



# **Health facility Training: COVID-19**

**HOSPITAL IN-CHARGES, DOCTORS AND PARAMEDICAL STAFF  
THROUGH VIDEO-CON , YOJNA BAHWAN,LUCKNOW**

**March, 27 2020**

## Agenda

- 1 Corona virus introduction, epidemiology
- 2 Case definitions
- 3 L1 and L2 facilities and selection criteria
- 4 Facility preparedness including logistics
- 5 Sample collection and transportation
- 6 Clinical case management
- 7 Specific PPE, IPC & BMW Management
- 8 Dead body disposal protocol

# OBJECTIVES

1. To prepare Hospitals and Health care workers in the current uncertain scenario of the Corona Virus COVID 19 pandemic
2. This resource package has been developed to update health care workers about -
  - Novel corona Virus epidemiology
  - Latest case definitions, quarantine and Isolation protocols
  - The concept of COVID Hospitals
  - Technical information on treatment / diagnosis and management of COVID 19 suspected/ infected cases
  - Infection control protocols at COVID-Hospitals
  - Using this resource package the master trainers will train all other staff at their facility
3. Worker-based training is envisaged to prevent and reduce exposure of hospital employees who are at risk of exposure to coronavirus through their work duties.

# Introduction - Corona Viruses

- Coronaviruses (CoV) are a large family of viruses that cause illness ranging from the common cold to more severe diseases such as
  - Severe Acute Respiratory Syndrome (**SARS-Cov**)
  - Middle East Respiratory Syndrome (**MERS-CoV**).
- Coronaviruses cause **zoonosis**, meaning they are transmitted between animals and people.

# COVID-19

- Coronavirus disease 2019 (COVID-19) is a respiratory tract infection caused by a newly emergent corona-virus (SARS-COV-2), that was first recognized in Wuhan, China, in December 2019.
- Genetic sequencing of the virus suggests that it is a beta-coronavirus closely linked to the SARS virus.
- **Incubation period** i.e appearance of symptoms after infection is usually **5-14 days**.

# Modes of virus transmission

- Highly infectious viral disease of respiratory system and spreads by
  - Droplets -when an infected person coughs, sneezes or talks, or during certain procedures.
    - infectious particles >5 microns in size.
    - droplet distribution range is limited by the force of expulsion and gravity and is usually <1 metre.
    - Droplets can also be transmitted indirectly to mucosal surfaces (e.g. via hands) or contact of hands with surfaces contaminated by droplets and by touching the face, nose and mouth with hands.
  - Contact of hands with contaminated surfaces.

## HOW IT SPREADS



AIR BY COUGH  
OR SNEEZE



PERSONAL  
CONTACT



CONTAMINATED  
OBJECTS

# COVID-19: Current situation globally

- **INDIA: 724 confirmed cases**  
**Deaths: 17**
- **UP : 47 Cases and 0 Deaths**

	कुल धनात्मक रोगियों की संख्या	
		47
6.1	जनपदवार विवरण	
6.2	आगरा	9
6.3	लखनऊ	8
6.4	गाज़ियाबाद	3
6.5	गौतम बुध नगर	18
6.6	लखीमपुर-खीरी	1
6.7	कानपूर नगर	1
6.8	पीलीभीत	2
6.9	मुरादाबाद	1
6.10	वाराणसी	1
6.11	शामली	1
6.12	जौनपुर	1
6.13	बागपत	1
6.13	कुल धनात्मक रोगी	47

## Globally

462 684 confirmed (49 219)  
20 834 deaths (2401)

## Western Pacific Region

99 058 confirmed (1292)  
3540 deaths (22)

## European Region

250 287 confirmed (29 771)  
13 950 deaths (1964)

## South-East Asia Region

2536 confirmed (192)  
79 deaths (7)

## Eastern Mediterranean Region

32 442 confirmed (2811)  
2162 deaths (154)

## Region of the Americas

75 712 confirmed (14 878)  
1065 deaths (252)

## African Region

1937 confirmed (275)  
31 deaths (2)

## WHO RISK ASSESSMENT

Global Level                      Very High

# Countries, areas or territories with COVID-19 cases reported in the last 7 days, as of 26 March 2020, 10:00 (CET)



[1] All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999).

Number of cases of Serbia and Kosovo (UNSCR 1244, 1999) have been aggregated for visualization purposes.



Not applicable

0 2,500 5,000

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UPISU AND WHO-NPSP



# COVID-19: Clinical profile

- ✓ Most people infected with COVID-19 virus (SARS-COV2) develop only mild illness
  - **Approximately 14% develop severe disease, which requires hospitalization and oxygen support**
  - **Less than 5% may require admission to an intensive care unit (ICU) with ventilator support**
- ✓ The severe cases can be complicated as severe pneumonia, acute respiratory distress syndrome (ARDS),, sepsis, multi -organ failure and shock.
- ✓ Patients above 60 years of age or with co-morbidities like Diabetes Mellitus, Hypertension and COPD have higher mortality

# Case Definitions – Suspect (06.03.2020)

**History of foreign travel during the 14 days prior to symptom onset**

**AND**

**Any of the following:**

- Fever
- Cough
- Respiratory distress

**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 - Probable

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

# Case Definition - Laboratory

- **Patients that meet the case definition and tested positive with Specific Real time RT-PCR test for 2019 nCoV.**

# HIGH RISK CONTACTS-DEFNITION

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.

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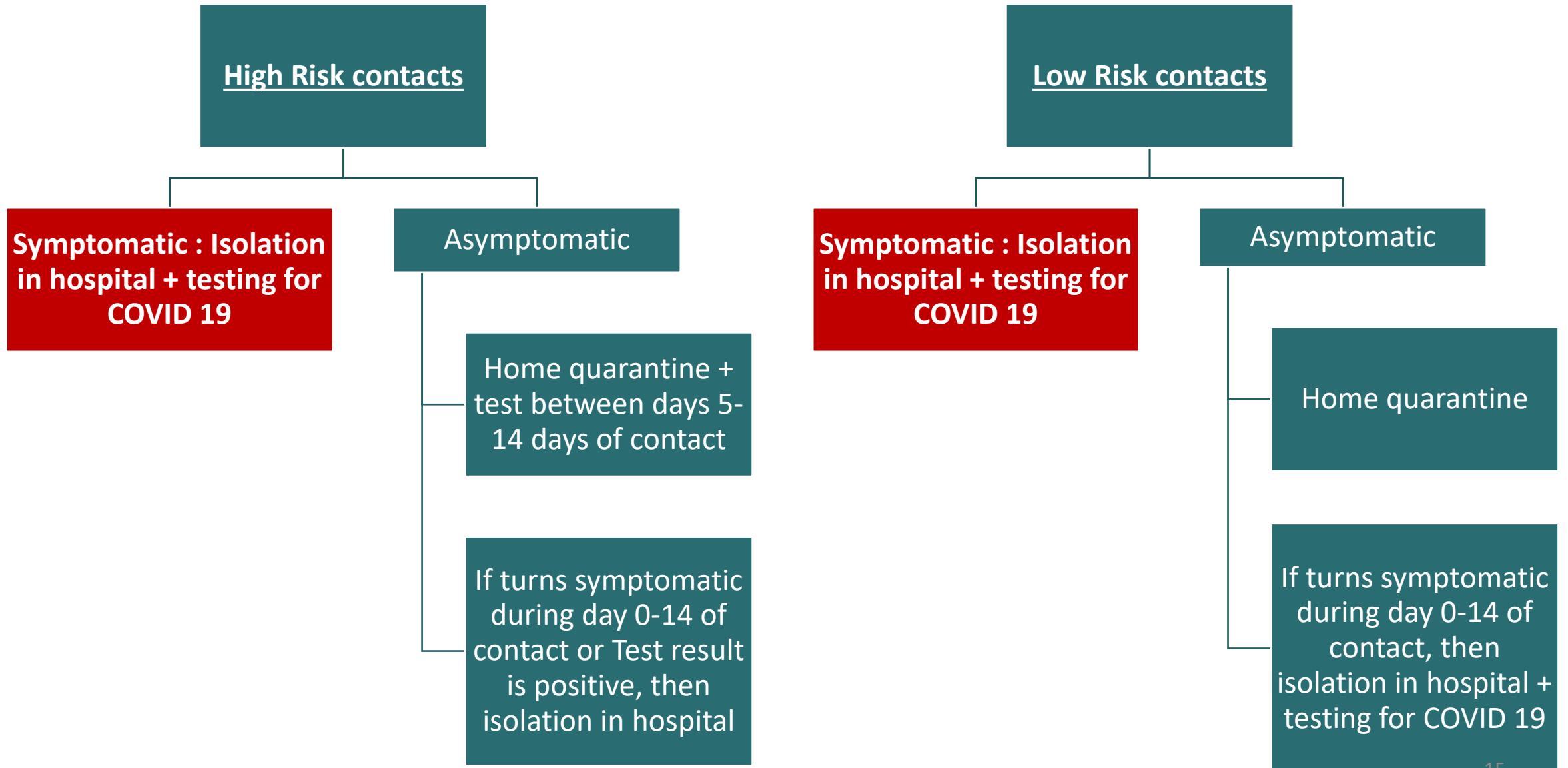
# LOW RISK CONTACTS-DEFNITION

Passengers in the same cabin or other persons in contact.

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 .

# CONTACTS – WHAT TO DO

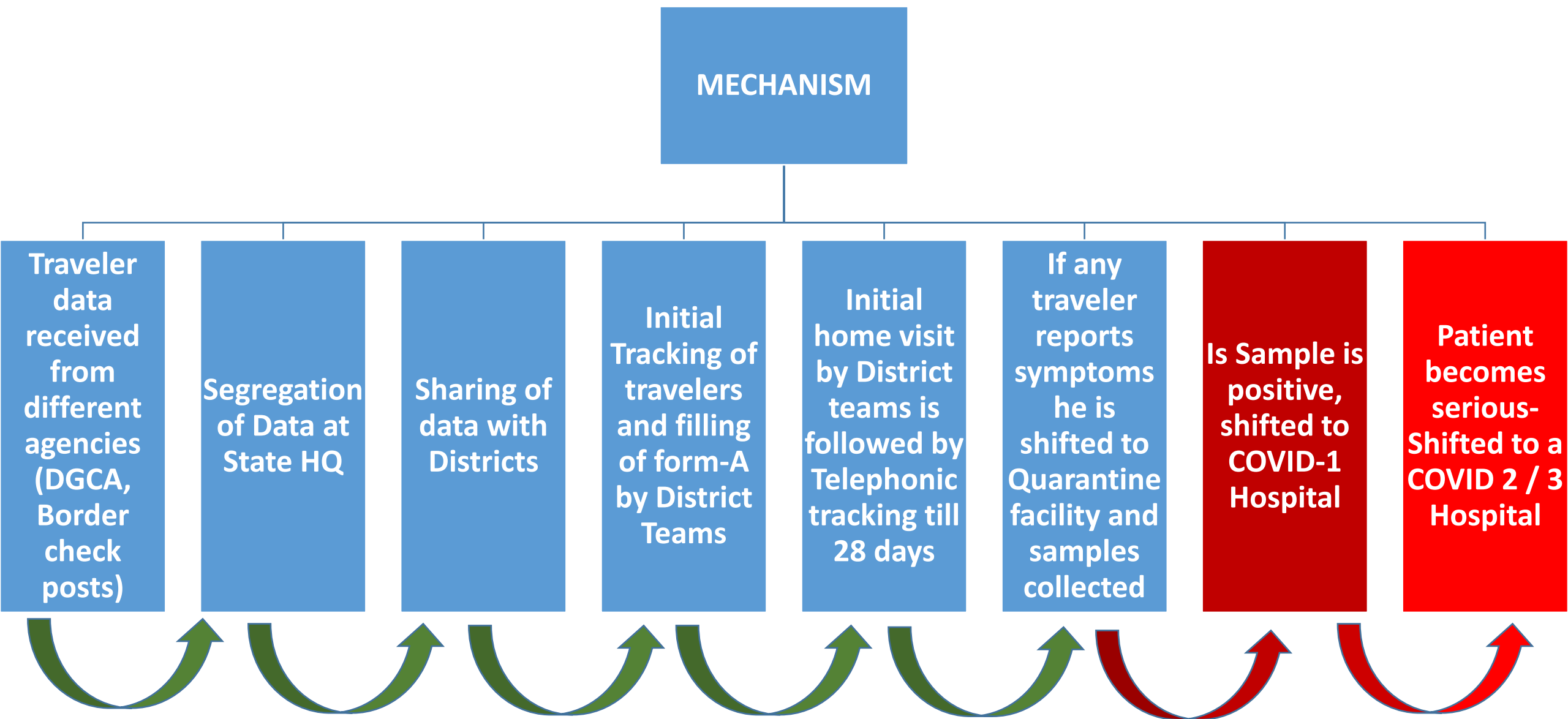


# Admission and quarantine protocols



# Admission and quarantine protocols

## MECHANISM



# Laboratory confirmation for COVID -19 (as per ICMR guidance)

## Whom to test

All **SYMPTOMATIC** (fever, cough, difficulty in breathing) individuals who have undertaken international travel in the last 14 days- Isolate and test

All **SYMPTOMATIC** contacts of laboratory confirmed cases.

All **SYMPTOMATIC** health care workers.

All **HOSPITALIZED PATIENTS WITH SARI** Severe Acute Respiratory Illness (fever AND cough and/or shortness of breath).

**ASYMPTOMATIC DIRECT AND HIGH-RISK CONTACTS** of a confirmed case should be tested once between day 5 and day 14 of coming in his/her contact

# Laboratory confirmation for COVID -19

## Where to test

2 Sample collection centres / District

At Designated Quarantine facility – For Persons who will be admitted at the quarantine facility

Another location decided by CMO/CMS – DH- For Persons who do not require institutional quarantine

# QUARANTINE

## QUARANTINE

Quarantine refers to separation of individuals who are **not ill yet** but have been **exposed to COVID-19** and therefore have a potential to become ill.

### *HOME QUARANTINE-14 Days*

- All persons with foreign travel history over past 14 days.
- Contacts of suspect cases.
- Persons who have come back to UP from different States

### *INSTITUTIONAL QUARANTINE-14 Days*

- All symptomatic suspects
- Close Contacts of confirmed cases.
- A minimum of one meter distance needs to be maintained between adjacent beds.
- All such patients need to wear a triple layer surgical mask at all times.
- All suspect cases can also be cohorted in separate wards maintaining adequate 1-metre distance between beds with clean bed linen and hand hygiene.

# QUARANTINE FOR HEALTH WORKERS

## ***Two Separate Quarantine locations for Staff posted in Quarantine***

- ***Facility for On Duty Staff***
- ***Facility for Off Duty Staff***

### ***ACTIVE QUARANTINE-14 Days***

- On duty Health staff of Covid Hospitals

### ***PASSIVE QUARANTINE-14 Days***

- Off duty Health staff of Covid Hospitals

- All Logistics for these facilities including transportation, Food, Water all Day to day use articles to be arranged by DM/CMO/CMS. Sufficient funds already allocated. More may be demanded if required.

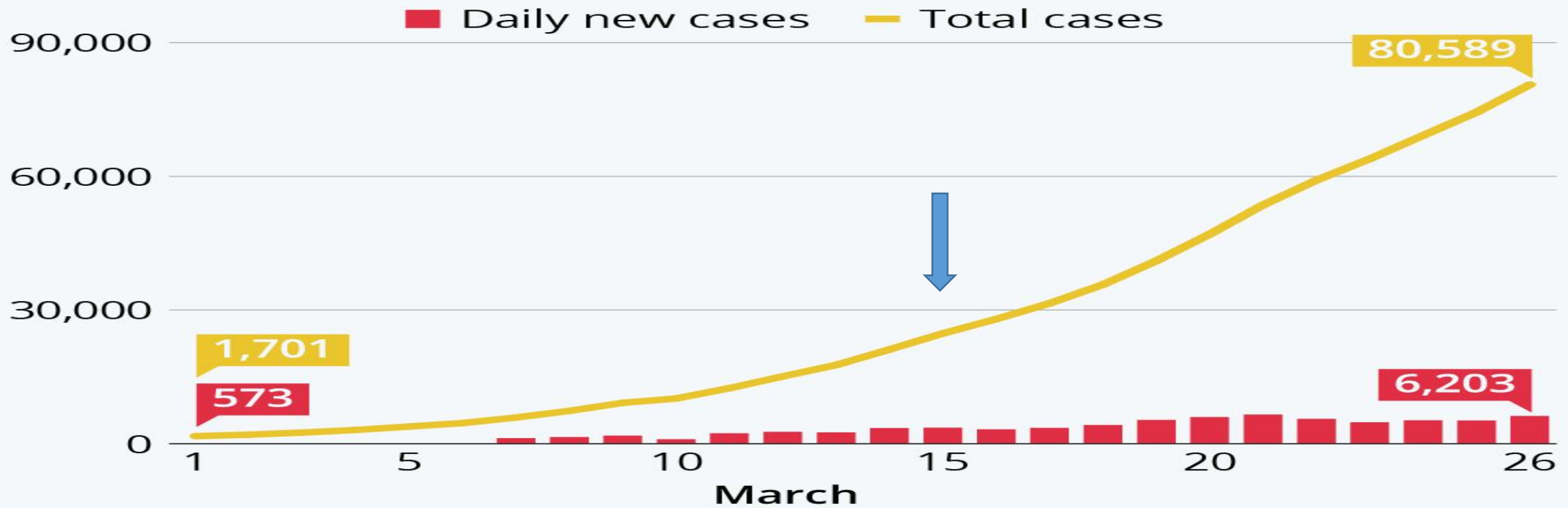
# ISOLATION

- Isolation refers to separation of individuals who **are confirmed for COVID-19**.
- There are various modalities of isolating a patient.
  - Ideally, patients can be isolated in individual isolation rooms .
  - In resource constrained settings, all positive COVID-19 cases can be cohorted in a ward with good ventilation
  - **Under no circumstances these cases should be mixed up with suspected cases**

# Strategy behind establishing dedicated L1, L2 and L3 COVID 19 Hospital

# COVID-19: Italy

Total number of COVID-19 cases and daily number of new cases in Italy



As of March 26, 2020

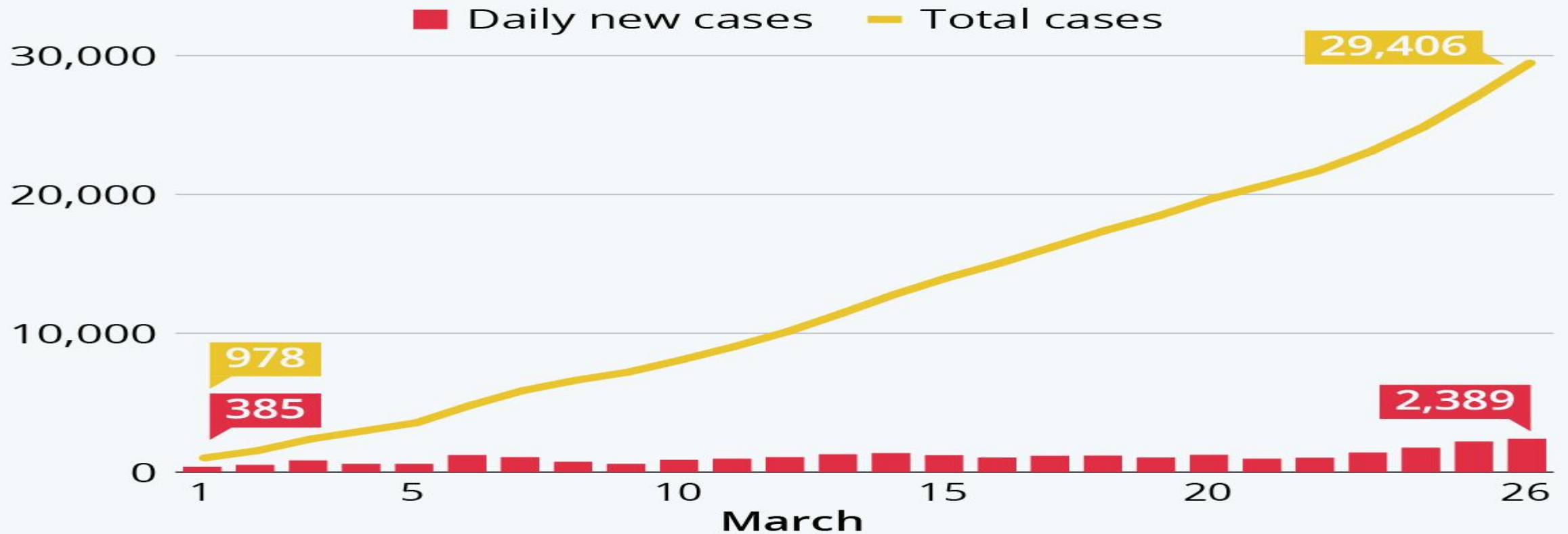
Source: Johns Hopkins University





# COVID-19: Iran

Total number of COVID-19 cases and daily number of new cases in Iran



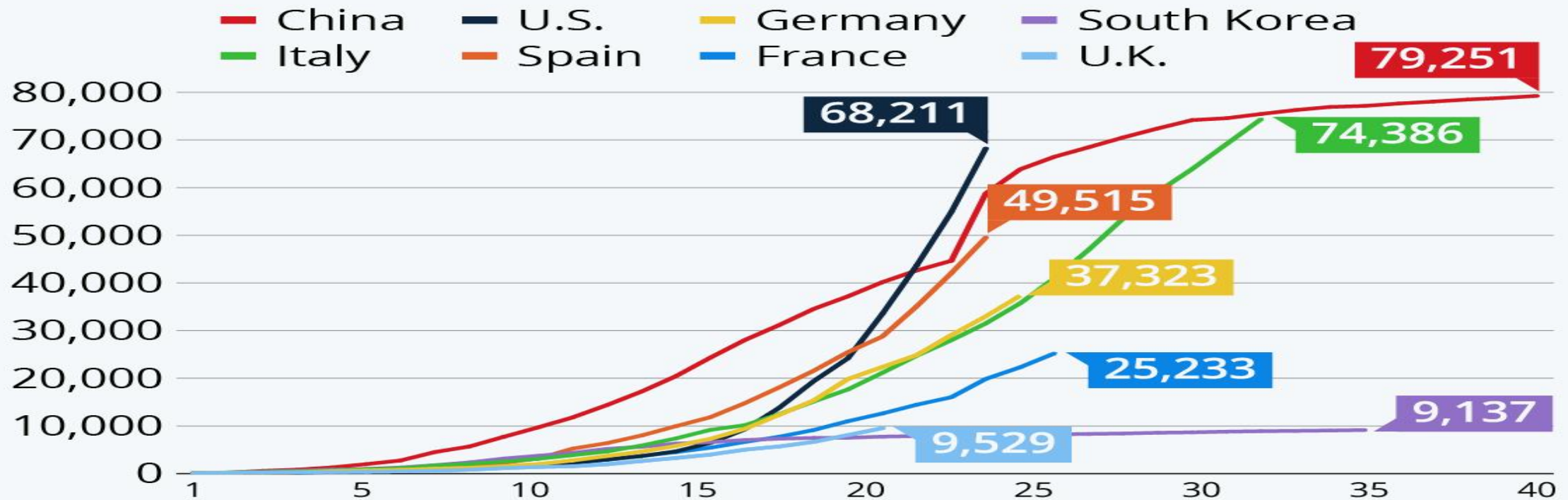
As of March 26, 2020

Source: Johns Hopkins University



# Coronavirus: Upward Trajectory or Flattened Curve?

Cumulative confirmed COVID-19 cases in selected countries from day 1 to 40 after 100+ cases



As of March 25, 2020

Source: Johns Hopkins University



# Strategies behind establishing dedicated L1, L2 and L3 Covid Hospitals

Novel corona virus has shown a tendency for remarkable spread after reaching a critical level.

If Symptomatics and Positive cases are not identified and isolated quickly, the infection becomes widespread.

In such a scenario, additional hospitals and quarantine facilities are required to isolate and treat the confirmed cases and to keep contacts in quarantine.

This is necessary to-

Prevent spread of the disease

To keep the other patients and hospital staff in an environment free of Covid-infection

To prevent general public getting infection from health care staff and Covid -19 patients.

To prevent community transmission.

To get ready for large number of patients if coming in future.

Ensure dedicated logistics and beds available at time of requirement.

# L -1 Facilities

# L -1 Facilities

- At least 1 dedicated CHC with  $\geq 30$  beds in each of the 75 districts.
- To admit and treat –
  - **ASYMPTOMATIC AND SYMPTOMATIC BUT UNCOMPLICATED POSITIVE CASES.**
  - COVID-19 positive patients who **DO NOT** require ICU and ventilatory support.
- In case, the condition of the patients deteriorate, then the patient should be referred to higher facilities in **ALS (108)** Ambulance.

# L -1 Facilities

प्रत्येक दल हेतु कोविड समर्पित एल1 चिकित्सा इकाईयों के लिए मानव संसाधनों की संरचना:

श्रेणी	संख्या
चिकित्सक	6
नर्स	6
फार्मासिस्ट	2
वार्ड बॉय	3
स्वीपर	6
लैब टेक्नीशियन	2
एक दल हेतु कुल संख्या	25

# L -1 Facilities

(3) मुख्य चिकित्साधिकारियों को निदेशित किया जाता है कि वे अनुलग्नक-3 के अनुसार इन कोविड समर्पित एल1 चिकित्सा इकाईयों में तैनात किये जाने वाले 50 स्टाफ को नाम एवं उनके इएचआरएमएस कोड से चिन्हित करें।

(4) मुख्य चिकित्साधिकारियों को यह सुनिश्चित करने हेतु भी निदेशित किया जाता है कि उक्त कार्मिक अच्छी प्रकार से प्रशिक्षित एवं समर्पित हों। यह जरूरी नहीं है कि ये कार्मिक उसी चिकित्सा इकाई में पूर्व से तैनात हों, बल्कि निपुणता, दक्षता व परिपक्वता/अनुभव के मानदण्ड के आधार पर इनका चयन जनपद के किसी भी चिकित्सालय में तैनात कार्मिकों में से किया जा सकता है। किसी भी अन्य चिकित्सा इकाई में तैनात कार्मिकों की अनुभव व उपयुक्तता के आधार पर आवश्यकता के दृष्टिगत कोविड समर्पित एल1 चिकित्सा इकाई में उनकी अस्थायी तैनाती जिलाधिकारी के अनुमोदन से किया जा सकेगा। उक्तानुसार गठित प्रत्येक दल का वरिष्ठतम चिकित्सक उक्त कोविड समर्पित एल1 चिकित्सा इकाई में अपनी तैनाती के दौरान प्रभारी के रूप में कार्य करेगा।

# L-1 Facilities

## 5. सक्रिय एवं निष्क्रिय संगरोध टीम की तैनाती

### (1) निष्क्रिय संगरोध सुविधा (Passive Quarantine facility)

जब एल-1 फ़ैसिलिटी पर कोरोना वायरस संक्रमित रोगी के उपचार हेतु दल-1 कार्यरत रहेगा, तो दल-2 निष्क्रिय संगरोध फ़ैसिलिटी में होगा। जिलाधिकारी/मुख्य चिकित्साधिकारी/मुख्य चिकित्सा अधीक्षक द्वारा यह सुनिश्चित किया जाए कि दल-2 – निष्क्रिय संगरोध फ़ैसिलिटी के पूरे दल हेतु 15 दिनों की अवधि तक के लिए ठहरने के लिए अलग शौचालय की सुविधा सहित उपयुक्त व्यवस्था सुनिश्चित की जाए। इस अवधि के दौरान, दल-2 के समस्त सदस्य इन चिन्हित निष्क्रिय संगरोध सुविधाओं में ही रहेंगे। उक्त अवधि के दौरान निष्क्रिय संगरोध फ़ैसिलिटी में आवश्यक भोजन, पानी एवं सुरक्षा की व्यवस्था की जाए। 15वें दिन सेवा देने के पश्चात् दल-2 को निष्क्रिय संगरोध सुविधा से सक्रिय संगरोध फ़ैसिलिटी में जाने के लिए परिवहन की व्यवस्था सुनिश्चित की जाए।

### (2) सक्रिय संगरोध (Active Quarantine)

कोविड समर्पित एल-1 चिकित्सा इकाईयों पर तैनात टीम के वे सदस्य/स्टॉफ जिन्होंने अपनी पाली (Shift) पूर्ण कर ली हो, यह प्रयास किया जाय उनके ठहरने की व्यवस्था एल-1 फ़ैसिलिटी के आवासीय परिसर में ही मुख्य चिकित्साधिकारी द्वारा किया जाय। एल-1 परिसर में स्थित आवासों की आवश्यकतानुसार मुख्य चिकित्साधिकारी द्वारा मरम्मत भी कराया जा सकता है। चिन्हित सक्रिय संगरोध सुविधा में आवश्यक भोजन, पानी एवं सुरक्षा की व्यवस्था की जाए। आवश्यकतानुसार टीम के सदस्यों हेतु सक्रिय संगरोध से एल-1 फ़ैसिलिटी के आने व जाने के लिए परिवहन की व्यवस्था सुनिश्चित की जाए।

ठहरने, मरम्मत इत्यादि की व्यवस्था के लिए धनराशि चिकित्सा एवं स्वास्थ्य महानिदेशालय, उ0प्र0 द्वारा उपलब्ध करायी जायेगी।



# L -1 Facilities

## स्टाफ का प्रशिक्षण :

- (1) मुख्य चिकित्साधिकारियों द्वारा अपने-अपने जनपदों में चिन्हित मास्टर ट्रेनर (प्रति जनपद 02 चिकित्सक एवं 02 नर्स) को कोविड महामारी के दौरान अपनाये जाने वाले प्रोटोकाल पर राज्य मुख्यालय से वीडियो-कान्फ्रेंसिंग के माध्यम से दिनांक 25.03.2020 को प्रशिक्षण प्रदान किया गया था, जिनकी सूची अनुलग्नक-7 पर संलग्न है। इन मास्टर ट्रेनर्स का द्वितीय प्रशिक्षण सत्र दिनांक 27.3.2020 को अपराह्न 3.00 बजे वीडियो कान्फ्रेंसिंग के माध्यम से आयोजित किया गया।
- (2) उक्त दल-1 एवं दल-2 हेतु चिन्हित सभी 50 स्टाफ सदस्यों को मास्टर ट्रेनरों द्वारा दिनांक 30 मार्च, 2020 तक कम से कम दो सत्रों में प्रशिक्षण प्रदान किया जायेगा। उचित प्रशिक्षण के बिना किसी भी व्यक्ति की तैनाती कोविड समर्पित चिकित्सालयों में नहीं की जायेगी। उक्त प्रशिक्षण मुख्य चिकित्साधिकारी अथवा अन्य किसी वरिष्ठ चिकित्साधिकारी की देखरेख में सम्पन्न होगा।
- (3) मुख्य चिकित्साधिकारी द्वारा कोविड समर्पित एल1 चिकित्सा इकाई में तैनात किए जाने वाले प्रत्येक दल के सदस्यों के प्रशिक्षण से संबंधित सूचनाओं को अद्यतन करते हुए सुरक्षित रखा जायेगा।

## LOGISTICS

- All logistics are being transported to UPMSC warehouses in the Districts
- These will be readily made available to COVID- Hospitals as per requirement
- Necessary to stop misuse and indiscriminate distribution to non-eligible persons
- To ensure that Health staff gets these supplies when they require them

## OPERATIONALISATION

- Level 1 Hospitals to be made ready with all supplies by Sunday.
- Operationalization of Hospitals in Districts where we already have positive cases.
- As new cases will appear in other Districts, L1 Hospitals will be operationalized there.
- Initially , till the time L2 Hospitals are made operational, Serious patients will be referred to L3 Hospitals at Medical Colleges.

# L – 2 AND L3 FACILITIES

# L –2 Facilities

- A dedicated health facility at Distt. / DIVISIONAL LEVEL to manage any emergency case and referred cases from L1 Covid Hospitals
- All non complicated cases requiring ICU facilities.
- Availability of ventilators with adequate oxygen supply
- 1 MO and 2 nurses for every 25 beds.
- Separate entry and exit doors with adequate infection control logistics.
- Laboratory services - 8 AM to 8 PM
- X-ray technician on call

# L - 3 Facilities

- A dedicated health facility at Medical College to manage any emergency case.
- All complicated cases requiring ICU/ Ventilator facilities.
- There must be optimum number of ventilators with adequate oxygen in these facilities.
- Separate entry and exit doors with adequate infection control logistics.

# MOHFW GUIDELINES ON RATIONAL USE OF PERSONAL PROTECTIVE EQUIPMENT

S. No	Setting	Activity	Risk	Recommended PPE	Remarks
1	Triage area	Triaging patients Provide triple layer mask to patient.	Moderate	N 95 mask Gloves	Patients get masked.
2	Screening area help desk/ Registration counter	Provide information to patients	Moderate	N-95 mask Gloves	
3	Temperature recording station	Record temperature with hand held thermal recorder	Moderate	N 95 mask Gloves	
4	Holding area/ waiting area	Nurses / paramedic interacting with patients	Moderate	N 95 mask Gloves	Minimum distance of one meter needs to be maintained.
5	Doctors chamber	Clinical management (doctors, nurses)	Moderate	N 95 mask Gloves	No aerosol generating procedures should be allowed.
6	Sanitary staff	Cleaning frequently touched surfaces/ Floor/ cleaning linen	Moderate	N-95 mask Gloves	

# HEALTH FACILITY PREPAREDNESS



# ARAES FOR ATTENTION

- Orientation of the Health facility staff on hand hygiene, mask management and donning/doffing PPE and adequate supplies.
- Extreme care for Infection prevention measures
- Ensuring sufficient logistics are available at all times
- Ensuring all protocols are adhered to
- Staff nurses and Sweepers need most rigorous training for infection prevention
- Repeated Disinfection of floors, all surfaces, equipment and bio-medical waste (BMW) management with daily supervision as per guideline is essential for **protection of Staff**

# The Facility In-charge will need to review & plan

- Orientation of the Health facility staff on hand hygiene, mask management and donning/doffing PPE and adequate supplies.
- Case management including diagnostics and oxygen support-
  - Provide masks to the patient and advise cough etiquette & hand hygiene.
  - Isolation room with linkage for laboratory testing or Quarantine with follow up.
  - Provision of intensive care with ventilator support .

# FACILITY PREPAREDNESS

- **CMS/MS & CMO** will need to ensure procurement and availability of the following logistics:

- **PPE** like triple layer mask and N95 mask, goggles, gloves, alcohol hand-sanitizers and surface disinfectants like hypochlorite solution (bleach) in quantity to last at least 2 months.
- **Infra-red thermometer** or thermal scanner for measuring body temperature.
- **Pulse oximeter** for measuring pulse, P O<sub>2</sub> level and referral to an ICU with Ventilator if required.
- **Digital sphygmomanometer** for measuring blood pressure and digital glucometer.
- **Oxygen supply/** Oxygen concentrator with Oxygen delivery interfaces like Nasal cannula, nasal prongs, simple face mask, and mask with reservoir bag), Nebulizer machine and Ventilator/ ICU support.
- **Antibiotics** for pneumonia including Azithramycin, Amoxycillin with Clavalunic acid and cephalosporins.
- **Adjunct therapy:** drugs being used as for COVID-19: Hydroxychloroquine and Oseltamavir.
- **Additional supply** of Bed linen, towels etc. for quarantine / Isolation rooms.

The CMS of District Hospital along with CMO will need to review the COVID -19 preparedness of the hospital and assign specific responsibilities including:

- 1- COVID-19 Hospital Nodal officer,*
- 2- An Infection control team to review daily the ICP measures.*
- 3- 24 X 7 duty roster for health care staff.*

1. **Orientation** of facility health-care staff on Hand hygiene, donning/doffing of PPE and mask management
2. **Case management** including diagnostics, oxygen support, isolation ward and Quarantine
3. **Disinfection measures** of surfaces, equipment's and bio-medical waste management
4. **Notification**, record keeping and linkage with facility for Laboratory testing
5. **Provision for Intensive care (ICU)** with ventilator support

# STATE OF READINESS - REQUIREMENT/ EXPECTATIONS

- Availability of Logistics
- Inventory listing
- Functionality of equipment
- Disinfection and Waste disposal protocol with clear guidelines and responsibility delegation

## Identification of Isolation ward

- Identification and duty roster of staff for Isolation ward
- Additional training of Isolation staff

## Training of all Hospital Staff

- Clinicians
- Staff Nurses
- Pharmacists
- Laboratory personnel
- Cleaning staff

# Establishment of Isolation Ward

- Well ventilated (Windows to remain closed but functional exhaust fan should be available as per the size of the ward).
- Separate entry (Not common with other areas of the Hospital).
- Proper and clean toilets.
- Proper Hand-washing facility with elbow tap.
- Color coded dust-bins.
- Separate logistics available inside the ward-
  - Infra-red thermometer, PPE, N-95, Gloves, Triple layered masks, Alcohol based hand sanitizer, Surface Disinfectant, Waste disposal bags.
  - Proper Waste disposal as per Waste Disposal Guidelines (Waste not to be stored with other waste from the Hospital, to be handed over directly to the Waste disposal agency).
- All patients under isolation and Medical staff including the cleaning staff to use N-95.
- All Medical staff to use PPE inside this ward.

# Infection Prevention Control BMW Management

# Benefits of IPC



Protecting yourself



Protecting your patients



Protecting your family, community & environment



# 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

Ministry of Health & Family Welfare  
Government of India

**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 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 15 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

www.mohfw.nic.in  
www.mygov.in  
www.pmindia.gov.in

moHFWindia  
@MoHFW\_INDIA

http://ncdc.gov.in/  
@director\_NCDC

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# IPC strategies for preventing/limiting the spread of COVID-19

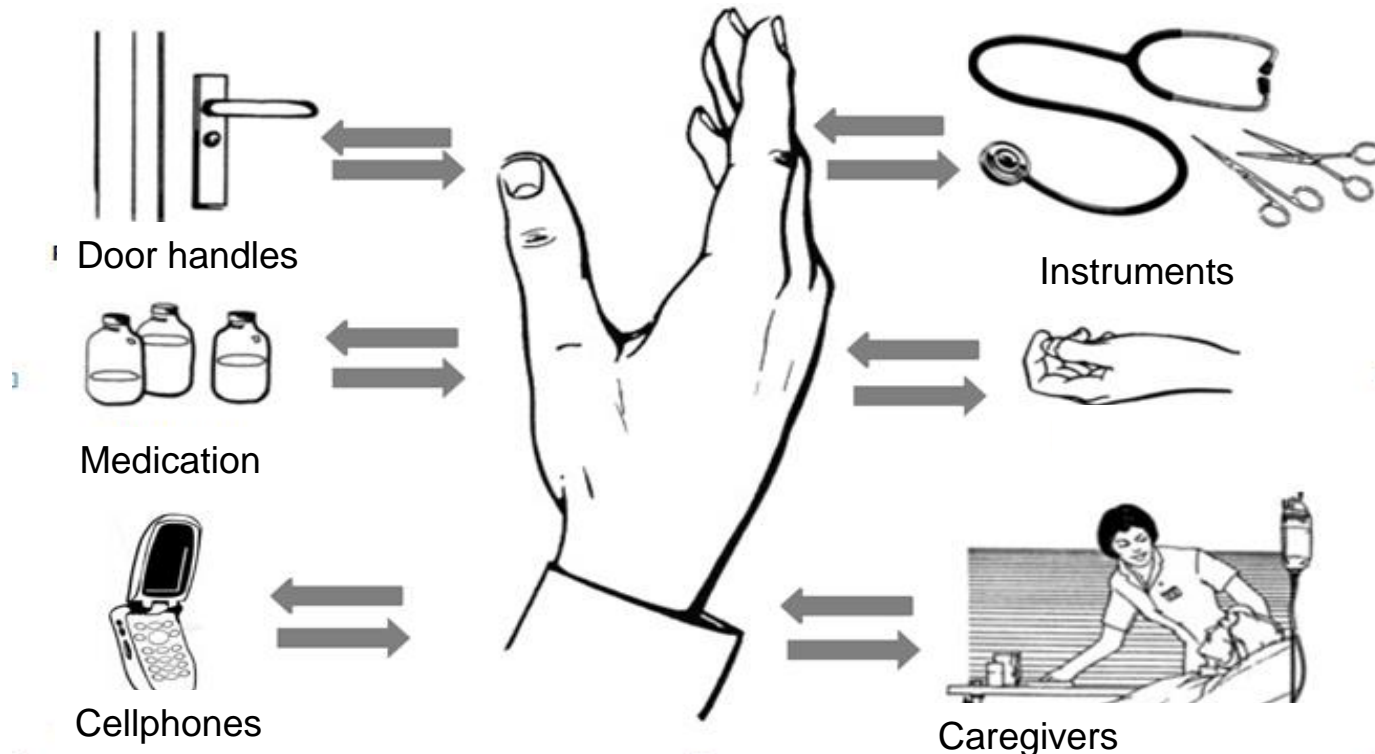
- Applying *standard precautions* for all patients
- Ensuring *triage, early recognition, and source control*
- Implementing empiric additional precautions for suspected cases of COVID-19 infection
- Implementing administrative controls
- Using *environmental* and engineering controls.

# Elements of Standard Precautions

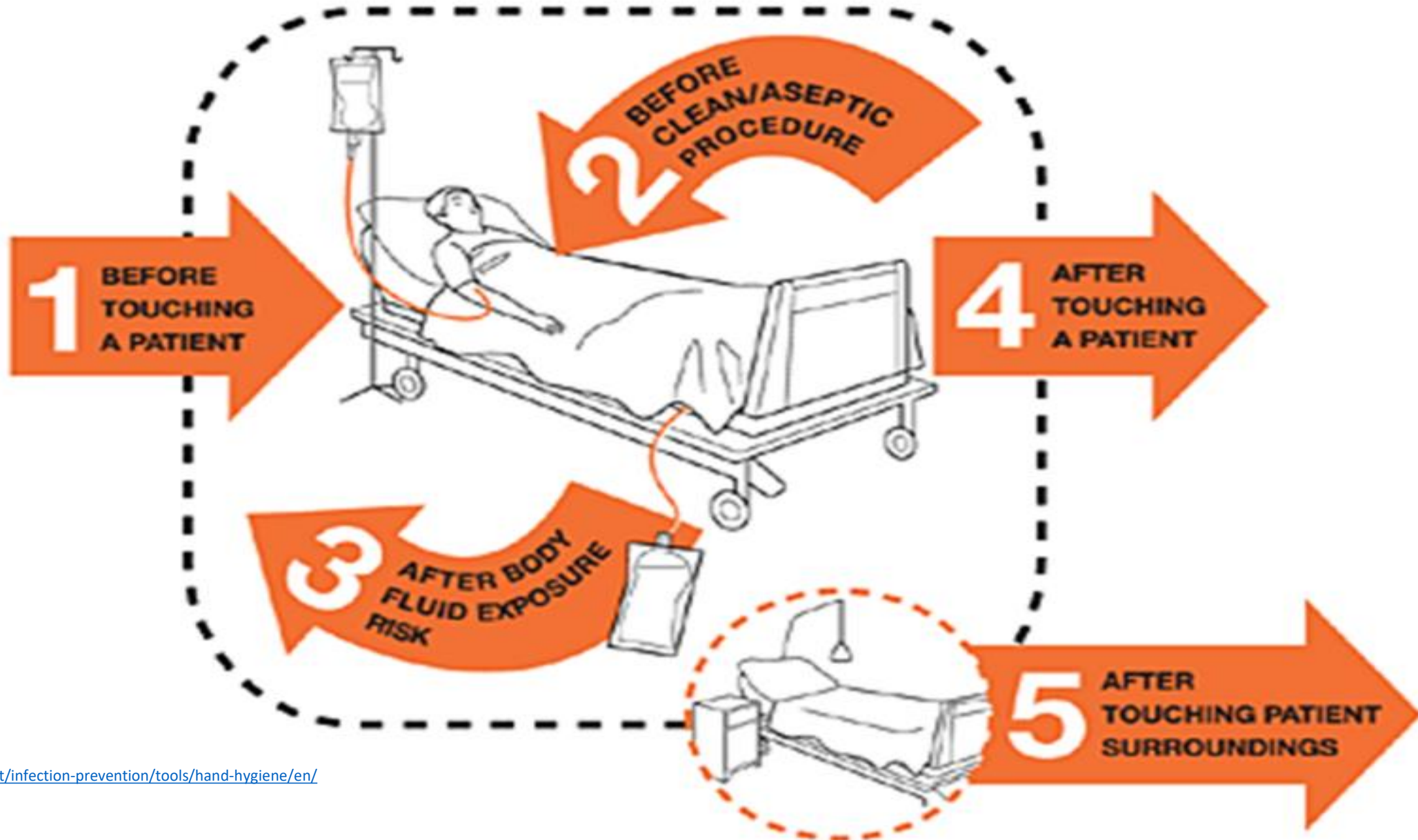
1. Hand hygiene
2. Respiratory hygiene (etiquette)
3. PPE according to the risk
4. Safe injection practices, sharps management and injury prevention
5. Safe handling, cleaning and disinfection of patient care equipment
6. Environmental cleaning
7. Safe handling and cleaning of soiled linen
8. Waste management

# Hand Hygiene

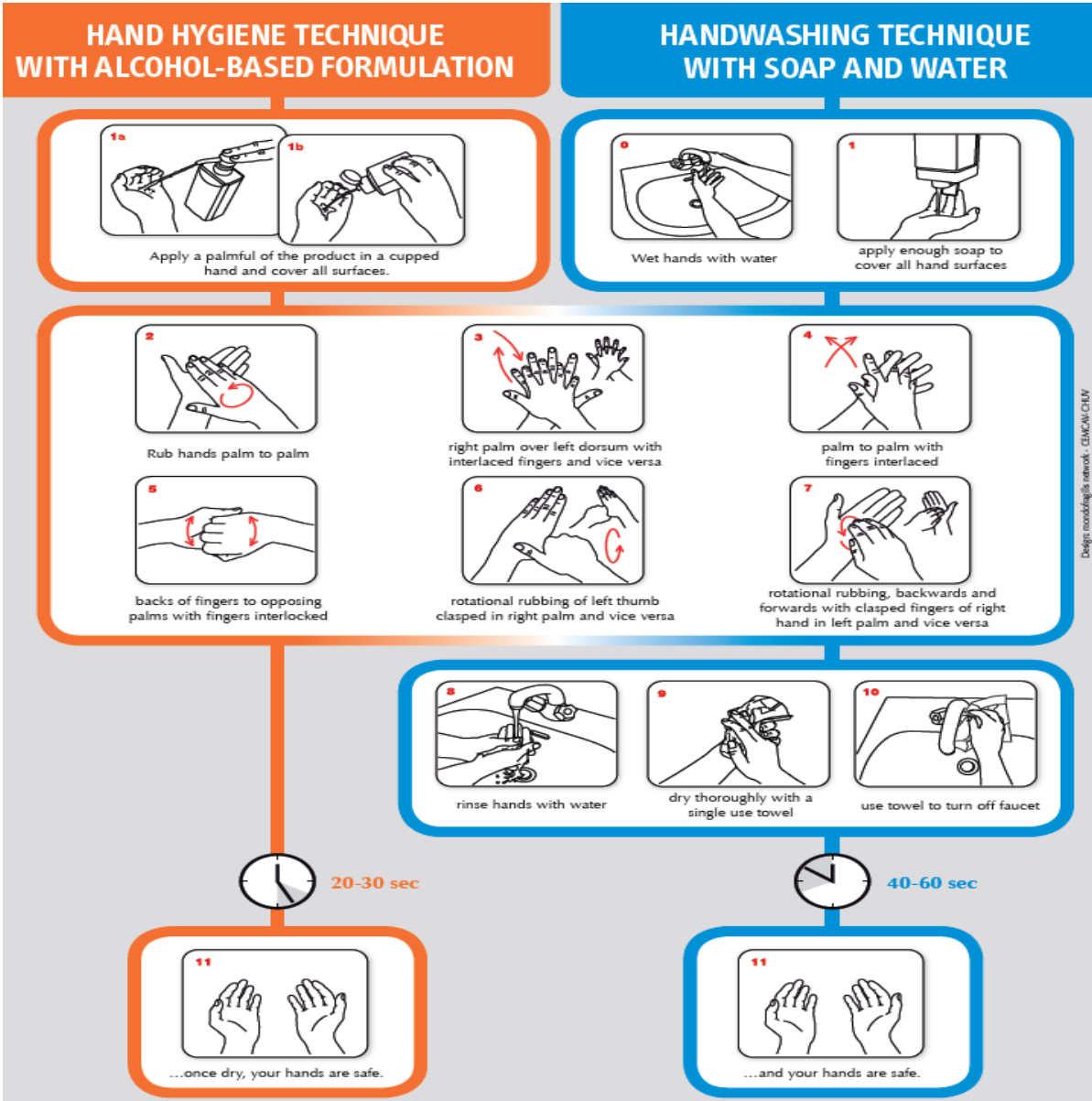
- Best way to prevent the spread of germs in the health care setting and community
- Our hands are our main tool for work as health care workers- and they are the key link in the chain of transmission.



# Hand hygiene: WHO 5 moments




# Hand hygiene: HOW

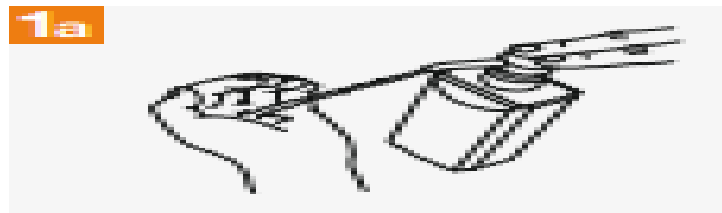


- Use appropriate product and technique
- An alcohol-based hand rub product is preferable, if hands are not visibly soiled
  - **Rub hands for 20–30 seconds!**
- Soap, running water and single use towel, when visibly dirty or contaminated with proteinaceous material
  - **Wash hands for 40–60 seconds!**

# How to handrub?

RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED

 Duration of the entire procedure: 20-30 seconds



Apply a palmful of the product in a cupped hand, covering all surfaces;



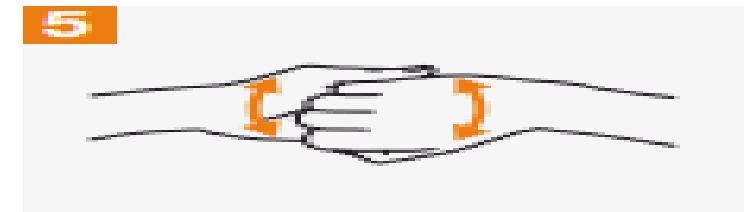
Rub hands palm to palm;



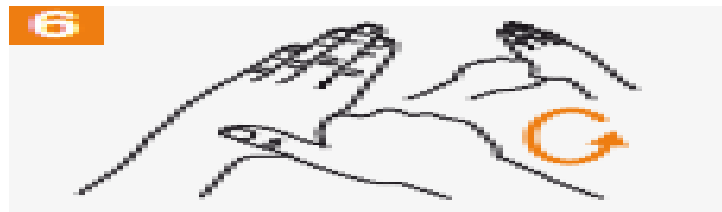
Right palm over left dorsum with interlaced fingers and vice versa;



Palm to palm with fingers interlaced;



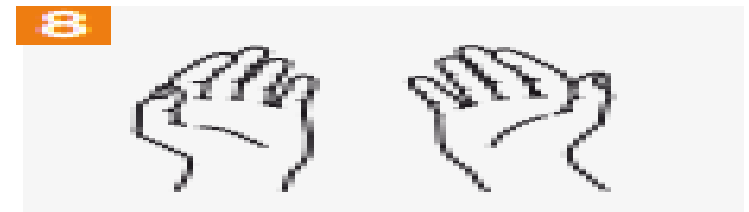
Backs of fingers to opposing palms with fingers interlocked;



Rotational rubbing of left thumb clasped in right palm and vice versa;



Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



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



Wet hands with water;



Apply enough soap to cover all hand surfaces;



Rub hands palm to palm;



Right palm over left dorsum with interlaced fingers and vice versa;



Palm to palm with fingers interlaced;



Backs of fingers to opposing palms with fingers interlocked;



Rotational rubbing of left thumb clasped in right palm and vice versa;



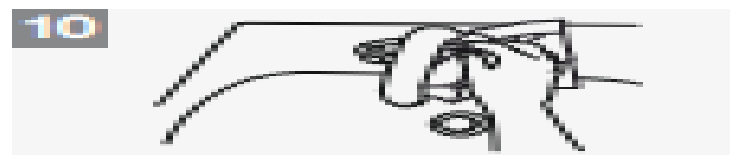
Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



Rinse hands with water;



Dry hands thoroughly with a single use towel;



Use towel to turn off faucet;



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



# 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**

# Donning and doffing of PPE

## Order of wearing the PPE

1. Footwear Cover
2. Body Gown
3. Headgear
4. Surgical Mask
5. Eye Goggles
6. Hand Gloves

## Order of removing PPE

- 1 Gloves
- 2 Gown
- 3 Eye Goggles
- 4 Mask
- 5 Head Gear
- 6 Shoe Cover

# MoHFW Guidelines on rational use of PPE for ambulances

Setting	Activity	Risk	Recommended PPE	Remarks
Ambulance Transfer to designated hospital	Transporting patients not on any assisted ventilation	Moderate risk	Gloves N 95 masks	
	Management of SARI patient while transporting	High risk	Full complement of PPE	When aerosol generating procedures are anticipated
	Driving the ambulance	Low risk	Triple layer medical mask gloves	Driver helps in shifting patients to the emergency

# Principles for using PPE

- 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
- Change PPE immediately if it becomes contaminated or damaged
- PPE should not be adjusted or touched during patient care; specifically

# Use of disinfectants

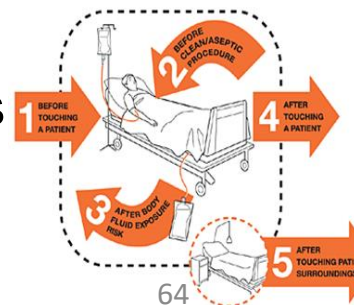
- Bleach (sodium hypochlorite) 1% for disinfection of material contaminated with body fluids
- Several concentrations may be marketed (e.g., 2.5%, 5%)
  - ❑ If 5% solution available, mix 1 part 5% solution with 5 parts clean water
  - ❑ If 2.5% solution available, mix 2 parts 2.5% solution with 5 parts clean water
- Clean and disinfect patient areas daily, with particular attention to frequently touched surfaces – counter tops, door handles, medical equipment.
- Use bleaching powder (16g/1L water as per state guideline) for disinfection of toilets/bathrooms

# 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 or ethanol, 70%) are effective and sufficient procedures. (Suggested frequency from state for disinfection every 3-4 hour)
- Medical devices and equipment, laundry, food service utensils and medical waste should be managed in accordance with safe routine procedures. (Suggested frequency from state, bed linen to be change with the shift of staff every 8 hourly)

# Patients suspected or confirmed COVID-19 (1)

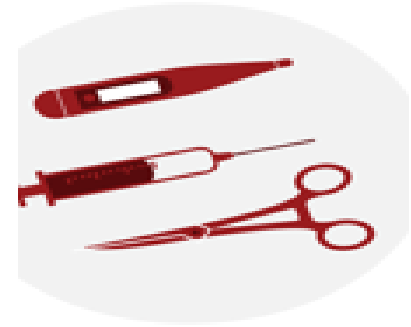
- **Contact and droplet precautions** for all patients with suspected or confirmed COVID-19
- Airborne precautions are recommended **only for aerosol generating procedures** (i.e. open suctioning of respiratory tract, intubation, bronchoscopy, cardiopulmonary resuscitation).
- Preferably patient should 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.



# 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 : 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 in 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

# BMW: Colour coding & treatment

<b>COLOR</b>	<b>TYPE OF CONTAINER</b>	<b>OPTION</b>	<b>WASTE CATEGORY</b>	<b>TREATMENT OPTION</b>
Yellow	Yellow plastic bag in plastic bin	Cat 1,2,3,5 6 & 10	Anatomical, animal, microbiology, soiled	Incineration/de ep burial / Plasma Pyrolysis
Red	Red plastic bag in plastic bin	Cat 7	Disposable items	Autoclave /microwave /chemical treatment
Blue	Blue Puncture proof box	Cat 4	Glassware / Metallic body implants	Disinfection / Autoclaving / Microwaving / Hydroclaving
Waste Sharps	Puncture proof, Leak proof, Tamper proof containers	Cat 4, Cat 9 & 10	Sharp metals discarded medicine, chemical & incineration ash	Autoclaving / dry heat sterilization followed by Shredding or Mutilationlandfil l

# 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

# THE LABORATORY TESTS FOR COVID-19 DISEASE

- **Sample:** The sample is collected from the nostril/throat using a nasopharyngeal viral swab with aseptic precaution.
  - **Screening Test:** This is a PCR (Polymerase chain reaction) test which detects the RNA of the virus. This can be positive for other viruses also.
  - **Confirmatory Test:** This is a “Reverse transcriptase test” which uses a probe to convert it into DNA and this is specific for the COVID-19 virus (SARS-COV2) and is the confirmatory test.
  - **The tests are available at government medical colleges,**
    1. KGMU Lucknow
    2. BHU Varanasi
    3. AMU, Aligarh in U.P
    4. SGPGI Lucknow
    5. LLRM Meerut
    6. Command Hospital ( for paramilitary and military)
- Results are usually available within 24-48 hours.



# **LABORATORY TESTS FOR COVID-19 DISEASE**

# Sample Collection – Nasopharyngeal Swab

- **RESPIRATORY MATERIAL\***

(nasopharyngeal and oropharyngeal swab in ambulatory patients and sputum (if produced) and/or endotracheal aspirate or bronchoalveolar lavage in patients with more severe respiratory disease)

- Tilt head backwards
- Insert flexible fine-shafted polyester swab into nostril and back to nasopharynx
- Leave in place a few seconds
- Withdraw slowly; rotating motion
- Over VTM

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UPTSU AND WHO-NPSP



# Transport medium.....

## Nasopharyngeal Secretions

- **VIRUS TRANSPORT MEDIA (VTM)**
- Allows organisms (pathogens and contaminants) to survive
- Non-nutritive - does not allow organisms to proliferate

# Labeling specimens

## OVER PRIMARY RECEPTACLE

1. Patient's name
2. Clinical specimen
3. Unique ID number  
(Research/Outbreak)
4. Specimen type
5. Date, time and place of collection
6. Name/ initials of collector

# Case investigation form

## EPIDEMIOLOGIST SENDS:

### Patient information

- Age (or date of birth), Sex, Complete address

### Clinical information

- Date of onset of symptoms, clinical history, risk factors or contact history where relevant

### Laboratory information

- acute or convalescent specimen
- other specimens from the same patient

Line listing – if large number of patients

# Transport regulations

- Transport of infectious substances is subject to strict national and international regulations:
  - proper use of packaging materials
  - proper labelling, notification
- Compliance:
  - reduces likelihood of damaging packages
  - minimizes exposure
  - improves carrier's efficiency and confidence in package delivery

# Triple packaging

- Main goals
  - protects the environment, the carrier
  - protects the sample
    - arrival in good condition for analysis
- If triple packaging not available
  - prepare according to international dangerous goods transportation rules (see IATA guidelines)

- Three layers of protection are needed:
  - primary receptacle
  - secondary packaging
  - outer packaging
- IATA shipping guidelines provide details about definitions, packaging requirements, markings and labels, accompanying documentation, notification protocols and refrigerants

# THE BASIC TRIPLE PACKAGING SYSTEM

## PRIMARY RECEPTACLE

- Leak-proof specimen container
- Packaged with sufficient absorbent material to absorb the entire content of the primary receptacle in case of breakage

## LEAK-PROOF SECONDARY CONTAINER

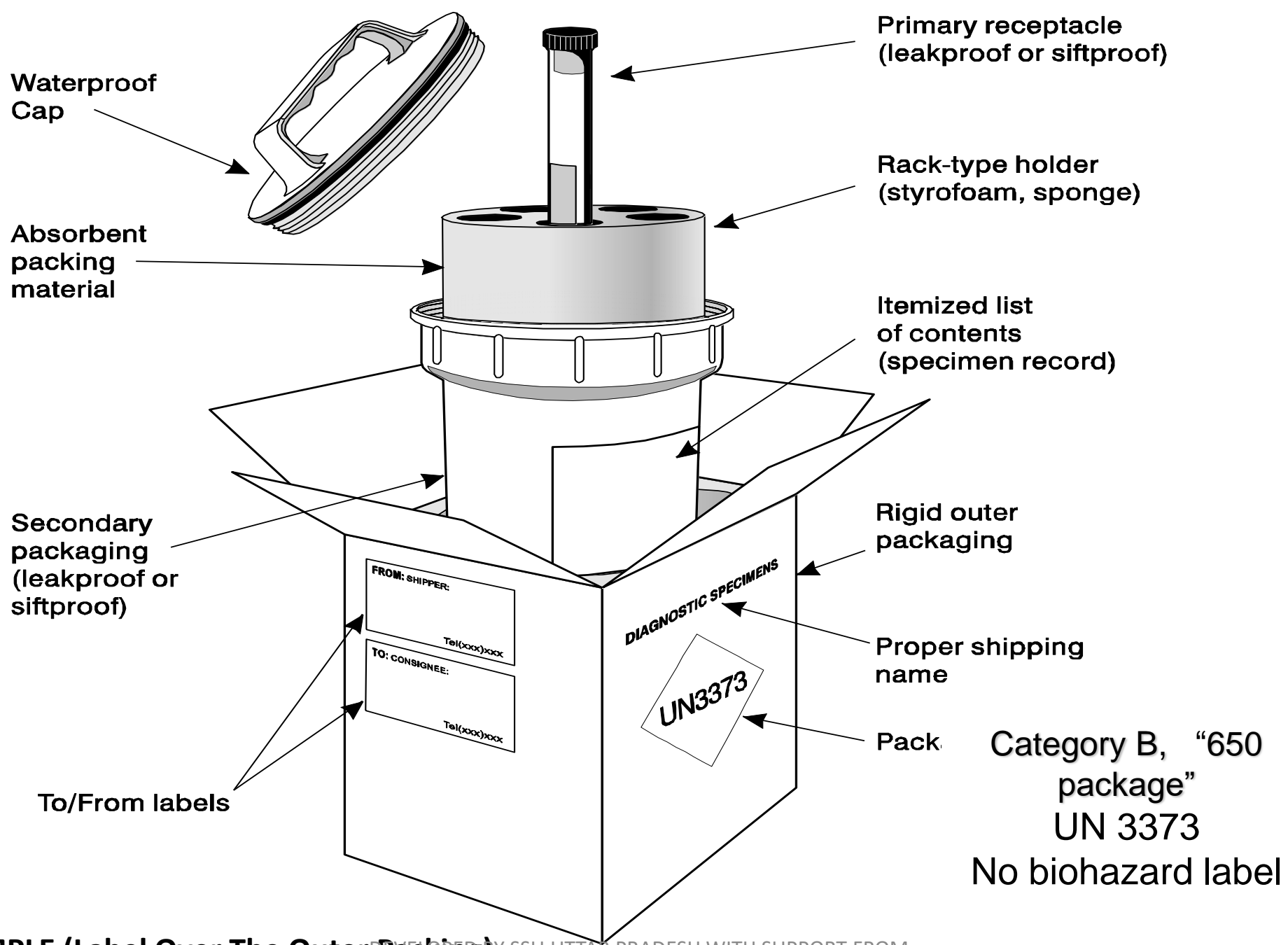
- Encloses and protects the primary receptacle(s)
  - several cushioned primary receptacles may be placed in one secondary packaging
  - sufficient additional absorbent material to absorb all fluid in case of breakage

## OUTER PACKAGING

- Secondary packaging(s) are placed in outer shipping packaging with suitable cushioning material
- Outer packaging protects contents from outside influences, physical damage, while in transit
- Smallest overall external dimension 10 x10 cm

## LABELING EXAMPLE (Label Over The Outer Packing)

Infectious substances, Category BIATA Packing Instruction 650, “Diagnostic specimens” (UN 3373)



**LABELING EXAMPLE (Label Over The Outer Packing)**

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# DETAILS ON THE OUTER PACKING OF SAMPLES

SAMPLE TO BE SENT TO-  
DEPARTMENT OF MICROBIOLOGY  
KGMU, LUCKNOW, UP  
Contact : Dr Danish M:98895 48323

## SENDER DETAILS AND ADDRESS WITH MOBILE NUMBER :

Name :  
Designation :  
Address :  
Mobile Number

LINE LIST AS BELOW

UN 3373 LABEL AS BELOW

Name of the District :

Name and number of DSO :

Name and number of Epidemiologist :

Total number of samples in the box :

### LINE LIST AS GIVEN BELOW

S.No.	Name of the Traveler	Naso - pharyngeal Swab (Yes/No)	Serum (Yes/No)	Whole Blood (Yes/No)

Category B, "650 package"  
UN 3373

# CLINICAL CASE MANAGEMENT

DEVELOPED BY SSU UTTAR PRADESH WITH SUPPORT FROM  
UPTSU AND WHO-NPSP

# Clinical case management

## L 1 FACILITIES

- Early supportive therapy and monitoring
  - Antibiotics and Antipyretics
  - Intravenous fluids
  - Oxygen Therapy
  - Refer to L2-L3 Level if there are any complications
- **80-85% of total patients will need only L1 Level support. They will recover and go back home**

## L 2-3 FACILITIES

- Early supportive therapy and monitoring
  - Antibiotics and Antipyretics
  - Intravenous fluids
  - Oxygen Therapy
  - Mechanical Ventilation of severe cases (40%)
  - Use of Oximeter highly recommended
  - Intubation, ICU, ECMO required for severe patients

# SEVERE ACUTE RESPIRATORY INFECTIONS (SARI): DIAGNOSIS

## MILD PNEUMONIA

Patient with pneumonia and no signs of severe pneumonia

Child with non-severe pneumonia has cough or difficulty breathing + fast breathing (in breaths/min): <2 months,  $\geq 60$ ; 2–11 months,  $\geq 50$ ; 1–5 years,  $\geq 40$

## SEVERE PNEUMONIA

**Adolescent or adult:** fever or suspected respiratory infection, **plus** one of respiratory rate  $>30$  breaths/min, severe respiratory distress, **or** SpO<sub>2</sub>  $<90\%$  on room air

**Child** with cough or difficulty in breathing, plus at least one of the following: central cyanosis or SpO<sub>2</sub>  $<90\%$ ; 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.

## 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

# SARI Management: Oxygen support

MILD PNEUMONIA

SEVERE PNEUMONIA

ACUTE RESPRATORY DISTRESS SYNDROME



**MANAGE\***



## Early supportive therapy and monitoring

- ✓ Initiate oxygen therapy at 5 L/min and titrate flow rates to reach target SpO<sub>2</sub> ≥ 90% in non-pregnant adults and SpO<sub>2</sub> ≥ 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 SpO<sub>2</sub> ≥ 94%; otherwise, the target SpO<sub>2</sub> is ≥ 90%
- ✓ Start empiric antibiotics if you suspect sepsis but do not do fluid overload. Send sample for blood culture for sensitivity but do not delay start of antibiotics for testing. Do not use steroids routinely.

## 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; FiO<sub>2</sub> 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

# Discharge policy for admitted nCoV positive patients

## A. Case Scenario 1 : Admission

- 1<sup>st</sup> Sample Collection-Negative  
Patient to be discharged after becoming asymptomatic
- Follow up for 28 days

## B. Case scenario 2: Admission

- a. 1<sup>st</sup> Sample Collection-positive  
Patient to be kept admitted
- b. 2<sup>nd</sup> Sample to be taken after the patient becomes asymptomatic. If – Negative,
- c. 3<sup>rd</sup> Sample to be taken after 24 hours of 2<sup>nd</sup> Sample. If – Negative then discharge if patient is Clinically stable
- d. If any of the 2<sup>nd</sup> or 3<sup>rd</sup> samples is positive, repeat sampling till you get 2 negative samples 24 hours apart
- e. Discharge if patient is Clinically stable
- f. Follow up for 28 days

# Policy for disposal of dead-bodies of nCoV positive patients

# Policy for disposal of dead-bodies of nCoV positive

## Removal of the body from the isolation room or area

- The health worker attending to the dead body should perform hand hygiene, ensure proper use of PPE (water resistant apron, goggles, N95 mask, gloves).
- All tubes, drains and catheters on the dead body should be removed.
- Any puncture holes or wounds (resulting from removal of catheter, drains, tubes, or otherwise) should be disinfected with 1% hypochlorite and dressed with impermeable material.
- Apply caution while handling sharps such as intravenous catheters and other sharp devices. They should be disposed into a sharps container.
- Plug Oral, nasal orifices of the dead body to prevent leakage of body fluids.
- If the family of the patient wishes to view the body at the time of removal from the isolation room or area, they may be allowed to do so with the application of standard precautions.



## Policy for disposal of dead-bodies of nCoV positive cont...

- Place the dead body in leak-proof plastic body bag. The exterior of the body bag can be decontaminated with 1% hypochlorite. The body bag can be wrapped with a mortuary sheet or sheet provided by the family members. The body will be either handed over to the relatives or taken to mortuary.
- All used/ soiled linen should be handled with standard precautions, put in biohazard bag and the outer surface of the bag disinfected with hypochlorite solution.
- Used equipment should be autoclaved or decontaminated with disinfectant solutions in accordance with established infection prevention control practices.
- All medical waste must be handled and disposed of in accordance with biomedical waste management rules.

# Policy for disposal of dead-bodies of nCoV positive cont.....

- The health staff who handled the body will remove personal protective equipment and will perform hand hygiene.

## **Environmental cleaning and disinfection**

- All surfaces of the isolation area (floors, bed, railings, side tables, IV stand, etc.) should be wiped with 1% Sodium Hypochlorite solution; allow a contact time of 30 minutes, and then allow to air dry

# Policy for disposal of dead-bodies of nCoV positive patients cont...

## Handling of dead body in Mortuary

- Mortuary staff handling COVID dead body should observe standard precautions.
- Dead bodies should be stored in cold chambers maintained at approximately 4°C.
- The mortuary must be kept clean. Environmental surfaces, instruments and transport trolleys should be properly disinfected with 1% Hypochlorite solution.
- After removing the body, the chamber door, handles and floor should be cleaned with sodium hypochlorite 1% solution.

## Embalming

- Embalming of dead body should not be allowed.

# Autopsies on COVID-19 dead bodies

# Autopsies on COVID-19 dead bodies

**Autopsies should be avoided.** If autopsy is to be performed for special reasons, the following infection prevention control practices should be adopted:

- The Team should be well trained in infection prevention control practices.
- The number of forensic experts and support staff in the autopsy room should be limited.
- The Team should use full complement of PPE (coveralls, head cover, shoe cover, N-95 mask, goggles / face shield).
- Round ended scissors should be used
- PM40 or any other heavy duty blades with blunted points to be used to reduce prick injuries
- Only one body cavity at a time should be dissected
- Unfixed organs must be held firm on the table and sliced with a sponge – care should be taken to protect the hand
- Negative pressure to be maintained in mortuary. An oscillator saw with suction extraction of the bone aerosol into a removable chamber should be used for sawing skull, otherwise a hand saw with a chain-mail glove may be used
- Needles should not be re-sheathed after fluid sampling – needles and syringes should be placed in a sharps bucket.
- Reduce aerosol generation during autopsy using appropriate techniques especially while handling lung tissue

# NOTIFICATION

- All suspect cases and contacts to be notified to the **District Surveillance Officer (DSO)**, **IDSP** and the CMO at the District Control Room by the health facility/ hospital nodal officer on daily basis.
- The DSO will coordinate the sample collection, contact tracing and testing of the cases for COVID-19. All cases and contacts will be line listed and tracked for follow up.

## **FOR ANY INFORMATION REGARDING COVID 19 CONTACT**

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**E-MAIL ID FOR FOR ALL NOVEL CORONA VIRUS COMMUNICATION**

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**THANK YOU**