</th>
<th>Last Updated On</th>
<th>New passengers enrolled for observation</th>
<th>Cumulative Under Surveillance (Enrolled)</th>
<th>Traveled From Wuhan after 15th January</th>
<th>No. of passengers who have completed observation period</th>
<th>No. of passengers who have Migrated Out</th>
<th>Cumulative Number of hospitalized cases</th>
<th>Cumulative Number of currently hospitalized cases</th>
<th>Number of non-traceable passengers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NAGAPATTINAM</td>
<td>03-02-20</td>
<td>0</td>
<td>78</td>
<td>4</td>
<td>19</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>KANCHIPURAM</td>
<td>03-03-20</td>
<td>0</td>
<td>146</td>
<td>5</td>
<td>71</td>
<td>3</td>
<td>8</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>KANNIYAKUMARI</td>
<td>02-02-20</td>
<td>0</td>
<td>89</td>
<td>17</td>
<td>67</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>CHENNAI</td>
<td>03-03-20</td>
<td>0</td>
<td>808</td>
<td>12</td>
<td>316</td>
<td>54</td>
<td>5</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Special Surveillance Information System for managing COVID-19

State Level User: State nCoV Passengers (data entry)
Special Surveillance Information System
for managing COVID-19

State Level User: State Logistic Dashboard

![Dashboard Image]

---

### SPECIAL SURVEILLANCE SYSTEM - S3 (As On 05-03-2020)

#### Dashboard (State Level Logistics Data): Tamil Nadu

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of beds available</strong></td>
<td><strong>Number of Ventilators available</strong></td>
<td><strong>Number of PPEs available (Cumulative)</strong></td>
<td><strong>Number of N95 masks available (Cumulative)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>235</td>
<td>65</td>
<td>15,344</td>
<td>55,762</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

#### State / District Level Logistics Data

<table>
<thead>
<tr>
<th>S.No</th>
<th>State / District</th>
<th>Number of beds available</th>
<th>Number of Ventilators available</th>
<th>Number of PPEs available</th>
<th>Number of N95 masks available</th>
<th>Number of PPEs buffer Stocks</th>
<th>Number of N95 masks buffer Stocks</th>
</tr>
</thead>
<tbody>
<tr>
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<td>State Designated Hospital</td>
<td>12</td>
<td>3</td>
<td>540</td>
<td>800</td>
<td>9287</td>
<td>48715</td>
</tr>
<tr>
<td>2</td>
<td>TIRUCHIRAPPALLI</td>
<td>12</td>
<td>3</td>
<td>439</td>
<td>2854</td>
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<td></td>
</tr>
<tr>
<td>3</td>
<td>KARUR</td>
<td>3</td>
<td>1</td>
<td>198</td>
<td>10</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>DHARMAPURI</td>
<td>4</td>
<td>1</td>
<td>262</td>
<td>119</td>
<td>172</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>TUTICORIN</td>
<td>6</td>
<td>1</td>
<td>241</td>
<td>235</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>THANJAVUR</td>
<td>8</td>
<td>2</td>
<td>390</td>
<td>19</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>MADURAI</td>
<td>8</td>
<td>2</td>
<td>463</td>
<td>172</td>
<td>19</td>
<td></td>
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<td>8</td>
<td>THIRUVANNAMALAI</td>
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<td>5</td>
<td></td>
</tr>
<tr>
<td>9</td>
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<td>12</td>
<td>3</td>
<td>103</td>
<td>330</td>
<td>330</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>THIRUVARUK</td>
<td>8</td>
<td>2</td>
<td>200</td>
<td>100</td>
<td>101</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>CHENNAI</td>
<td>31</td>
<td>5</td>
<td>488</td>
<td>101</td>
<td>101</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>235</strong></td>
<td><strong>65</strong></td>
<td><strong>6,057</strong></td>
<td><strong>7,047</strong></td>
<td><strong>9,287</strong></td>
<td><strong>48,715</strong></td>
</tr>
</tbody>
</table>
Special Surveillance Information System
for managing COVID-19

State Level User: State Logistic Hospitals Form

<table>
<thead>
<tr>
<th>State</th>
<th>Name of State Nodal Officer (for nCov-2019)</th>
<th>Contact No. of State Nodal Officer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tamil Nadu</td>
<td>Dr P Sampath</td>
<td>9443039941</td>
</tr>
</tbody>
</table>

Name of the State HeadQuarters designated Hospital
Rajiv Gandhi Government General Hospital, Chennai

Number of beds available in the designated isolation wards for suspected Coronavirus patients: 12
Number of N95 masks available in the designated hospital: 800

Compatible for Biowaste Management: Yes

Number of Ventilators available in the designated isolation wards for suspected Coronavirus patients: 3
Number of PPEs available in the designated hospital: 540

Number of PPEs available in the designated hospital: --Select--

Add
# Special Surveillance Information System
for managing COVID-19

**State Level User : District Logistic form for Hospitals**

<table>
<thead>
<tr>
<th>District Name</th>
<th>Name of District Nodal Officer (for eCoV-2019)</th>
<th>Contact No. of District Nodal Officer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select District</td>
<td>Name of District Nodal Officer (for eCoV-2019)</td>
<td>Contact No. of District Nodal Officer</td>
</tr>
<tr>
<td>Name of the District level Designated Hospital (Other than State HeadQuarter Hospitals)</td>
<td>Number of beds available in the designated isolation wards for suspected Corona virus patients</td>
<td>Number of Ventilators available in the designated isolation wards for suspected Corona virus patients</td>
</tr>
<tr>
<td>Name of the District level Designated Hospital (Other than State HeadQuarter Hospitals)</td>
<td>Number of beds available in the designated isolation wards for suspected Corona virus patients</td>
<td>Number of Ventilators available in the designated isolation wards for suspected Corona virus patients</td>
</tr>
<tr>
<td>Number of PPEs available in the designated hospital</td>
<td>Number of PPEs available in the designated hospital</td>
<td>Number of Ventilators available in the designated isolation wards for suspected Corona virus patients</td>
</tr>
<tr>
<td>Number of N95 masks available in the designated hospital</td>
<td>Number of N95 masks available in the designated hospital</td>
<td>Number of Ventilators available in the designated isolation wards for suspected Corona virus patients</td>
</tr>
</tbody>
</table>

---

**+ Add**

**SAVE**
Special Surveillance Information System
for managing COVID-19

State Level User: State Logistic Buffer Stocks

Dashboard
Tamil Nadu
Dashboard
Dashboard (Logistics)
Dashboard (LineList Data)
Daily Report of Sample Taken
Airport Screening LineList Passengers
Data Entry
State nCoV Passengers
State Logistics per Hospital
District Logistics per Hospital
State Level Buffer Stocks

SPECIAL SURVEILLANCE SYSTEM - S3 (AS ON 05-03-2020)

State Level Buffer Stocks

<table>
<thead>
<tr>
<th>State</th>
<th>Number of PPEs available as buffer stock at the state level (Other than those in hospitals)</th>
<th>Number of N95 masks available as buffer stock at the state level (Other than those in hospitals)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tamil Nadu</td>
<td>4207</td>
<td>40715</td>
</tr>
</tbody>
</table>

Note: All fields are required
### Special Surveillance Information System

**for managing COVID-19**

**State Level User :** District Logistic Buffer Stocks

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**SPECIAL SURVEILLANCE SYSTEM - S3 (AS ON 05-05-2020)***

**District Level Buffer Stocks**

<table>
<thead>
<tr>
<th>District Name</th>
<th>Number of PPEs available as buffer stock at the District level (Other than those in hospitals)</th>
<th>Number of N95 masks available as buffer stock at the District level (Other than those in hospitals)</th>
</tr>
</thead>
</table>

---

Note: All fields are required

---

*Data entry: Fill up the page and click on "Save" button. (Fill up all mandatory fields)*
State will be given a separate login credential to request migration.

Data entry:
1. "Migration Request Form" from left panel, as shown at (1).

Search Person to be migrated or Select from the linelisting.

To fill up Select From State and From District, To State and To District.

Press "Request Migration".
Special Surveillance Information System for managing COVID-19

State Level User: Line list Migration Approval form

![Image of Special Surveillance Information System](image_url)

### SPECIAL SURVEILLANCE SYSTEM - S3 (AS ON 05-03-2020)

#### Line list Migration Request

<table>
<thead>
<tr>
<th>S.No.</th>
<th>District</th>
<th>Name</th>
<th>Age</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CHENNAI</td>
<td>T.Priyanka</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>CHENNAI</td>
<td>T.Priyanka</td>
<td>23</td>
<td></td>
</tr>
</tbody>
</table>

#### Migration Form

- **From State**: Tamil Nadu
- **From District**: CHENNAI
- **To State**: GOA
- **To District**: NORTH GOA
- **Status**: Pending
- **Remarks**: Migration remarks

**Action Options**
- View
- Migration
Special Surveillance Information System
for managing COVID-19

Additional Features:

- Export to Excel
- Print
- Logout
State ToT on

**NOVEL CORONAVIRUS**
**(COVID-19)**

Laboratory Surveillance including Sample Collection, Packaging, Transport and Testing

Dr D S Murthy,
Associate Professor, Micro Biology, RMC Kakinada
09.03.2020
Samples to be collected

• Essential samples:
  - Throat swab (oropharyngeal swab).
  - Nasal swab (Nasopharyngeal swab)

• Other preferred samples:
  - Bronchoalveolar lavage
  - Tracheal aspirate
  - Sputum

• In lab confirmed patients:
  - Blood
  - Stool and urine - Wide mouth sterile plastic containers
# Personal protective equipment

**Table 1. Recommended type of personal protective equipment (PPE) to be used in the context of COVID-19 disease, according to the setting, personnel and type of activity**

<table>
<thead>
<tr>
<th>Setting</th>
<th>Target personnel or patients</th>
<th>Activity</th>
<th>Type of PPE or procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthcare facilities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient room</td>
<td>Healthcare workers</td>
<td>Providing direct care to COVID-19 patients.</td>
<td>Medical mask</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Gown</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Gloves</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye protection (goggles or face shield).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aeroal-generating procedures performed on COVID-19 patients.</td>
<td>Respirator N95 or FFP2 standard, or equivalent.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Gown</td>
</tr>
<tr>
<td>Inpatient facilities</td>
<td></td>
<td></td>
<td>Gloves</td>
</tr>
<tr>
<td>Cleaners</td>
<td></td>
<td>Entering the room of COVID-19 patients.</td>
<td>Medical mask</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Gown</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Heavy duty gloves</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye protection (if risk of splash from organic material or chemicals).</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Boots or closed work shoes</td>
</tr>
<tr>
<td>Visitors(^b)</td>
<td></td>
<td>Entering the room of a COVID-19 patient</td>
<td>Medical mask</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Gown</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Gloves</td>
</tr>
<tr>
<td>Other areas of patient transit (e.g., wards, corridors)</td>
<td>All staff, including healthcare workers.</td>
<td>Any activity that does not involve contact with COVID-19 patients.</td>
<td>No PPE required</td>
</tr>
</tbody>
</table>

\(^a\) For all patients where COVID-19 is suspected or confirmed.

\(^b\) PPE is not required for visitors entering the room of a COVID-19 patient if there is no direct contact with the patient.
Collection of OP and NP swabs

• Optimal timing:

- Within 3 days of symptom onset and no later than 7 days.
- Preferably prior to initiation of antimicrobial chemoprophylaxis or therapy.
Collection of Oropharyngeal swab

Materials:
• Sterile Dacron/Nylon flocked swab
• Viral Transport Medium (3 ml sterile VTM)

Procedure:
• Hold the tongue out of the way with a tongue depressor.
• Use a sweeping motion to swab posterior pharyngeal wall and tonsillar pillars
• Have the subject say “aahh” to elevate the uvula.
• Avoid swabbing soft palate and do not touch the tongue with swab tip.
• Put the swab in VTM
Collection of Nasopharyngeal swabs

• Materials
  • Sterile Dacron/Nylon flocked swab
  • Viral Transport Medium (3 ml sterile VTM)

• Procedure
  • Tilt patient’s head back 70 degrees
  • Insert swab into nostril (Swab should reach depth to distance from nostrils to outer opening of the ear
  • Leave swab in place in place for several seconds to absorb secretions
  • Slowly remove swab while rotating it
  • Place tip of swab into VTM and snap/cut off the applicator stick
Blood collection from positive cases

• Blood sample collection from all positive cases
• Plasma sample collection in EDTA vials
• Resin separator tubes for serum sample collection
Guidance for specimen Collection

- A BSL2 containment level is required to handle suspected samples.
- Consider all specimens as POTENTIALLY HAZARDOUS / INFECTIOUS.
- Handle all specimens with gloves in a secure manner.
- Place each specimen into a separate container labeled with the patient's name and identification number, the collection site, the date of collection and the time of the collection.
- Do not contaminate the outside of the specimen container.
- Do not handle laboratory requisition forms with gloves.
Storage of Specimen

• Keep refrigerated (2-8 °C) if it is to be processed (or sent to a reference laboratory) within 48 hours.
• Keep frozen (-10 to -20 °C) if it is to be processed after the first 48 hours or within 7 days.
• Keep frozen (-70 °C) if it is to be processed after a week. The sample can be preserved for extended periods.
Guidelines followed for sample packaging & transport

• WHO Guidelines for Transport of Infectious Substances:


• IATA guidelines
Classification of Infectious Substances

- **Category A**: An *infectious substance which is transported in a form that, when exposure to it occurs, is capable of causing permanent disability, life-threatening or fatal disease in otherwise healthy humans or animals.*

- **UN 2814** for Infectious substances which cause disease in humans or both in humans and animals.

- **UN 2900** for Infectious substances which cause disease only in animals.
Classification of Infectious Substances

- **Category B**: *An infectious substance which does not meet the criteria for inclusion in Category A.*

  - Infectious substances in Category B shall be assigned to UN 3373

*SARS-CoV-2 virus infectious/potentially infectious material falls under category B*
Packaging System

• The original samples should be packed, labeled and marked, and documented as Category B.

• Standard triple packing for Category B to be followed.

• Samples to be sent on dry ice (if possible). However using cold packs is acceptable.

• Sender should provide prior intimation about shipment of samples to the nearest certified laboratory.
## Triple packaging system

<table>
<thead>
<tr>
<th>Primary Container</th>
<th>Secondary Container</th>
<th>Outer Container/ Packaging Box</th>
</tr>
</thead>
</table>
| • Watertight and leak proof  
• Cap correctly and securely closed.  
• Keep in upright position during transport | • Watertight  
• Several clinical specimens may be placed into one secondary container  
• Containers have to be cleansed and disinfected if they are to be re-used  
E.g.: Disposable, zip-lock plastic bags; Large centrifuge tubes (50 ml) with screw caps | • Made of strong material that can be cleansed and disinfected  
• Should have the Biohazard warning label  
• A content list in a sealed plastic bag inside the transport box may also be included |
Triple packaging system

Absorbant packing material
(Sufficient absorbant material must be placed between the primary and secondary receptacles)

1. Primary receptacle (leakproof, 95kPa)
2. Secondary receptacle (leakproof)
3. Outer container (w/list of itemized contents)
Transport Precautions

• Adequate cushioning materials inside the box to absorb shocks during transport
• Adequate absorbing material to absorb any spillage should it occur
• Do not stick the request form on the specimen
• Specimen request forms should be put into a separate plastic bag
• The outer container, secondary containers and specimen racks for transport should be thoroughly cleansed and disinfected periodically (i.e. at least daily) and when contaminated.
Labeling of Package

• Sender’s, name, address and telephone number

• Whom to contact in case of emergency with telephone number

• Receiver’s name, address and telephone number

• Proper shipping name (e.g. “BIOLOGICAL SUBSTANCE, CATEGORY B”)

• UN number e.g. 3373

• Temperature storage requirements

• Quantity of dry ice inside the container

• Arrow mark to indicate upright direction
Responsibility of Sender

• Make advance arrangements with the carrier
  - that the shipment will be accepted for appropriate transport
  - that the shipment (direct transport if possible) is undertaken by the most direct routing

• Prepare necessary documentation, including permits, dispatch and shipping documents

• Notify the receiver in advance of transportation arrangements and expected date of delivery of shipment
Responsibility of Receiver

• Acknowledge receipt of specimen
• Verify the integrity of packaging
• Box to be opened by personnel wearing adequate PPE.
• Open within Biosafety cabinet
• Check the specimens with the data sent
• Apply acceptance and rejection criteria
Types of Tests

• No validated serological tests
• Only molecular diagnosis
  - PCR based test aims at detection of the virus.
• Real time PCR platform is required.
51 VRDLs doing SARS-CoV-2 testing

56 VRDLs as collection sites
Tests for SARS-CoV-2

• No validated serological tests are available.
• Only Molecular tests available.
• Laboratory protocols designed on the basis of WHO guidance and sequences available in GISAID.
• First line screening assay: E gene.
• Confirmatory assays: RdRp and ORF 1b.
• SoPs and testing protocol shared with all testing laboratories.
State ToT on

NOVEL CORONAVIRUS
(COVID-19)

Clinical Case Management

Dr K Ram Babu,
Professor, General Medicine, AMC Vishakapatnam and
State Nodal Officer, COVID 19
09.03.2020
Case Definition

- **SARI**: ARI with history of fever or measured temperature $\geq 38$ C° and cough; onset within the last $\sim 10$ days; and requiring hospitalization. However, the absence of fever does NOT exclude viral infection.
Surveillance case definitions for nCoV

- Severe acute respiratory infection (SARI) in a person, with history of fever and cough requiring admission to hospital, with no other etiology that fully explains the clinical presentation AND any of the following:

- a) A history of travel to Wuhan, Hubei Province China in the 14 days prior to symptom onset; or
Surveillance case definitions for nCoV

• A person with acute respiratory illness of any degree of severity who, within 14 days before onset of illness, had any of the following exposures:
  • a) close physical contact with a confirmed case of nCoV infection, while that patient was symptomatic; or
  • b) a healthcare facility in a country where hospital-associated nCoV infections have been reported
Surveillance case definitions for nCoV

• b) the disease occurs in a health care worker who has been working in an environment where patients with SARI are being cared for, without regard to place of residence or history of travel; or

• c) the person develops an unusual or unexpected clinical course, especially sudden deterioration despite appropriate treatment, without regard to place of residence or history of travel, even if another etiology has been identified that fully explains the clinical presentation
Close Contact

- Health care associated exposure, including providing direct care for nCoV patients, working with health care workers infected with nCoV, visiting patients or staying in the same close environment of a nCoV patient
- Working together in close proximity or sharing the same classroom environment with a with nCoV patient
- Traveling together with nCoV patient in any kind of conveyance
- Living in the same household as a nCoV patient
- The epidemiological link may have occurred within a 14-day period before or after the onset of illness in the case under consideration
Uncomplicated Illness

• Fever, cough, sore throat, nasal congestion, malaise, headache, muscle pain or malaise

• The elderly and immunosuppressed may present with atypical symptoms. These patients do not have any signs of dehydration, sepsis or shortness of breath
Mild pneumonia

• Patient with pneumonia and no signs of severe pneumonia

• Child with non-severe pneumonia has cough or difficulty breathing + fast breathing: fast breathing (in breaths/min): <2 months, ≥60; 2–11 months, ≥50; 1–5 years, ≥40 and no signs of severe pneumonia
Severe Pneumonia

• **Adolescent or adult**: fever or suspected respiratory infection, **plus** one of respiratory rate >30 breaths/min, severe respiratory distress, **or** SpO2 <90% on room air

• **Child** with cough or difficulty in breathing, plus at least one of the following: central cyanosis or SpO2 <90%; severe respiratory distress (e.g. grunting, very severe chest indrawing); signs of pneumonia with a general danger sign: inability to breastfeed or drink, lethargy or unconsciousness, or convulsions. Other signs of pneumonia may be present: chest in-drawing, fast breathing (inbreaths/min): <2 months, ≥60; 2–11 months, ≥50; 1–5 years, ≥40. The diagnosis is clinical; chest imaging can exclude complications
Acute Respiratory Distress Syndrome

- **Onset**: new or worsening respiratory symptoms within one week of known clinical insult. Chest imaging (radiograph, CT scan, or lung ultrasound): bilateral opacities, not fully explained by effusions, lobar or lung collapse, or nodules.

- **Origin of oedema**: respiratory failure not fully explained by cardiac failure or fluid overload. Need objective assessment (e.g. echocardiography) to exclude hydrostatic cause of oedema if no risk factor present.
Oxygenation

• Mild ARDS: $200 \text{ mmHg} < \frac{\text{PaO}_2}{\text{FiO}_2} \leq 300 \text{ mmHg}$ (with PEEP or CPAP $\geq 5 \text{ cmH}_2\text{O}$, or non-ventilated)

• Moderate ARDS: $100 \text{ mmHg} < \frac{\text{PaO}_2}{\text{FiO}_2} \leq 200 \text{ mmHg}$ with PEEP $\geq 5 \text{ cmH}_2\text{O}$, or non-ventilated)

• Severe ARDS: $\frac{\text{PaO}_2}{\text{FiO}_2} \leq 100 \text{ mmHg}$ with PEEP $\geq 5 \text{ cmH}_2\text{O}$, or non-ventilated)

• When PaO2 is not available, SpO2/FiO2$\leq 315$ suggests ARDS (including in non-ventilated patients)
Oxygenation

- Bilevel NIV or CPAP ≥5 cmH2O via full face mask: PaO2/FiO2≤ 300 mmHg or SpO2/FiO2≤264
- Mild ARDS (invasively ventilated): 4 ≤ OI < 8 or 5 ≤ OSI < 7.5
- Moderate ARDS (invasively ventilated): 8 ≤ OI < 16 or 7.5 ≤ OSI < 12.3
- Severe ARDS (invasively ventilated): OI ≥ 16 or OSI ≥ 12.3
Sepsis

• Adults: life-threatening organ dysfunction caused by a dysregulated host response to suspected or proven infection, with organ dysfunction.

• Signs of organ dysfunction include: altered mental status, difficult or fast breathing, low oxygen saturation, reduced urine output, fast heart rate, weak pulse, cold extremities or low blood pressure, skin mottling, or laboratory evidence of coagulopathy, thrombocytopenia, acidosis, high lactate or hyper-bilirubinemia.

• Children: suspected or proven infection and ≥2 SIRS criteria, of which one must be abnormal temperature or white blood cell count
Septic Shock

- **Adults**: persisting hypotension despite volume resuscitation, requiring vasopressors to maintain MAP ≥65 mmHg and serum lactate level >2 mmol/L

- **Children**: any hypotension (SBP <5th centile or >2 SD below normal for age) or 2-3 of the following: altered mental state; tachycardia or bradycardia (HR <90 bpm or >160 bpm in infants and HR <70 bpm or >150 bpm in children); prolonged capillary refill (>2 sec) or warm vasodilation with bounding pulses; tachypnea; mottled skin or petechial or purpuric rash; increased lactate; oliguria; hyperthermia or hypothermia
Infection prevention and control

- Medical mask and direct patient to separate area
- At least 1 meter distance between suspected patients and other patients
- Cover nose and mouth during coughing or sneezing with tissue or flexed elbow for others
- Hand hygiene after contact with respiratory secretions
Droplet Precautions

• Medical mask if working within 1-2 metres of the patient
• Place patients in single rooms, or group together those with the same etiological diagnosis
• Group patients with similar clinical diagnosis and based on epidemiological risk factors, with a spatial separation
• Use eye protection (face-mask or goggles)
• Limit patient movement within the institution
• Ensure that patients wear medical masks when outside their room
Cover your mouth and nose

• Cover your mouth and nose with a tissue when coughing or sneezing.

• It may prevent those around you from getting sick.
Cover Your Cough/Sneeze!
Droplet precautions: Surgical Masks
Contact precautions

• Use PPE (medical mask, eye protection, gloves and gown) when entering room and remove PPE when leaving

• Use either disposable or dedicated equipment (e.g. stethoscopes, blood pressure cuffs and thermometers)

• If needs to be shared clean and disinfect between each patient use

• Avoid contaminating environmental surfaces that are not directly related to patient care (e.g. door handles and light switches). Ensure adequate room ventilation. Avoid movement of patients or transport. Perform hand hygiene
Airborne precautions when performing an aerosol generating procedure

• Ensure that healthcare workers performing aerosol-generating procedures (i.e. open suctioning of respiratory tract, intubation, bronchoscopy, cardiopulmonary resuscitation) use PPE, including gloves, long-sleeved gowns, eye protection, and fit-tested particulate respirators (N95 or equivalent, or higher level of protection).
Airborne precautions when performing an aerosol generating procedure

• Whenever possible, use adequately ventilated single rooms when performing aerosol-generating procedures, meaning negative pressure rooms with minimum of 12 air changes per hour or at least 160 litres/second/patient in facilities with natural ventilation.

• Avoid the presence of unnecessary individuals in the room

• Care for the patient in the same type of room after mechanical ventilation commences
Section Separator
Early supportive therapy and monitoring

• Initiate oxygen therapy at 5 L/min and titrate flow rates to reach target SpO2≥90% in non-pregnant adults and SpO2 ≥92-95 % in pregnant patients

• Children with emergency signs (obstructed or absent breathing, severe respiratory distress, central cyanosis, shock, coma or convulsions) should receive oxygen therapy during resuscitation to target SpO2≥94%; otherwise, the target SpO2is ≥90%
Early supportive therapy and monitoring

• Use conservative fluid management in patients with SARI when there is no evidence of shock

• Patients with SARI should be treated cautiously with intravenous fluids, because aggressive fluid resuscitation may worsen oxygenation, especially in settings where there is limited availability of mechanical ventilation
Early supportive therapy and monitoring

• Give empiric antimicrobials to treat all likely pathogens causing SARI

• Give antimicrobials within one hour of initial patient assessment for patients with sepsis: Although the patient may be suspected to have nCoV, administer appropriate empiric antimicrobials within ONE hour of identification of sepsis

• Empiric antibiotic treatment should be based on the clinical diagnosis (community-acquired pneumonia, health care-associated pneumonia [if infection was acquired in healthcare setting], or sepsis), local epidemiology and susceptibility data, and treatment guidelines
Early supportive therapy and monitoring

• Empiric therapy includes a neuraminidase inhibitor for treatment of influenza when there is local circulation or other risk factors

• Empiric therapy should be de-escalated on the basis of microbiology results and clinical judgment
Early supportive therapy and monitoring

- Do not routinely give systemic corticosteroids for treatment of viral pneumonia or ARDS outside of clinical trials unless they are indicated for another reason: (avascular necrosis, psychosis, diabetes, and delayed viral clearance)
Early supportive therapy and monitoring

- Closely monitor patients with SARI for signs of clinical deterioration, such as rapidly progressive respiratory failure and sepsis, and apply supportive care interventions immediately.

- Application of timely, effective, and safe supportive therapies is the cornerstone of therapy for patients that develop severe manifestations of nCoV.
Early supportive therapy and monitoring

- Understand the patient’s co-morbid condition(s) to tailor the management of critical illness and appreciate the prognosis
- During intensive care management of SARI, determine which chronic therapies should be continued and which therapies should be stopped temporarily
- Communicate early with patient and family
- Communicate proactively with patients and families and provide support and prognostic information
- Understand the patient’s values and preferences regarding life-sustaining interventions
Collection of specimens for laboratory diagnosis

- Collect blood cultures for bacteria that cause pneumonia and sepsis, ideally before antimicrobial therapy.
- DO NOT delay antimicrobial therapy to collect blood cultures.
- Collect specimens from BOTH the upper respiratory tract (URT; nasopharyngeal and oropharyngeal) AND lower respiratory tract (LRT; expectorated sputum, endotracheal aspirate, or bronchoalveolar lavage) for nCoV testing by RT-PCR.
- Clinicians may elect to collect only LRT samples when these are readily available (for example, in mechanically ventilated patients).
Management of hypoxemic respiratory failure and ARDS

• Facemask with reservoir bag (flow rates of 10-15 L/min, which is typically the minimum flow required to maintain bag inflation; FiO2 0.60-0.95)

• High-flow nasal oxygen (HFNO) or non-invasive ventilation (NIV) should only be used in selected patients with hypoxemic respiratory failure.
Partial Rebreathing Mask

Non Rebreathing Mask

A

Reservoir bag

B

Reservoir bag

Valves
Oxygen mask with reservoir bag
“Venturi” Device with mask
Venturi System Varieties
HFNC
Management of hypoxemic respiratory failure and ARDS

- Endotracheal intubation should be performed by a trained and experienced provider using airborne precautions
- Implement mechanical ventilation using lower tidal volumes (4–8 ml/kg predicted body weight, PBW) and lower inspiratory pressures (plateau pressure <30 cmH2O)
Management of hypoxemic respiratory failure and ARDS

- Hypercapnia is permitted if meeting the pH goal of 7.30-7.45
- Ventilator protocols are available. The use of deep sedation may be required to control respiratory drive and achieve tidal volume targets.
- In patients with severe ARDS, prone ventilation for >12 hours per day is recommended
Management of hypoxemic respiratory failure and ARDS

• Use a conservative fluid management strategy for ARDS patients without tissue hypoperfusion
• In patients with moderate or severe ARDS, higher PEEP instead of lower PEEP is suggested
• A related intervention of recruitment manoeuvres (RM) is delivered
• Neuromuscular blocking agents may be used in severe ARDS
Management of hypoxemic respiratory failure and ARDS

• In settings with access to expertise in extracorporeal life support (ECLS), consider referral of patients with refractory hypoxemia despite lung protective ventilation

• Avoid disconnecting the patient from the ventilator, which results in loss of PEEP and atelectasis

• Use in-line catheters for airway suctioning and clamp endotracheal tube when disconnection is required (for example, transfer to a transport ventilator)
Management of septic shock

• Recognize septic shock in adults when infection is suspected or confirmed AND
• Vasopressors are needed to maintain mean arterial pressure (MAP) ≥65 mmHg AND
• Lactate is ≥2 mmol/L, in absence of hypovolemia
Management of septic shock

- Recognize septic shock in children with any hypotension (systolic blood pressure [SBP] <5th centile or >2 SD below normal for age) or 2-3 of the following:
  - altered mental state
  - tachycardia or bradycardia (HR <90 bpm or >160 bpm in infants and HR <70 bpm or >150 bpm in children)
  - prolonged capillary refill (>2 sec) or warm vasodilation with bounding pulses
  - tachypnea; mottled skin or petechial or purpuric rash; increased lactate; oliguria; hyperthermia or hypothermia.
Management of septic shock

• Standard care includes early recognition and the following treatments within 1 hour of recognition: antimicrobial therapy and fluid loading and vasopressors for hypotension.

• The use of central venous and arterial catheters should be based on resource availability and individual patient needs

• At least 30 ml/kg of isotonic crystalloid in adults in the first 3 hours

• Do not use hypotonic crystalloids, starches, or gelatins for resuscitation.
Management of septic shock

• Administer vasopressors when shock persists during or after fluid resuscitation. The initial blood pressure target is MAP ≥65 mmHg in adults and age-appropriate targets in children

• Vasopressors (i.e. norepinephrine, epinephrine, vasopressin, and dopamine) are most safely given through a central venous catheter at a strictly controlled rate, but it is also possible to safely administer them via peripheral vein and intra-osseous needle
Prevention of complications

- Days of invasive mechanical ventilation
- Incidence of ventilator associated pneumonia
- Incidence of venous thromboembolism
- Catheter related blood stream infection
- Pressure ulcers
- Stress ulcers and gastrointestinal bleeding
- ICU-related weakness
State ToT on

**NOVEL CORONAVIRUS**
**(COVID-19)**

Risk Communication and Community Engagement

Dr Rajendra Prasad, JD,
Tribal Health and Trainings
Presentation Outline

1. Risk Communication and Communication Engagement (RCCE)-Understanding the concept


3. RCCE Resource Packages (Community, Health Service Providers and Workplace) and Communication Planning tool (for State Government Planning)

4. List of key RCCE focal persons
Risk Communication and Community Engagement
Risk Communication-what is it?

A real-time dialogue (a two-way exchange of information advice and opinions) between experts/officials and the people facing a threat (from a hazard) to their health or economic or social well being.

Why? So everyone at risk are able to make informed decisions to mitigate the effects of the threat –such as COVID-19 Outbreak – and take protective and preventive measures.
What are the Risk Communication intervention points in epidemics and pandemics?

Anticipation and preparedness

Emergence (human-animal interphase)

Early detection

Outbreak (localized transmission)

Containment

Containment

Epidemic amplification

Mitigation

Control
Why Risk Communication intervention during in epidemics and pandemics are important?

1. Cultural practices and harmful social norms hamper uptake of preventive measures and safe behaviours (Fever is not seen as a threat, limited handwashing etc)

2. Concerns related to spread of COVID-19 due to direct close contact with suspected or confirmed patients (Close living quarters, taking care of sick family members)

3. Possibility of cross-infection in hospitals caring for patients with COVID-19 Infection

4. Access to limited trusted and correct information

5. New virus with an evolving aetiology - lack of knowledge on how disease is transmitted
Risk Communication and Communication Engagement for epidemics and pandemics (COVID-19)

Be first, be fast, be frequent

1. Early first announcement essential to build and maintain public trust

2. Awareness of the disease and the situation is key, especially among health care workers and the populations at risk

3. Be proactive in information dissemination with frequent updates
Risk Communication and Communication Engagement for epidemics and pandemics (COVID-19)?

Help people take informed decisions to protect themselves

1. Develop easy to understand materials in languages and preferred channels of affected population
2. Identify and manage rumors and misinformation quickly
3. Use a mix of tactics and approaches for risk communication, including

Mass Communications, Community Engagement and Interpersonal Communications (One to one and Group Meetings)
Risk Communication and Community Engagement (RCCE)-How?

1. Ensure RCCE is part of National Outbreak/State Preparedness and Response Plan

2. Develop a national RCCE plan with state guidance, clear objectives, outcomes and resource requirement

3. Establish RCCE coordination mechanism for information sharing, addressing rumours and fast-track mechanisms for release of information

4. Establish a mechanism for monitoring media, social media and rumours, for timely management of misinformation
National COVID-19 Risk Communication and Community Engagement (RCCE) Approach
National COVID-19 Risk Communication and Community Engagement Approach

Aligned with Ministry of Health Family and Welfare Cluster Containment Plan

Anticipation and preparedness → Early detection → Containment → Mitigation

Local Clusters → Large outbreaks

Emergence (human-animal interphase) → Outbreak (localized transmission) → Epidemic amplification → Control
National COVID-19 Risk Communication and Community Engagement Approach—Guiding Principles

1. Phased approach for RCCE
2. KAP in the affected states and regular community monitoring and listening
3. RCCE (MoHFW/State Department of Health) institutional mechanisms for planning and implementation and monitoring
4. Respect geographic diversity, social and cultural practices including local customs.
5. Keep it simple and sensible and to be based on the social data, media habits for effective and relevant content and communication
National COVID-19 Risk Communication and Community Engagement Approach-Guiding Principles

• COVID-19 virus is creating fear
  ✓ Communication needs to be direct, transparent & consistent

• Potential of Panic is very high
  ✓ Positive tone, a sense of reassurance as 81% of cases are mild

• Prevention is crucial, provides meaningful rationale
  ✓ Enhance understanding of risks/risk factors among general public and high risk groups
  ✓ Everyone has a role to play
Overall Role for COVID-19 RCCE

Response and Control
Clustering of Novel Coronavirus Disease

- Encourage early health seeking behavior focused self reporting and monitoring especially in those with recent travel history or history of potential contacts
- Augment hand hygiene and respiratory etiquettes among general public as a routine/regular practices against everyday respiratory illness/respiratory tract infections

Widespread Community Transmission

To reassure the public reinforce the critical need to protect themselves, their families and others-social distancing measures, continued focus on hand-hygiene, respiratory etiquettes and early health seeking behaviours (especially among high risk groups)
Therefore, **National COVID-19 Risk Communication and Community Engagement:**

- Ensure population at risk, is adequately protected from the infection of COVID-19 by creating awareness and knowledge on prevention behaviours and limits its impact by their improving hygiene and health seeking behavior.

- **Build capacities and strengthen Inter-personal skills** of the frontline workers (ANM/ASHAs/AWWs), local health service providers and networks to ensure effective response of treatment and services.

- **Create an enabling environment** at the national, state, and district level through strengthened coordination with partners, sustain political commitment and

- **Effective advocacy** for mass mobilization and minimize social disruption.

(Possible objectives)
COVID-19 Key Stakeholders

Community
- General Public
- Travelers and their family members
- Indians living abroad
- School teachers, SMCs and children
- High Risk Group: Elderly and those with co-morbidities

Health Service Providers
- Health staff and workers at General Health Facilities and Designated Hospitals
- ANMS/ASHAs

Influencers and Opinion makers
- Media
- Policy makers
- Partners
- Professional Associations (IMA, IAP) and private sector
**COVID-19 Preventive Measures**

**Protect yourself and others!**

**Follow these Do's and Don'ts**

**Do's**
- Practice frequent hand washing. Wash hands with soap and water or use alcohol based hand rub. Wash hands even if they are visibly clean.
- Cover your nose and mouth with handkerchief/tissue while sneezing and coughing.
- Throw used tissues into closed bins immediately after use.
- See a doctor if you feel unwell (fever, difficult breathing and cough). While visiting doctor wear a mask/cloth to cover your mouth and nose.
- If you have these signs/symptoms please call State helpline number or Ministry of Health & Family Welfare’s 24X7 helpline at 011-23978846.
- Avoid participating in large gatherings.

**Don'ts**
- Have a close contact with anyone, if you’re experiencing cough and fever.
- Touch your eyes, nose and mouth.
- Spit in public.

**Together we can fight Coronavirus**

**For further information:**
Call at Ministry of Health, Govt. of India’s 24X7 control room number +91-11-2397 8046
Email at ncov2019@gmail.com

@MoHFWINDIA, @MoHFW_INDIA, mohfwindia
COVID-19 Intervention Framework: Motivating to act

**Targeted information**
- Mass Media (TV, Radio, Print & local Media)
- IEC (Posters & Ports of Entry materials)
- Advocacy & Media Management

**Creating general awareness**
- Building Trust and Enabling local environment
  - Roll out Community Engagement activities under VHNDs, H2H with increased frequency.

**To address fears and promote positive practices**
Interventions by MOHFW and partners for COVID-19

• MoHFW collaboration with WHO, UNICEF and other key partners for RCCE
• Letters written to all Chief Secretaries towards disseminating do’s and don’ts
• Intensive content posting-travel advisory, preventive measures on MOHFW social media handles
• Regular press conference and press releases-interaction with Hon'ble Minister and Senior Officials
• Community resource package with Posters, print ads AV products shared across ministries, states and social media platform
• Toolkit for Health Service Providers developed. Meeting with Private Sector Hospital conducted.
Creating Community Monitoring and Listening System

To address rumors, fake news and harmful practices and norms

• Partnership with Facebook and Google

• Rumour and fake news tracking

• Myth-busters on all social media and community platforms to provide correct information from trusted sources
Resource Packages and RCCE Planning tool
(Risk Communication and Community Engagement)

Communities, Health Service Providers including ASHAs/ANM and Workplace
Resource Packages

- General Public
- Indian Staying Abroad
- Travelers and their families

- Designated Hospitals
- General Health Facilities

- Private and Public

- ASHAs/ANMs
- Others (TBC)

Community

Workplace

Frontline Workers

Health Service Providers
Community Resource Package

Print Materials

• **Press Ads** (MoHFW)

• **Posters**-Dos and Don’ts, 5 key Behaviours, Home Quarantine (only when there is community transmission)

• **Standee for Indian Consulates for Indians Abroad**

TV and Radio Materials

• **4 TV Spots**-Cover your mouth, stay at home, hand washing and seek treatment

• **2 Radio Spots**
Community Resource Packages

**Press Ad-Hindi and Eng)**

Standee for Indians living Abroad-
Yet To be approved PMO

**Poster: Home Quarantine-To be used when there is community transmission (Yet to be approved by PMO)**
Community Resource Package

TV Spots: English and Hindi
## Health Service Provider Toolkit

<table>
<thead>
<tr>
<th>Items</th>
<th>General Health Facility</th>
<th>Designated Hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poster 1: What is Novel Coronavirus Disease</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Poster 2: Is your healthcare facility ready to manage patients with COVID-19?</td>
<td>Yes (with referral message)</td>
<td>Yes</td>
</tr>
<tr>
<td>Poster 3: Hand Hygiene</td>
<td>Hand Rub</td>
<td>My moments of Hand Hygiene</td>
</tr>
<tr>
<td>Poster 4: How to manage suspected or confirmed patients with COVID-19 at designated Hospitals?</td>
<td>x</td>
<td>Yes</td>
</tr>
<tr>
<td>Poster 5: How to protect all health workers at designated hospitals?</td>
<td>x</td>
<td>Yes</td>
</tr>
<tr>
<td>Community Information Leaflets (2)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Letter from Health Minister</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Health Service Provider Toolkit
(General Health Facility)

Novel Coronavirus Disease COVID-19

What is Novel Coronavirus Disease?
Coronavirus disease (COVID-19) is caused by Novel Coronavirus that leads to cough, fever or difficulty in breathing.

Symptoms of COVID-19:
- COUGH
- FEVER
- BREATHING DIFFICULTIES

Take precaution. Protect yourself.
1. When coughing and sneezing, cover mouth and nose with handkerchief or tissue.
2. Wash hands with soap and water frequently.
3. Keep distance and avoid close contact with anyone with cough, fever or breathing difficulties.
4. Avoid touching your eyes, nose and mouth.
5. If you have cough, fever or breathing difficulties with travel history or contact with travelers from Coronavirus affected countries, contact your nearest health facility or report to the helpline number.

Contact: Ministry of Health and Family Welfare Helpline: +91-11-23978046

Stay protected! Stay safe from Coronavirus!

HEALTH SERVICE PROVIDER TOOLKIT
GENERAL HEALTH FACILITY

Is your healthcare facility ready to manage patients with COVID-19?
Establish a triage station at the healthcare facility entrance, prior to any waiting area, to screen patients with COVID-19.

Display information, such as posters and flyers, remind patients and visitors to practice good respiratory and hand hygiene.

Ensure availability of alcohol-based hand rub or soap and water and at handwashing stations for the use of healthcare workers, patients and visitors.

Maintain one meter distance from those who have symptoms such as cough, fever or difficulty in breathing.

Any case with cough, fever or breathing difficulties with travel history or contact with travelers from Coronavirus affected countries should be referred to designated hospitals.

Contact: Ministry of Health and Family Welfare Helpline: +91-11-23978046

Stay protected! Stay safe from Coronavirus!
Workplace and Frontline Workers package being developed
## State level Risk Communication and Community Engagement Plan (Recommended)

<table>
<thead>
<tr>
<th>Name of the state:</th>
<th>Name of District:</th>
<th>District IEC/ Media officer:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advocacy Meetings</strong></td>
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</tr>
<tr>
<td>State RCCE group meeting</td>
<td>Date:.........</td>
<td>Date:.........</td>
</tr>
<tr>
<td>Orientation of RCCE group members</td>
<td>Date:.........</td>
<td>Date:.........</td>
</tr>
<tr>
<td>Orientation of CSO partners, including religious leaders and community influencer groups</td>
<td>Date:.........</td>
<td>Date:.........</td>
</tr>
<tr>
<td>Networking with school for supporting community mobilization</td>
<td>Date:.........</td>
<td>Date:.........</td>
</tr>
<tr>
<td>State media orientation workshop</td>
<td>Date:.........</td>
<td>Date:.........</td>
</tr>
<tr>
<td>Any Other</td>
<td>Date:.........</td>
<td>Date:.........</td>
</tr>
<tr>
<td><strong>Capacity Building</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training of block level health officers and FLWs</td>
<td>Date:.........</td>
<td>Date:.........</td>
</tr>
<tr>
<td><strong>Social Media</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constitution of social media committee</td>
<td>Members:.........</td>
<td>Frequency:.........</td>
</tr>
<tr>
<td>WhatsApp messaging</td>
<td>Members:.........</td>
<td>Frequency:.........</td>
</tr>
<tr>
<td>Facebook messaging</td>
<td>Members:.........</td>
<td>Frequency:.........</td>
</tr>
<tr>
<td>Any other</td>
<td>Members:.........</td>
<td>Frequency:.........</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>District</th>
<th>Block 1</th>
<th>Block 2</th>
<th>Block 3</th>
<th>Block 4</th>
<th>Block 5</th>
<th>Block 6</th>
<th>Block 7</th>
<th>Block 8</th>
<th>Total</th>
</tr>
</thead>
</table>

**Note:** This template will be completed by State and District MERO/IEC officer/consultant. If there is no one dedicated for IEC activity, then District IEC Officer will be responsible to compile with consultations of Block MOC/BE/IEC consultant. One copy needs to be with concerned person who is responsible for IEC communication and one copy needs to be submitted to Chief District Medical Officer/CMO/CDM0 before the District Training start Risk Communication and Community Engagement.
Contact details of RCCE
Key Persons
• Ms. Padmaja Singh, JS-IEC MOHFW
• Dr. Ritu Chauhan, Team Health Security and Emergencies, WHO India
• Mr. Elnur Aliyev, Communication for Development, UNICEF India
State ToT on

NOVEL CORONAVIRUS
(COVID-19)

Hospital Preparedness for COVID - 19

Dr Narasimhulu
Outline of Presentation

• Why hospital preparedness?
• Objectives of hospital preparedness
• Hospital Planning for COVID-19
• Infection Prevention and Control Practices
• Surge capacity to deal with large number of patients of COVID-19
Why Hospital Preparedness?

• COVID-19 is highly infectious, main driver being direct transmission through droplet and contact.
• Several Nosocomial infections with COVID-19 have been reported.
• Hospitals may itself become the hub of transmission.
• Large number of cases may have to be managed
Objectives

• Provide prompt clinical care to cases of COVID-19.
• Manage large number of cases in the context of a major outbreak
• Adequately train and equip healthcare staff for managing the cases
• Prevent the spread of respiratory diseases including COVID-19 within the facility
• Provide timely and regular information to the surveillance system
• Establish mechanism for external communication with public
Hospital Planning for COVID-19

Emergency Planning - Incident Management System/ Committees

➢ The hospital will review its DM plan and exercise this plan, identify gaps if any.
➢ Review the Incident Response System and/or the Committee system whichever the hospital is following.
➢ Ensure that there is clear role and responsibilities for the hospital functionaries
Hospital Planning for COVID-19 (Cont.)

OPD Planning

• Designate a nursing officer (and an alternate officer) to manage the triage station and direct the patients.
• Identify areas for initial screening and triage.
• Separate OPD: Flu like illness/ SARI.
• Keep provision of triple layer surgical masks for the patients and bio-hazard bags for their disposal.
• Provide hand sanitizer at the entry and in doctor’s chambers/stations. Alternatively provision for hand wash.
• Ensure prominent display of messages on signs & symptoms and preventive measures for COVID-19/run videos to create awareness among patients.
Hospital Planning for COVID-19 (Cont.)

Indoor patient care planning

- Patients needs to be isolated in negative pressure rooms or separate isolation rooms (in alignment with the strategic approach).
- In resource constrained settings, use separate isolation ward for cohorting suspect and confirmed cases, with a waiting area for the visitors.
  - Such wards should have good ventilation and natural lighting.
- Ensure facilities for ventilator and critical care management with trained manpower.
- It's desirable to have ECMO facility for critical care in tertiary institutions and it’s linkage to designated hospitals.
- Provision for hand sanitizer with every bed/hand washing facility in the ward.
- Provide triple layer surgical masks to all patients.
- Ensure proper cleaning and disinfection of environmental surfaces and equipment in patient’s room.
Patient transportation within hospital and referral

- Minimize the movement of patients within the health center
  - Limited to medically essential purposes
- If a patient needs to be moved, plan the move ahead:
  - provide a mask to the patient
  - Disinfection of the environmental surfaces of the patient care area
- Earmarked ambulances for patient transport and referral
- Ambulance staff should use appropriate PPE
- Facility for disinfection of patient’s room after discharge
- Facility for disinfection of the ambulances
Hospital Planning for COVID-19 (Cont.)

Infection Prevention and Control Practices

• Restrict visitors access and their movement within the facility
• Provide triple layer surgical masks to visitors attending the patient
• Provision for hand sanitizer/hand wash with soap and water whenever leaving the isolation wards
• Perform regular environmental cleaning and disinfection
• Maintain good ventilation, if possible, open doors and windows
Hospital Planning for COVID-19 (Cont.)

Surge Capacity

• In large outbreaks/community wide transmission, large number of beds needs to be created.
• The surge capacity can be enhanced by:
  – Reverse triage
  – Addition of existing but non-essential beds to isolation facilities
  – Creating new wards
  – Temporary hospitals
  – Mobilize manpower from neighboring districts
  – Leverage services of healthcare workers in non-critical departments
  – Earmarking beds in private hospitals
Hospital Planning for COVID-19 (Cont.)

- Information management
- Facility should train identified persons on data management
- Daily logging and reporting would be done to IDSP on (daily and cumulative):
  - Total number of suspect cases
  - Total number of confirmed cases
  - Total number of critical cases on ventilator
  - Total number of deaths
Hospital Planning for COVID-19 (Cont.)

Logistic management
• Material logistics
  – Stock adequate quantities of PPE Kits, N-95 masks, triple layer surgical masks, gloves etc.
  – Hand sanitizers and disinfectants
  – Sample collection kits, VTMs and packaging and transportation arrangements
  – Ventilators and other critical care equipment
  – Drugs, IV Fluids and other medical consumables
Hospital Planning for COVID-19 (Cont.)

• Business continuity
• Rostering
• Prevent burn-out
• Maintain positive environment
Hospital Planning for COVID-19 (Cont.)

Training and exercises

• Sensitize healthcare workers on:
  – COVID-19 disease
  – IPC practices
  – Correct use of PPEs
  – Rational use of PPEs: Risk profiling and appropriate use of PPE

• Conduct exercises on IPC practices, patient transport, sampling etc.
## Alignment of hospitals with strategic approach

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Strategy</th>
<th>Hospital facility</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel related cases</td>
<td>Prevention of further spread in community</td>
<td>Designated hospitals attached to airports/ports/land border crossings</td>
<td>Isolation in individual isolation rooms of all suspect and confirmed cases</td>
</tr>
<tr>
<td>Reporting of cluster</td>
<td>Prevention of further spread through cluster containment</td>
<td>Nearest hospital identified to the cluster</td>
<td>Isolation in individual isolation rooms of all suspect and confirmed cases</td>
</tr>
<tr>
<td>Large outbreaks</td>
<td>Mitigation using ABC categorization</td>
<td>OPD Triage facility, surge capacity for indoor isolation in wards/temporary hospitals Admission policy as per risk categorization</td>
<td>Home care for mild and moderate cases and hospital admission only for high risk cases and those requiring critical interventions</td>
</tr>
<tr>
<td>Disease becomes endemic</td>
<td>Programmatic approach</td>
<td>As above</td>
<td>As above</td>
</tr>
</tbody>
</table>

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State ToT on

NOVEL CORONAVIRUS (COVID-19)

Non-pharmaceutical Interventions (NPI) for COVID - 19

Dr Narasimhulu
Session Outline

Non-pharmaceutical Interventions (NPI)

- Concept and application
- Components and levels of interventions
- Implementation of NPI
- Evaluation
Potential Tools in Our Toolbox

- **Vaccine** – best countermeasure is not readily available

- **Antiviral drug** could improve outcomes but no clarity yet.

- **Antiviral prophylaxis** not available hence no effect on reducing transmission

- **Non-pharmaceutical interventions** may reduce transmission and diminish overall health impact.
Non-pharmaceutical Interventions

1. Delay disease transmission and outbreak peak
2. Reduce peak burden on healthcare infrastructure
3. Diminish overall cases and health impacts

Outbreak:
No intervention

Outbreak:
With intervention
Isolation

- Separation and restricted movement of ill persons
- Would apply to even PUI
- Isolation in a hospital – ideally in a Bio-containment facility;
- if not available in an isolated room not sharing air-circulation with other rooms.
- Follow hospital infection prevention and control Recommendations
Quarantine

- refers to separation and restriction of movement or activities.
- Persons who, while not yet ill, have been exposed to an infectious agent and therefore may become infectious.
- Often at home
- Follow infection control practices for home care settings
Non-Pharmaceutical Interventions

**Individual level**

- Isolation
- Quarantine
- Infection control through simple public health measures
  - Hand washing
  - Respiratory etiquettes
  - Stay away
  - Use of PPE
Non-Pharmacological Interventions

Community level

- Quarantine of groups/sites
- Community wide quarantine-Cordon Sanitaire
- Measures to increase social distance
  - School closures
  - Business and market closure
  - Cancellation of events
  - Movement restrictions
Non-Pharmaceutical Interventions

**National/ International level**
- Non essential travel deferred
- Provide information to travelers
- Self recognition of illness and self reporting
- Entry screening (Passive)
- Exit Screening at Airports of affected countries
- Airport Quarantine
- Ban of flights/ ships originating from affected area
NPI for COVID - 19

• Individual level
  ➢ Isolation
    ➢ Hospital setting
  ➢ Quarantine
    ➢ Home, POE and hospital settings
  ➢ Simple public health measures for infection control (Hand washing, Hygiene, Sanitation, Respiratory etiquettes)
    ➢ Home, school, workplace, hospitals, markets
  ➢ Use of masks and gloves (for care provider)
    ➢ Home care, POE and hospital settings
NPI for COVID - 19 cont’d

• Community level
  – Quarantine of site (Hospital) in case of Nosocomial infection involving HCWs
  – Social distancing measures / community wide quarantine not advocated.

• National/ International level
  – Non essential travel to be deferred.
  – No need to restrict trade or Travel
  – No import of bush meat or products of similar nature.
  – Need to inform travelers on the risk
Bio Safety and Clinical Requirements

• Ideally requires Bio - Containment Treatment Facilities.
• These patients often requires intensive care that is not possible in many of our district level hospitals.
• Identified facilities also require high level of critical care management.
• It also need to have a laboratory to support investigations required to manage critical patients.
• Adequate Infection Prevention Control Practices.
Ideal Bio Containment Patient Care Unit

- Negative air flow system with greater than 12 air exchanges per hour
- High-Efficiency Particulate Air (HEPA) filtration system of exit air.
- Secured access, double door air lock main entrance
- Separate staff entrances and exits
- Staff decontamination shower
- Pass through autoclave to disinfect materials leaving the unit
- Dunk tank to decontaminate lab specimens leaving the unit
- Video phone for patient communication
- Dedicated laboratory to process the clinical samples.
1. Triage
2. Decon
3. Treatment area
4. Biocontainment
5. Staff area
Suggested modalities for Isolation Facilities

Isolation facilities for managing COVID - 19

• Single room with attached washroom, away from main patient care areas.
• The room needs to be kept closed.
• No visitor should be allowed except through tele/video conference.
• Preferably maintain the room at negative pressure
• Health care workers attending on him should wear full complement of PPE.
Infection control : Home care settings for Quarantine / Isolation

• Requirements
  – The ill person should have his or her own bed preferably in a separate room.
  – Adequate air-ventilation
  – Basic amenities
  – Toilet facilities that preferably only the ill person use.
  – Identified primary caregiver for medications and care.
  – Care giver should be briefed adequately on infection control practices.
Health Monitoring

- Regular **health monitoring** of HCW in hospital settings/ Care givers in home care settings
- Self **health monitoring advisory** to other at-risk persons.
- Reporting to nearest health facility
- Details of accessible identified health facility.
Risk Communication

- Communicate the risk in clear consistent messages
- Convince public why the NPI measures are important and how they will protect the public.
- Wide spread dissemination through media
- One source for official information
- Prevention of incorrect information
- Allays psychological fear
Implementation requires:

- **Clear understanding of roles and responsibilities at all levels**
- **Coordinated planning by many partners**
  - Public health authorities, health-care providers, emergency response teams, law enforcement, transportation, civil aviation, shipping authorities
- **Trust and participation of the general public**
  - Effective risk communication, support and coordination with community groups
Evidence Base

- Limited scientific evidence about NP interventions currently exists.
- Historical and contemporary observations, anecdotal evidence
- Some evidence through mathematical models
- More Research is required
Summary

• NPI likely to be useful in delaying and reducing disease transmission, and may decrease health impact

• NPI should be used in coordination with other interventions, and early implementation is crucial

• All measures should be implemented within context of local situation.

• Limited scientific evidence. Need for further research
Thank you