Managing an Obstetric Practice During COVID-19

FOOD, DRUGS & MEDICO SURGICAL EQUIPMENT COMMITTEE FOGSI

2020

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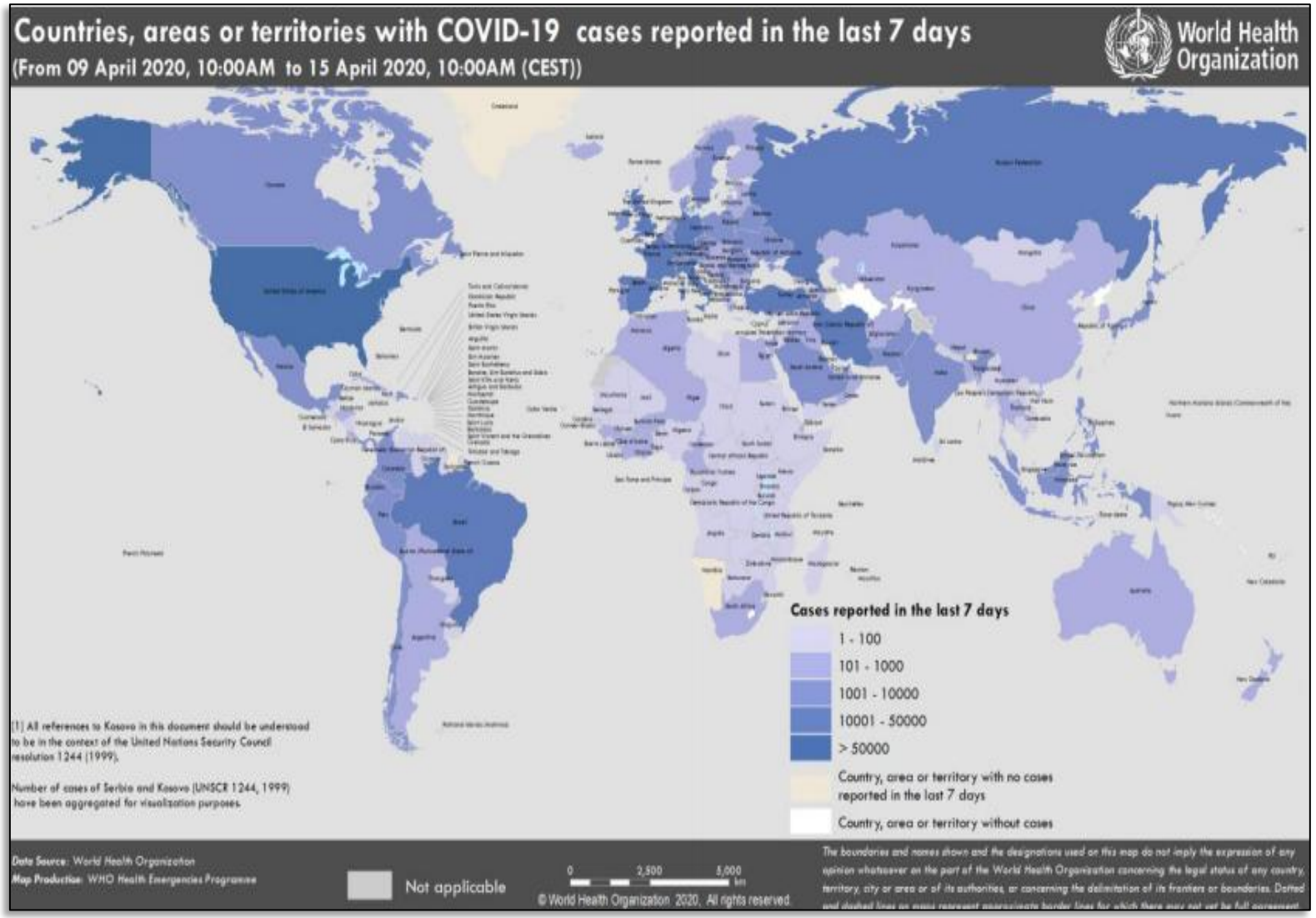
COVID-19

- Novel Coronavirus disease is known as COVID-19
- Caused by a newly discovered coronavirus: SARS-CoV-2
- Covid-19 was declared a pandemic by WHO on11th March 2020

https://www.who.int/health-topics/coronavirus#tab=tab_1

GLOBAL SCENARIO AS PER WHO



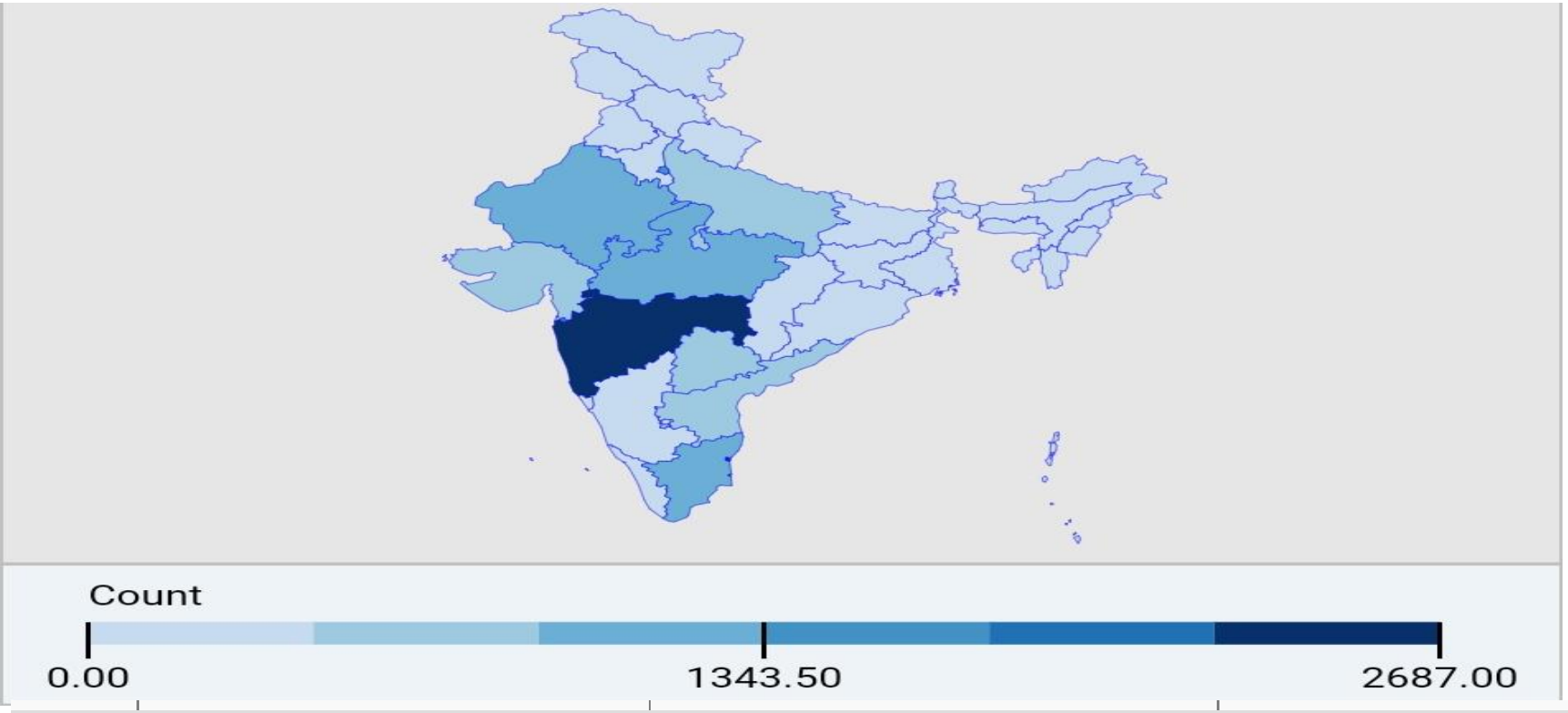
Coronavirus disease 2019
Situation Report – 86.
15.04.2010

Issued by WHO

Globally there are 1 914 916
confirmed cases
& 123 010 deaths recorded

INDIA & COVID-19

from MINISTRY OF HEALTH & FAMILY WELFARE: as on 16 April 2020, 08:00am



Maharashtra: 2916 cases.

Delhi: 1578 cases.

Tamil Nadu: 1242 cases.

Rajasthan: 1023 cases

Total number of confirmed cases in India	12380*	1489 Cured	414 Dead

https://www.mohfw.gov.in/

COVID-19

Disease caused by the SARS-CoV-2 virus

Novel coronavirus

Coronaviruses are viruses that circulate among animals but some of them are also known to affect humans.

The 2019 novel coronavirus was identified in China at the end of 2019 and is a new strain that has not previously been seen in humans.

Prevention

When visiting affected areas

- Avoid contact with sick people
- Wash your hands with soap and water
- If you develop cough, use a medical face mask

Wherever you travel apply general hygiene rules

Symptoms

- FEVER
- COUGH
- DIFFICULTY BREATHING
- MUSCLE PAIN
- TIREDNESS

Transmission

VIA RESPIRATORY DROPLETS

2–14 days

estimated incubation period

ecdc.europa.eu/en/novel-coronavirus-china

COVID-19 and PREGNANCY

Pregnancy: COVID 19 risk

- No evidence to show that pregnant women are at higher risk.
- Pregnancy can bring about changes in the body and immune system, it is presumed that pregnant women might be affected by respiratory infections.
- Pregnant women need to adopt precaution to protect themselves.
- Pregnant need to advised to report fever, cough or difficulty breathing etc. to their healthcare providers.

Measures for Pregnant Women to Prevent COVID19 Infection from spreading

- Pregnant women should avoid any unnecessary visits to a hospital for routine antenatal checkups unless indicated or called by their physicians.
- Working women should preferably work from home.
- When visiting a hospital women should wear a mask, keep a sanitizer handy.
- While in a health care setting women should keep a distance of at least one meter from other patients and any health care worker
- Avoid travelling, if necessary use a private vehicle.
- Avoid gatherings and functions
- Minimize visitors and attendants from coming to meet the mother and newborn after delivery.

"Do the Five" may prevent COVID-19 in pregnant women

Home	• Stay at home as much as possible unless there is a medical need related to development of symptoms of infection or related to pregnancy. • Routine antental visits are to be deferred. If there is a minor query, it can be sorted out telephonically. At present, telephonic consultations are permitted by the Medical Council of India till the situation comes under control • Keep the traffic of home visitors including homecare personnel, maids, and staff members to a minimum or avoid completely if possible.
Hands	Washing their hands frequently and properly with a soap and water or an alcohol-based hand rub for minimum 20 seconds
Elbow	Covering their mouth and nose with their bent elbow, handkerchief or tissue while coughing or sneezing. Then the used tissue should be disposed immediately. This is an important component of respiratory hygiene.
Face	Avoid touching face, eyes, nose and mouth with hands.
Space	Keep a distance of at least 1 meter from the next person outside and in the house.

Hand Hygiene can help prevent infection

- Hand hygiene includes use of alcohol-based hand sanitizer that contains 60% to 95% alcohol:
  - before and after all patient contact,
  - before and after contact with potentially infectious material,
  - before putting on and
  - upon removal of PPE, including gloves.
- It can also be performed by washing with soap and water for at least 20 seconds.
- If hands are visibly soiled, use soap and water before returning to alcohol-based hand sanitizer.

Personal Protective Equipment: for COVID-19

- **Respiratory protection**:
  - Triple layered surgical mask.
  - N95 facemasks.
  - These are needed when performing an aerosol-generating procedure or in an area where neonates are being provided respiratory support by CPAP device/ventilator.
- **Eye protection:**
  - Goggles (will not be usable by those using vision glasses) or face shield.
- **Body protection :**
  - Long-sleeved water-resistant complete gown including head and shoe cover. A single piece head to toe water resistant body cover will be ideal for attending resuscitation in delivery room or OT.
  - Hand protection
  - Well-fitting gloves.

Steps of Wearing PPE (Donning)

- Before wearing the PPE for managing a suspected or confirmed COVID-19 case, proper hand hygiene should be performed. The gown should be donned first.
- The mask or respirator should be put on next and properly adjusted to fit; remember to fit check the respirator.
- The goggles or face shield should be donned next and the gloves are donned last.
- Keep in mind, the combination of PPE used, and therefore the sequence for donning, will be determined by the precautions that need to be taken.

Steps in Removing PPE (Doffing)

- Wearing the PPE correctly will protect the healthcare worker from contamination.
- After the desired procedure is performed, removal of PPE is a critical step in order to avoid self-contamination because the PPE could be contaminated.

- The gloves are removed first because they are considered a heavily contaminated item. Use of alcohol-based hand disinfectant should be considered before removing the gloves. Dispose of the gloves in a biohazard bin.
- After the removal of gloves, hand hygiene should be performed, and a new pair of gloves should be worn to further continue doffing procedure. Using a new pair of gloves will prevent selfcontamination. Unbuttoning of the backside of the gown, performed by an assistant. Removal of gown to be performed by grabbing the back side of the gown and pulling it away from the body. Single-use gowns can now be disposed of; reusable gowns have to be placed in a bag or container for disinfection.
- After the gown, the goggles should be removed and either disposed if they are single-use, or placed in a bag or container for disinfection. In order to remove the goggles, a finger should be placed under the textile elastic strap in the back of the head and the goggles taken off. Touching the front part of the goggles, which can be contaminated, should be avoided. If goggles with temples are used, they should be removed as per manufacturer's recommendations.

Steps in Removing PPE (Doffing) contd..

- The respirator/ mask should be removed next. In order to remove the respirator/mask, a finger or thumb should be placed under the straps in the back and the respirator taken off. The respirator (or the surgical mask) should be disposed of after removal. It is important to avoid touching the respirator/mask with the gloves (except for the straps) during its removal.
- The last PPE items that should be removed are the new set of gloves that were worn after disposal of the contaminated gloves. Use of alcohol-based solution should be considered before removing the gloves. The gloves should be removed Dispose of the gloves in a biohazard bin.
- After glove removal, hand hygiene should be performed.

SOP for Screening of all patients with COVID Questionnaire at COVID screening desk

1. Do not touch the patient or her papers
2. Maintain a distance of two meter between the patient, other patients and yourself
3. Ensure vehicle is kept waiting till questionnaire is complete
4. Ensure patient/attendant do not directly go to the labor room triage area without screening
5. Ensure patient has understood the importance of going to and reaches COVID clinic
6. Handover the questionnaire to the patient
7. Complete the documentation

COVID Screening Questionnaire Negative

1. Provide a mask to the patient and the attendant
2. Handover the questionnaire
3. Complete the documentation
4. Shift to Triage new OBG Block, inform resident on duty to receive patient if emergency.

COVID Screening Questionnaire Positive

- Provide a mask to the patient and the attendant
- Handover the questionnaire
- Complete the documentation
- Shift to COVID/ fever clinic, old OPD Block, inform resident on COVID duty to be ready to receive patient if its an emergency.
- Patient to be shifted ensuring that patient does not enter the hospital and goes directly to main isolation ward in her own vehicle
- Patient will undergo workup with level 3 protection and treated as COVID positive awaiting results.
- Once results are available patient will be shifted back to new OBG block if negative and managed in COVID Isolation Labor Room and OT if she is positive.

Questionnaire for Screening of COVID Suspected Patients

Name : W/O:

Age: Phone No.: Address:

Q1. **Does the patient currently have or had in the past any symptoms of Severe Acute Respiratory Illness requiring hospital admission:**

Fever with cough **Yes / No**

Fever with shortness of breath **Yes / No**

Q2. **Does the patient have any one of the following symptoms:**

Fever or Cough or Shortness of Breath

With

History of travel within the past 14 days **Yes / No**

Or

History of contact with COVID positive **Yes / No**

Or

The patient is a health care worker **Yes/No**

Q3 **Is the patient asymptomatic but a high risk contact:**

Living in the same household with COVID positive. **Yes /No**

Heath care worker providing care to COVID positive. **Yes / No**

Travelling with COVID positive. **Yes / No**

Q4 **Does the patient belong to hotspots/clusters/ large migration gatherings / evacuee centres then all symptomatic patients with either:**

Fever Cough Sore Throat Runny Nose

If answer to any of the above is **YES**, patient to be sent to fever OPD in old OPD block, if all answers are **NO** patient to be sent new OBG Block triage

Signature

ICMR recommendation for COVID testing in Pregnancy

- The criteria to undergo laboratory test are same as those for non-pregnant population.
- Guideline by the ICMR for testing during pregnancy states:-

✓ Pregnant woman who has acute respiratory illness with one of the following criteria:

- ❑travel history abroad in last 14 days (6 March 2020 onwards) and individuals (with or without symptoms) and their household contacts should home quarantine for 14 days.
- ❑close contact of a laboratory positive COVID patient
- ❑she is a healthcare worker herself
- ❑hospitalized with features of severe acute respiratory illness

✓An asymptomatic pregnant woman should be tested between 5 and 14 days of coming into direct and high risk contact of an individual who has been tested positive for COVID.

Indian Council for Medical Research. COVID-19 testing. [Online] [Cited: March 28, 2020.].

Laboratory Investigations in COVID-19

- The CDC recommendation: collection of a nasopharyngeal swab specimen to test for COVID-19.
- Sputum should only be collected from patients with productive cough (induction of sputum is not indicated).

ICMR recommend: Reverse-transcription polymerase chain reaction (RT-PCR)

Test should be performed by center authorized by the government of India & state governments.

Repeat test is indicated only if clinically warranted.

Indian Council for Medical Research. Government Laboratory Testing Protocols for COVID-19 infection. [Online] [Cited: March 28, 2020.]
Center for Disease Control, USA. Coronavirus laboratory testing guidelines. [Online] [Cited: March 28, 2020.]

OTHER INVESTIGATIONS

- Other laboratory findings : leucopenia, lymphocytopenia, mild thrombocytopenia, mild elevation of liver enzymes and other acute infection markers.
- Co-infection with other common respiratory pathogens and the common cold virus are often seen.
- CT scan & other imaging modalities : patterns consistent with atypical pneumonia.
- X-Ray , CT scan : use abdominal shield to protect the fetus from radiation exposure.
- An informed consent for the imaging should be taken from the pregnant woman and her relatives.

सत्यमेव जयते
Ministry of Health & Family Welfare
Government of India

Guidelines for Home Quarantine

- The criteria for quarantine are the same for pregnant women and general population.

- **Definition of contact**
  - A contact is defined as a healthy person that has been in such association with an infected person or a contaminated environment, as to have exposed, and is therefore at a higher risk of developing disease
  - A person living in the same household as a COVID-19 case
  - A person having had direct physical contact with a COVID-19 case
  - A person who was in a closed environment or had face to face contact with a COVID-19 case at a distance of within 1 metre including air travel

Ministry of Health and Family Welfare, Government of India. Guidelines for Home Quarantine. [Online] [Cited: March 28, 2020.]

Ministry of Health & Family Welfare
Government of India

HOME QUARANTINE
General Guidelines

- **Home quarantined person should**
  - stay in a well-ventilated single-room, preferably with an attached / separate toilet
  - stay away from elderly people, and pregnant women
  - Restrict his/her movement within the house
  - Under no circumstances attend any social/religious gathering
    - .

Home quarantined :

- **General health measures** : hand washing, avoiding sharing fomites, wearing a surgical mask and changing it every 6 to 8 hours with correct disposal in 1% hypochlorite solution.
- If symptoms appear during quarantine, the pregnant woman should contact a health facility by telephone and follow given advice.
- Family members of the pregnant woman quarantined at home should keep a distance from her at all times and avoid direct contact with her & her fomites.
- Disposable gloves should be used in case soiled linen has to be handled.
- Visitors should not be allowed. Clothes should be washed separately.
- The duration of home quarantine is 14 days from the time of exposure to a confirmed case or earlier if a test is performed on a suspect case and it is negative.

Clinical Presentation of COVID-19 patients in Pregnancy

- The mean incubation period is 5 to 7 days.
- Most people who are infected will show features by 11 days of exposure.
- A history of travel abroad or contact with someone who has travelled abroad is mandatory.
- Majority present with respiratory symptoms.
- Most pregnant women have mild to moderate flu-like symptoms.
- Pregnant women (especially with comorbidities) may present with pneumonia, marked hypoxia.
- Immunocompromised and elderly pregnant women may present with atypical features: fatigue, malaise, body ache and/or gastrointestinal symptoms like nausea and diarrhea.
- Pregnant women with heart disease are at highest risk (congenital or acquired).
- This epidemic can increase risk of perinatal anxiety, depression, domestic violence.

Pregnancy complications

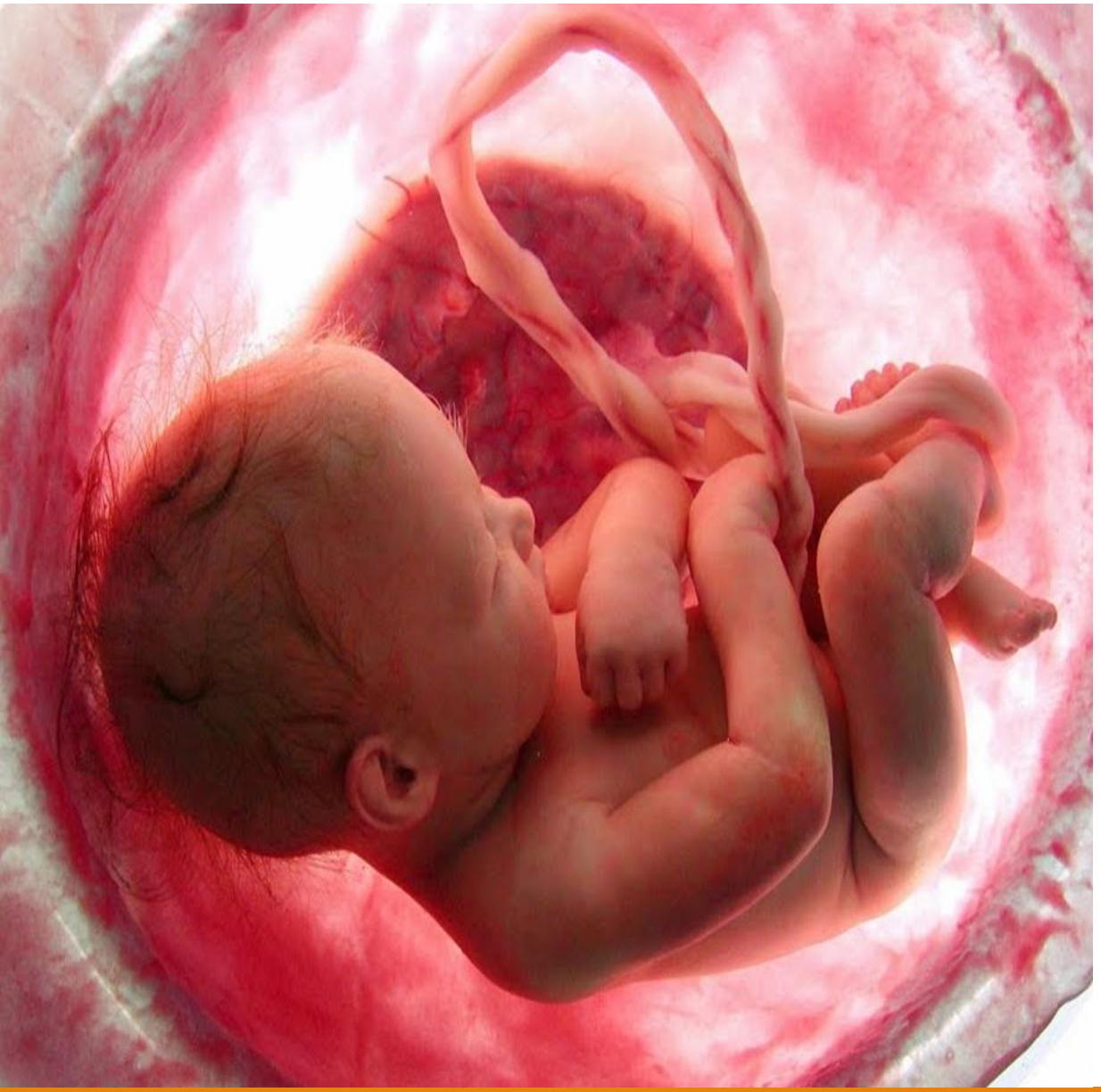
- Hyperthermia during organogenesis in the first trimester may be associated with an increased risk of congenital anomalies.
- In a review of 41 COVID-19 pregnant patients, the following rates of complications were seen :

Complications seen in Pregnancy	
Preterm birth <37 weeks	**41.1%**
Preterm prelabor rupture of membranes	**18.8 %**
Preeclampsia	**13.6%**
Cesarean delivery	**91.1%**
Complications seen in the Newborn	
Stillbirth	**2.4%**
Admission to a neonatal ICU	**10%**
Neonatal death	**2.4 %**

Di Mascio D. et al. American Journal of Obstetrics & Gynecology MFM. 2020 Mar 25:100107.

New Guideline from ICMR (Issued on 12.04.2020): Vertical transmission is possible

- Emerging evidence now suggests that vertical transmission is probable.
- Although the proportion of pregnancies affected and the significance to the neonate is yet to be determined.
- At present, there are no recorded cases of vaginal secretions being tested positive for COVID-19.
- At present, there are no recorded cases of breast milk being tested positive for COVID-19.



Effect on Foetus

- There are currently no data suggesting an increased risk of miscarriage or early pregnancy loss in relation to COVID-19.
- There is no evidence currently that the virus is teratogenic.
- Long term data is awaited.
- COVID-19 infection is currently not an indication for Medical Termination of Pregnancy.

Antenatal Care during COVID-19 Pandemic

- **Recent ICMR guideline issued on 12th April 2020 states:**
- Women should be advised to attend routine antenatal care, tailored to minimum, at the discretion of the care provider at 12, 20, 28 and 36 weeks of gestation, unless they meet current self-isolation criteria.
- For women who have had symptoms, appointments can be deferred until 7 days after the start of symptoms, unless symptoms (aside from persistent cough) become severe.
- Foetal Kick count to be maintained.
- If needed to visit health centre, should take own transport or call 108, informing the ambulance staff about her status.
- For women who are self-quarantined because someone in their household has possible symptoms of COVID-19, appointments should be deferred for 14 days.
- Any woman who has a routine appointment delayed for more than 3 weeks should be contacted. (In rural areas ANMs/ASHAs can contact by telephone/ routine household visits with PPE).

Antenatal Care during COVID-19 Pandemic contd..

- Even if a woman has previously tested negative for COVID-19, if she presents with symptoms again, COVID-19 should be suspected.
- Referral to antenatal ultrasound services for foetal growth surveillance is recommended after 14 days following resolution of acute illness
- The service providers can assess the feasibility of isolation for the patient at home, especially if in slums/small households, else she could be admitted in hospital or quarantine facility.
- Self-quarantine for close contacts of the pregnant patient tested positive for 14 days.
- Whether she has attended ANC clinic in the last 14 days before testing, if so self quarantine of the service providers.
- If a woman tests positive, she should be advised to deliver at least at an FRU (Rural/SDH); preferably a tertiary facility anticipating the complications during delivery.

Obstetric Units should take into consideration:

- Appropriate isolation of pregnant patients who have confirmed COVID-19 or are Persons Under Investigations
- Basic and refresher training for all healthcare personnel to include correct adherence to infection control practices, Personal Protective Equipment (PPE) use and handling (preferably by a video presentation)
- Sufficient and appropriate PPE supplies positioned at all points of care
- Processes to protect new-borns from risk of COVID-19

ICMR Guidance for Management of Pregnant Women in COVID19 Pandemic 12042020.pdf

Obstetric Health Care Providers should ensure:

- Ob-gyns health care practitioners should contact their local and/or state health department for guidance on testing persons under investigation and should follow the national protocol.
- They should immediately notify infection control personnel at their health care facility and their local or state health department in the event of a pregnant patient who has confirmed COVID-19 or PUI for COVID-19.
- A registry for all women admitted to with confirmed COVID-19 infection in pregnancy should be maintained.
- Maternal and neonatal records should be completed in detail and preserved for analysis in future.
- They should create a plan to address the possibility of shortage of health care workforce, personal protective equipment, limited isolation rooms,
- They should maximize use of telehealth for prenatal care.
- Each facility should consider their appropriate space and staffing to prevent transmission of the virus.

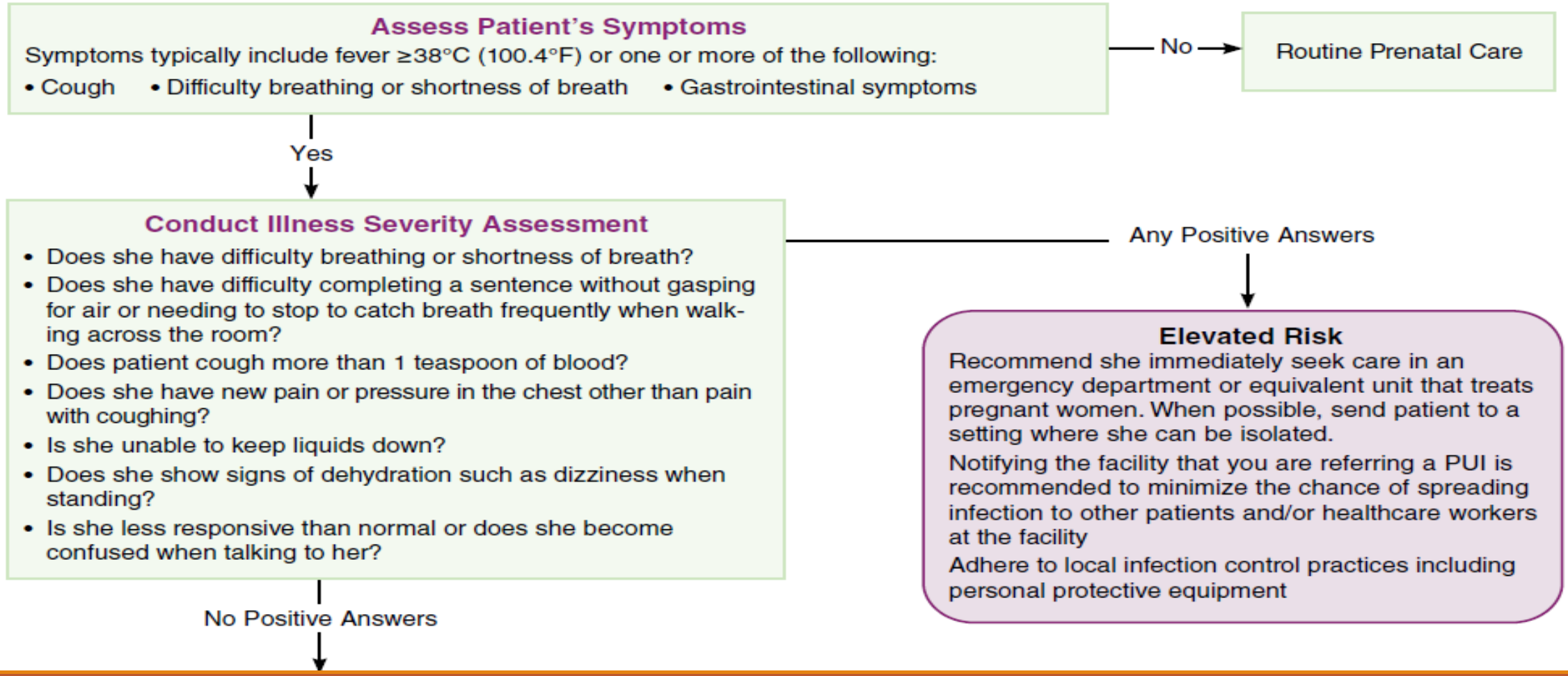
Obstetric Health Care Providers should ensure:

- Pregnant women should be advised to increase their social distancing & practice hand hygiene.
- Intrapartum services should be provided safely, with minimum staffing and ability to provide emergency obstetric, anaesthetic and neonatal care where indicated.
- A single, asymptomatic birth partner should be permitted to stay with the woman.
- Visitors should be instructed to wear appropriate PPE.
- Women should be met at the maternity unit entrance by staff wearing appropriate PPE and be provided with a surgical face mask. The face mask should not be removed until isolated.
- Staff providing care should take Personal Protective Equipment (PPE) precautions as per national guidance

COVID-19 Pandemic: Obstetric practice

- If a woman meets criteria for COVID-19 testing, she should be tested.
- Until test results are available, she should be treated as confirmed COVID-19.
- Do not delay obstetric management in order to test for COVID-19.
- Elective procedures like induction of labour for indications that are not strictly necessary, routine growth scans not for a strict guidance-based indication and routine investigations to be reduced to minimum.
- If ultrasound equipment is used, it should be decontaminated after use.

American College of Obstetricians and Gynecologists: Management for Pregnant Women With Suspected or Confirmed COVID-19



American College of Obstetricians and Gynecologists COVID-19-Algorithm. Revised April 10, 2020.

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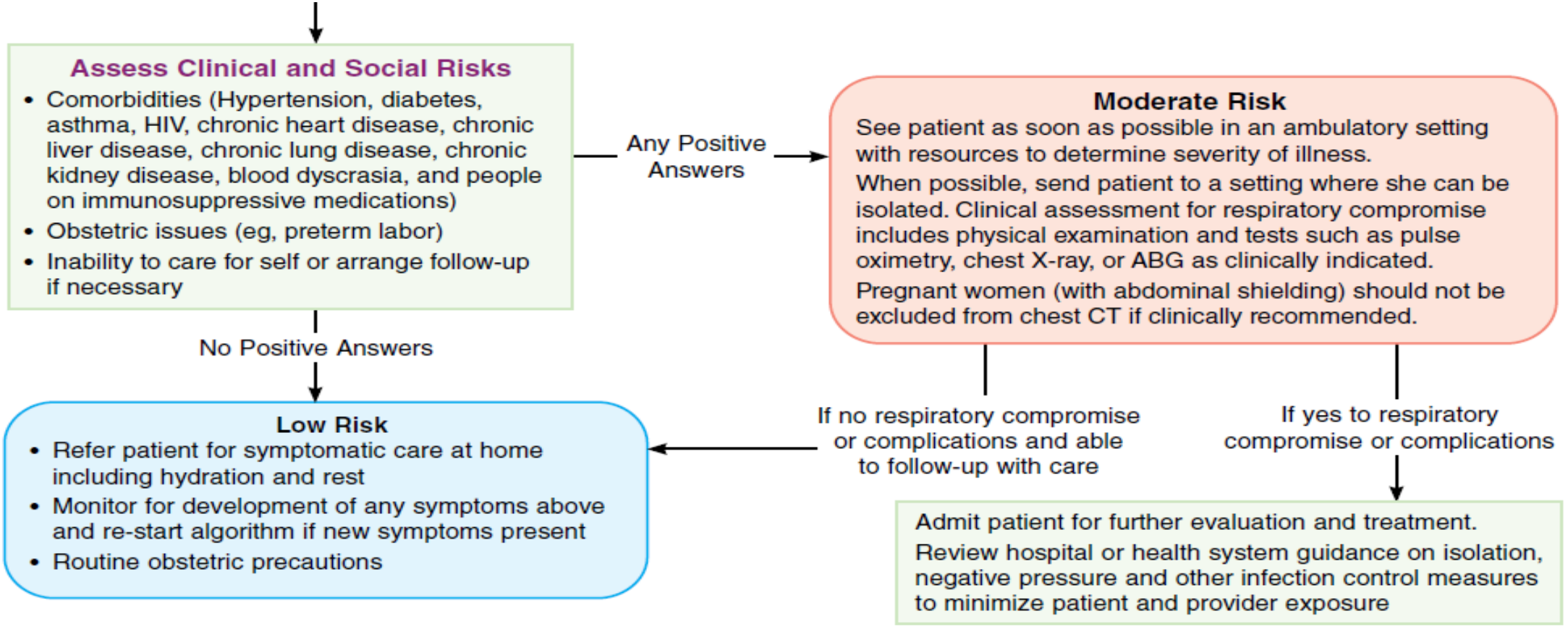
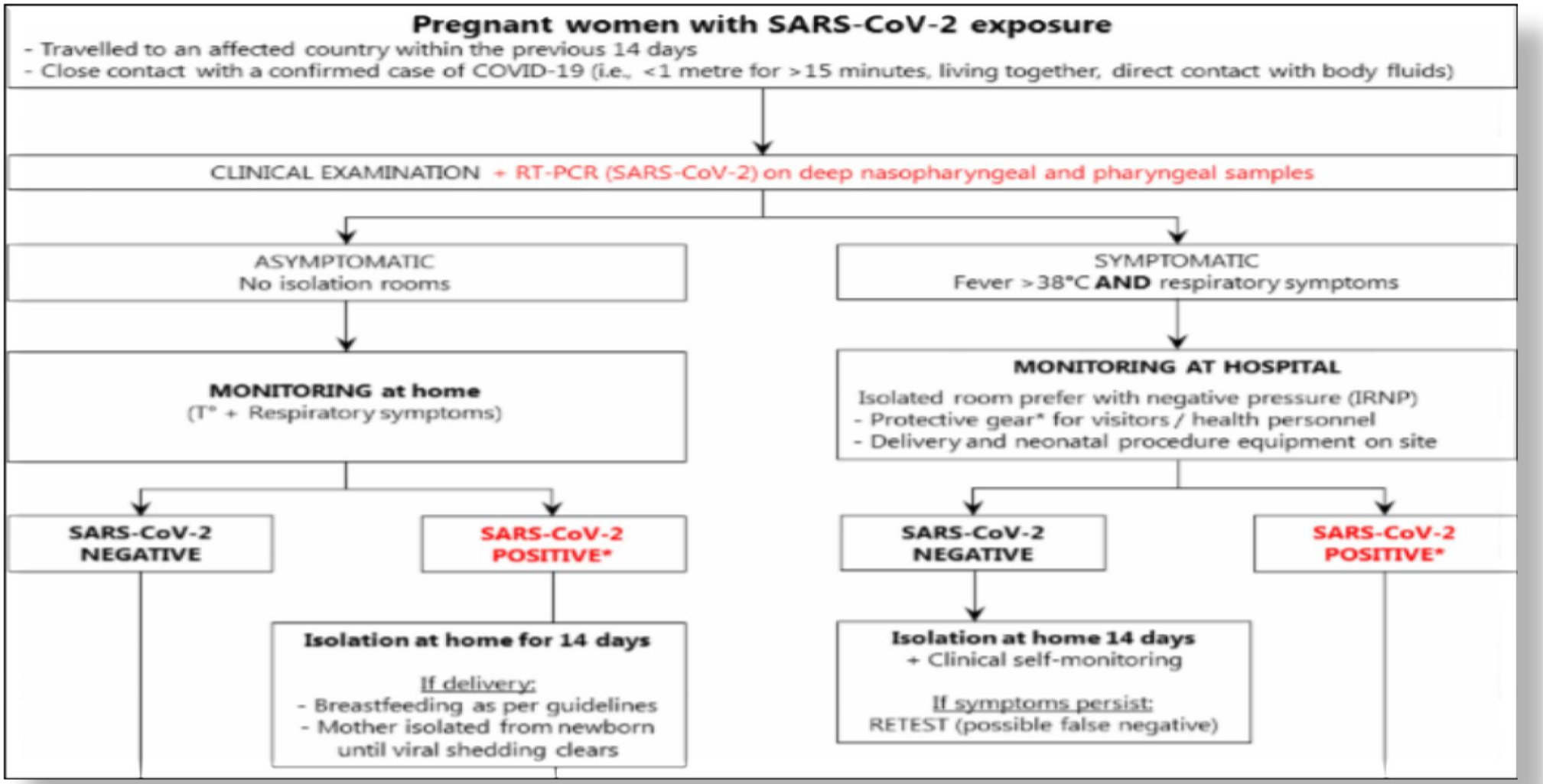


Abbreviations: ABG, arterial blood gases; CDC, Centers for Disease Control and Prevention; HIV, human immunodeficiency virus.

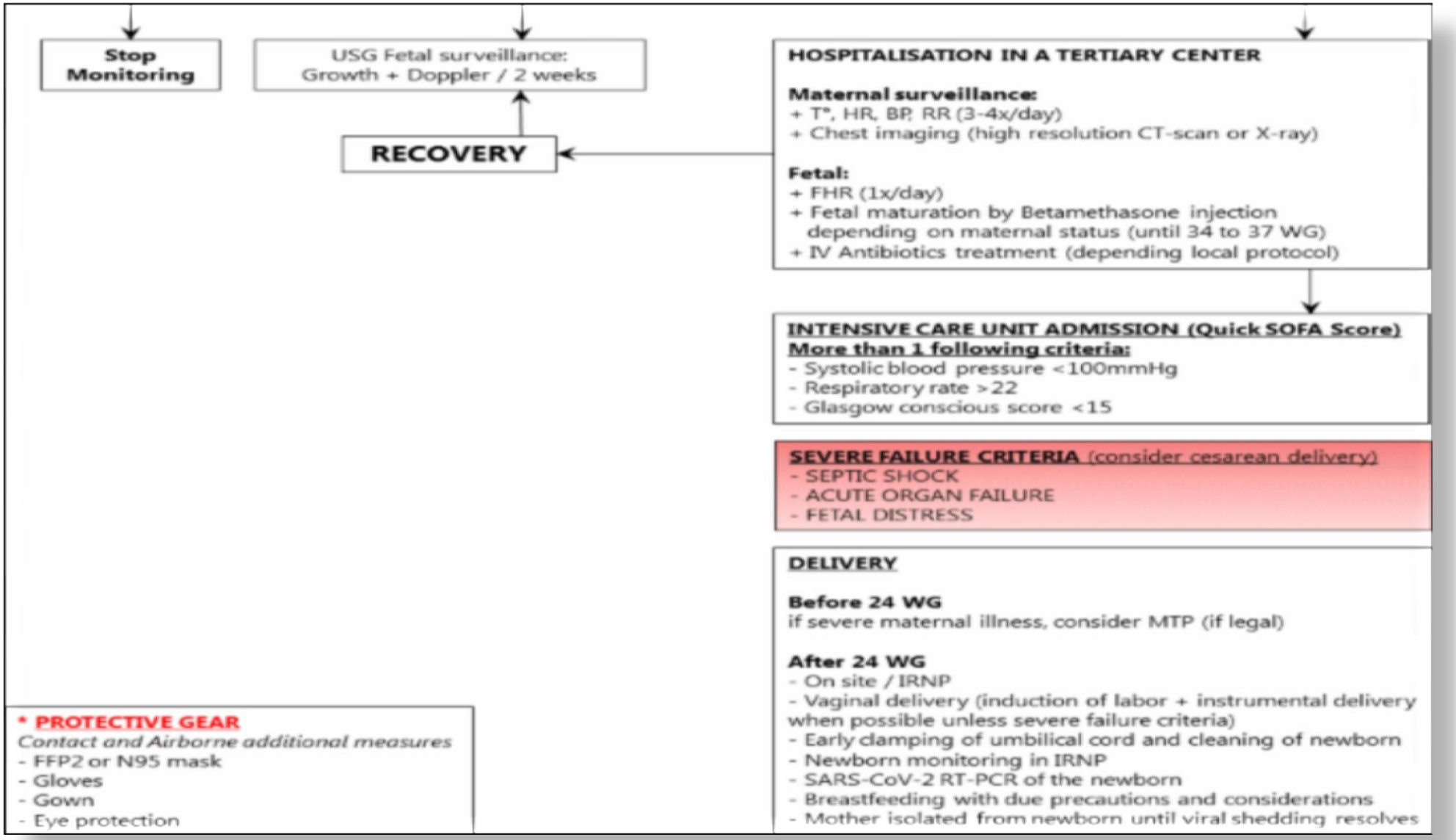
American College of Obstetricians and Gynecologists COVID-19-Algorithm. Revised April 10, 2020.

ICMR GUIDELINE: Management of COVID-19 in pregnancy



ICMR Guidance for Management of Pregnant Women in COVID19 Pandemic. Issued on 12.04.2020

Management of COVID-19 in pregnancy contd..



ICMR Guidance for Management of Pregnant Women in COVID19 Pandemic. Issued on 12.04.2020

Quick SOFA

- A quick bedside assessment tool is also usable for sepsis (mainly bacterial infections) screening in triage called the quick SOFA (qSOFA) score.
- It includes 1 point for each of 3 criteria

qSOFA SCORE				Score ≥ 2 is suggestive of sepsis and needs intensive care
Number	Criteria		Point	
1.	Respiratory rate	≥ 22 breaths/min	1	
2.	Mental status	Altered	1	
3.	Systolic Blood pressure	≤ 100 mm Hg	1	

At the healthcare facility:

- Every pregnant woman should be triaged at entry and then allotted into one of the zones depending on the presentation
- The infected and potentially infected pregnant women should be kept in separate isolation areas.
- Each isolation area includes isolation wards, and an isolation ICU area. If possible, each patient should be kept in a separate room with an attached bathroom.
- Access to isolation areas should be strictly limited. Family visits and nursing shall be declined. Patients should be allowed to have their electronic communication devices to facilitate interactions with the family and friends.

Infected	Potentially infected	Clean
• Tested and shown to be positive for COVID-19	• Symptoms of SARI • Contact with infected individual • Travel abroad in the last 14 days • Healthcare worker caring for COVID-19 infected individuals • Test result is awaited	• No symptoms of SARI • No contact with infected individual • No travel history

History taking in Obstetric management during COVID-19 Pandemic

- ICMR Guidance for Management of Pregnant Women in COVID19 Pandemic states that a detailed Medical history to be taken from all pregnant women which should include:

  - ✓A detailed travel history
  - ✓History of exposure to people with symptoms of COVID-19
  - ✓Symptoms of COVID-19
  - ✓Coming from hot spot area
  - ✓Immunocompromised conditions

Treatment of COVID-19 infection in pregnancy

- Supportive therapy for COVID-19 infection includes rest, oxygen supplementation, fluid management and nutritional care
- COVID-19 viral infection has been treated by two approaches:
-
    - Use of a combination of Hydroxychloroquine and Azithromycin.
    - Use of antiviral drugs

Pharmacotherapy in pregnant women with COVID-19 Contd..

- *PARACETAMOL :* for symptomatic relief of fever and myalgia. Paracetamol is the preferred drug.
  - Ibuprofen and other NSAIDs may be avoided: concerns about potentiating ACE receptors.
- *Antenatal Steroids (fetal maturity):* Steroids are recommended for enhancing fetal lung maturity in situations where preterm delivery is likely between 24 to 34 weeks of gestation. There is no documented evidence of the use of steroids in COVID-19 infection.
  - However, glucocorticoids have been associated with an increased risk for mortality in patients with influenza and delayed viral clearance in patients. Therefore, the use of steroids needs to be individualized based on the woman's condition and should be discussed with her and her family.
- *Antibiotics:* If there is a suspicion of secondary bacterial infection, appropriate antibiotics which are considered safe in pregnancy should be added.
- *Oxygen:* If there is difficulty in breathing, oxygen supplementation by nasal prongs or mask may be added. High flow nasal oxygen at 4 to 6 liters per minute should be immediately administered

Pharmacotherapy

- ***Hydroxychloroquine*** :

600 mg in three divided doses with meals along with Azithromycin 500 mg once daily for 10 days has been effective for virological cure on day 6 of treatment in 100% of treated patients in one study which included 20 treated patients with upper and lower respiratory symptoms.

  - Pregnancy was however excluded in the study.
  - However, both drugs are used in pregnancy and breastfeeding without significant effects.
  - Alternative dosage regimens of hydroxychloroquine: 400 mg two times on day 1, followed by 400 mg once a day for next four days.

- **Lopinavir-ritonavir** was the first antiviral combination used in an attempt to treat COVID-19.
  - This may be a possible line of treatment for those suffering from chronic disease, immunocompromise or uncontrolled diabetes.
  - However, there was no difference in time to clinical improvement or mortality at 28 days in a randomized trial versus those who received standard of care alone.
- **Remdesivir** is being evaluated in a randomized trial.
- In India, some health authorities have prescribed: Oseltamavir 75 mg two time daily for five days along with hydroxychloroquine

Johns Hopkins University and Johns Hopkins Hospital COVID-19 Treatment Guidance Working Group. JHMI Clinical Guidance for Available Parmacologic Therapies for COVID-19. [Online] [Cited: March 28, 2020.]
Cao B. et al. N Engl J Med, https://doi. org/10.1056/NEJMoa2001282
Health Department, Government of Maharashtra. Treatment Protocols for COVID-19. [Online] March 24, 2020..

Diet for the pregnant woman with COVID-19 infection

- Subject of controversy.
- There is no particular diet recommended in COVID-19 patients.
- There is also no evidence that consumption of meat, chicken or eggs leads to a higher risk of acquiring COVID-19 infection.
- Certain populations of pregnant women who are diabetic, obese or have other metabolic abnormalities may have some benefit from dietary modifications.
- Dietary advice is generic.
- It would include a high protein diet, vitamin, micronutrient supplementation.
- Natural sources of these are called superfoods in common parlance and include citrus fruits, ginger, garlic, broccoli, turmeric, oregano oil and spinach.
- Liver detoxification to reduce toxins.

Intrapartum Care in COVID patients

- Once settled in an isolation room, a full maternal and foetal assessment should be conducted to include:

✓Assessment of the severity of COVID-19 symptoms.

✓Followed by a multidisciplinary team approach including an infectious diseases or medical specialist.

✓Delivery should be preferably at tertiary care centre.

✓Maternal observations including temperature, respiratory rate & oxygen saturations.

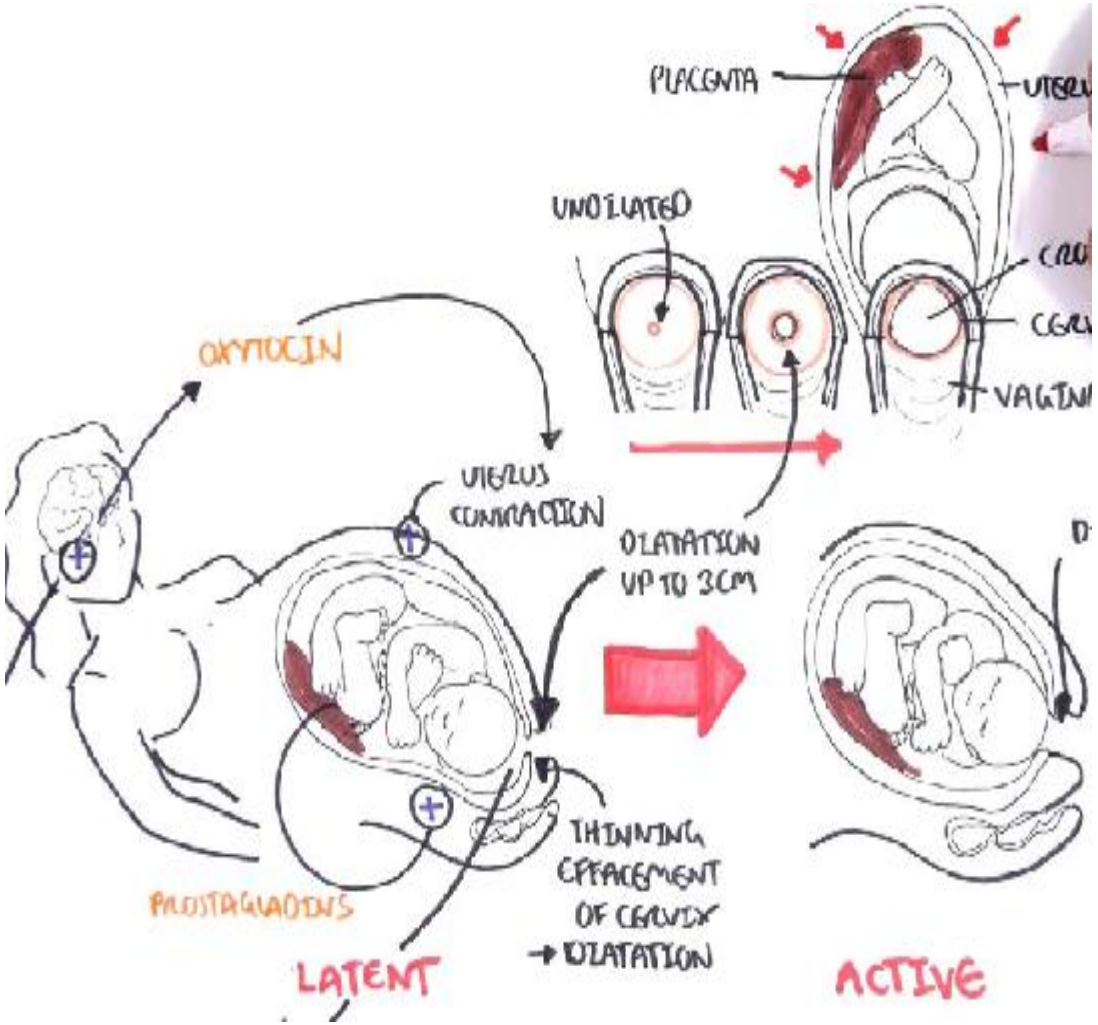
✓Confirmation of the onset of labour, as per standard care.

✓Electronic foetal monitoring using cardiotocograph (CTG).

✓Hourly oxygen saturation during labour.

Care in Labour

- Aim to keep oxygen saturation >94%, titrating oxygen therapy accordingly.
- If the woman has signs of sepsis: investigate and treat as sepsis in pregnancy (also consider active COVID-19 as cause of sepsis).
- Continuous electronic foetal monitoring is recommended.
- There is currently no evidence to favour any mode of birth. Mode of birth should not be influenced by the presence of COVID-19, unless the woman's respiratory condition demands.



Care in Labour

- There is no evidence that epidural or spinal analgesia or anaesthesia is contraindicated in the presence of coronaviruses. Epidural analgesia is recommended in labour in suspected/confirmed COVID19 women to minimise the need for general anaesthesia if urgent delivery is needed.

- In case of deterioration in symptoms, make an individual assessment regarding the risks and benefits of continuing the labour, versus emergency caesarean birth.

- When caesarean birth or other operative procedure is advised, it should be done after wearing PPE.

- An individualised decision to be made to shorten length of second stage with elective instrumental birth in a symptomatic woman who is becoming exhausted or hypoxic.

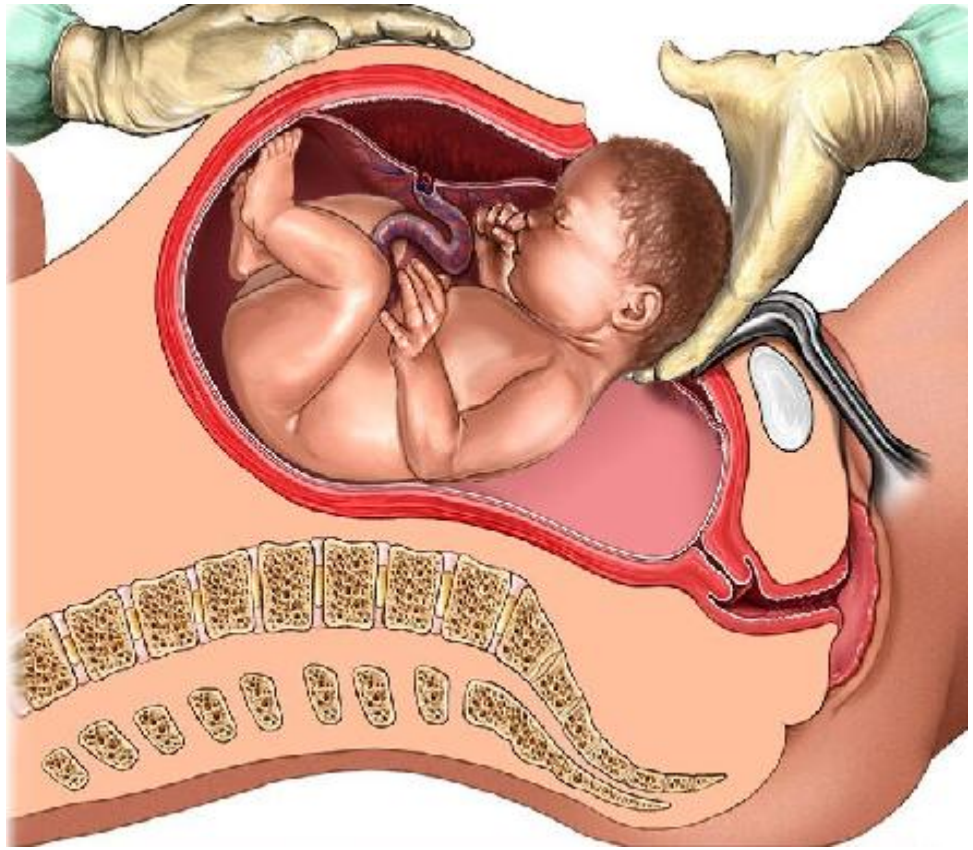
Management of Pregnant women with COVID-19 Admitted to Critical Care

- Hourly observations, monitoring both the absolute values and the trends.
- Titrate oxygen to keep saturations >94%.
- Hourly respiratory rate looking for the rate and trends:
- Young fit women can compensate for deterioration in respiratory function and are able to maintain normal oxygen saturations before they suddenly decompensate.
- A rise in the respiratory rate, even if saturation is normal, may indicate deterioration and should be managed by oxygen.
- Radiographic investigations (chest X-ray and CT of the chest) should be performed as for the non-pregnant adult.
- Abdominal shielding can be used to protect the foetus as per normal protocols.

Management of Pregnant women with COVID-19 Admitted to Critical Care contd..

- Do not assume all pyrexia is due to COVID-19 and also perform full sepsis screening.
- Consider bacterial infection if the white blood cell count is raised (lymphocytes usually normal or low with COVID-19) and commence antibiotics.
- Apply caution with IV fluid. Try boluses in volumes of 250-500mls and then assess for fluid overload before proceeding.
- The frequency and suitability of foetal heart rate monitoring should be considered on an individual basis.
- If urgent delivery is indicated for foetal reasons, birth should be expedited as normal, as long as the maternal condition is stable

Anaesthesia & PPE for Caesarean Section



- The level of PPE required in case of woman with COVID-19 undergoing caesarean birth is determined based on the risk of requiring general anaesthetic.
- Intubation for general anaesthesia (GA) is an aerosol-generating procedure (AGP): significantly increases risk of transmission.
- Regional anaesthesia (spinal, epidural or CSE) is not an AGP.
- For Caesarean births where GA is planned from the outset, all staff should wear full PPE, including a filtering face piece level 3 (FFP3) mask.
- The scrub team should scrub and don PPE before the GA is commenced.
- For a non-urgent caesarean birth where regional anaesthesia is planned, the risk of requiring GA is very small.

Anaesthesia & PPE for Caesarean Section contd..

- In this situation, all staff not required for siting of the regional anaesthetic should stay outside theatre until the block is effective.
- All staff in theatre should then don PPE with a fluid-resistant surgical mask (FRSM) and eye protection (to prevent against droplet or fomite spread of the virus).
- In the small proportion of cases in which regional anaesthesia cannot be successfully achieve and GA is required, the scrub team should enter the theatre, scrub and don full PPE, including an FFP3 mask, before the GA is commenced.
- If the risk of requiring conversion to GA is considered significant, the theatre team should scrub and don full PPE, including an FFP3 mask, before the procedure is commenced.
- If the risk of requiring conversion to GA is considered low, the theatre team should scrub and don PPE with an FRSM with eye protection.

ICMR Guidelines for: Obstetric/Emergency Gynaecology Theatre

- Elective obstetric procedures (e.g. cervical cerclage or caesarean) should be scheduled at the end of the operating list.
- Non-elective procedures should be carried out in a second obstetric theatre, where available, allowing time for a full post-operative theatre clean-up as per national health protection guidance.
- The number of staff in the operating theatre should be kept to a minimum, and all must wear appropriate PPE.

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Cleaning, maintenance of facilities and equipment

- The isolation areas, procedure areas and medical equipment : handled as potential sources of infection if a COVID-19 pregnant woman has been cared for in those areas.
- During procedure the workers should wear PPE.
- For surface cleaning and disinfection: alcohol or chlorine based.
- Alcohol based agents should contain 70% isopropyl alcohol.
- Chlorine based solutions are prepared by diluting liquid chlorine (1000 mg/L strength) or freshly prepared 1% sodium hypochlorite solution.
- Household bleach is 5 - 6 % sodium hypochlorite; therefore a 1:5 (v/v) dilution of bleach to liquid biological waste is appropriate. The contact time should be at least 30 minutes.
- Floors, walls and object surfaces should be wiped 2-3 times a day or if there is visible contamination.
- Air : sterilized by fumigation, plasma air sterilizers or ultraviolet lamps. ·
- After a procedure, the biological fluids, blood, and fecal matter should be treated with the above before disposal.
- If there is a large fluid spill, sodium hypochlorite powder should be spread over the spill and left in contact for 30 minutes.
- Reusable medical equipment, linen, fabric and clothes should also be treated with sodium hypochlorite.

Postnatal Management

- It is unknown whether new-borns with COVID-19 are at increased risk for severe complications.
- Transmission after birth via contact with infectious respiratory secretions is a concern.
- Facilities should consider temporarily separating (e.g. separate rooms) the mother who has confirmed COVID-19 or is a PUI, from her baby.
- This separation is continued until the mother’s transmission-based precautions are discontinued

Temporary separation of mother & baby

- Risks and benefits of the separation of the mother from her baby should be discussed with the mother.
- A separate isolation room should be available for the infant while they remain a PUI.
- The decision to discontinue temporary separation: made on case basis in consultation with clinicians, infection prevention and control specialists, and public health officials, taking into account disease severity, signs and symptoms, results of laboratory testing.
- If colocation or, rooming in in the same hospital room happens, facilities should consider implementing measures to reduce exposure of the new-born to the corona virus.
- Consider using physical barriers (e.g., a curtain between the mother and new-born) and keeping the new-born ≥6 feet away from the ill mother.
- If no other healthy adult is present to care for the new-born, a mother who has confirmed COVID-19 or is a PUI should put on a facemask and practice hand hygiene before each feed. The facemask should remain in place during contact with the new-born.

Breastfeeding

- During temporary separation, mothers who intend to breastfeed should be encouraged to express breast milk to maintain milk supply.
- If possible, provide a dedicated breast pump.
- Prior to expressing breast milk, mothers should practice hand hygiene.
- After each pumping session, all parts that come into contact with breast milk should be thoroughly washed and the entire pump should be appropriately disinfected.
- This expressed breast milk should be fed to the new-born by a healthy caregiver.
- If a mother and new-born do room-in and the mother wishes to feed at the breast, she should put on a facemask and practice hand hygiene before each feeding.

Testing in Newborn

- The care of the newborn should be in the hands of a neonatologist or pediatrician.
- Some areas of concern regarding testing of the newborn are mentioned below to help with counseling the mother and family

Which neonates to test?	• Neonates born to mothers with COVID-19 infection within 14 days of delivery or up to 28 days after birth • Symptomatic neonates exposed to close contacts with COVID-19 infection
When should the neonate be tested	**If symptomatic**, specimens should be collected as soon as possible **If asymptomatic and roomed-in**, test only if and when mother's test comes positive. If mother is COVID-19 positive and baby's initial sample is negative, another sample should be repeated after 48 hours.
What sample should be collected of the neonate?	*Not mechanically ventilated* - Upper respiratory nasopharyngeal swab (NP). Collection of oropharyngeal swabs (OP) is a lower priority and if collected should be combined in the same tube as the NP. *Mechanically ventilated* - Tracheal aspirate sample should be collected and tested as a lower respiratory tract specimen

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Testing in Newborn contd..

How to collect?	*Upper nasopharyngeal swab* • Use only synthetic fiber swabs with plastic shafts. Do not use calcium alginate swabs or swabs with wooden shafts, as they may contain substances that inactivate some viruses and inhibit PCR testing. • Insert a swab into nostril parallel to the palate. Swab should reach depth equal to distance from nostrils to outer opening of the ear. Leave swab in place for several seconds to absorb secretions. Slowly remove swab while rotating it. • Place swabs immediately into sterile tubes containing 2-3 ml of viral transport media. *Oropharyngeal swab (e.g., throat swab):* Swab the posterior pharynx, avoiding the tongue. *Nasopharyngeal wash/aspirate or nasal aspirate* Collect 2-3 mL into a sterile, leak-proof, screw-cap sputum collection cup or sterile dry container. Other samples: Currently not advised; stool, urine and blood specimens, since the isolation is less reliable than from respiratory specimens. Do not take these specimens for testing (based on current advisory recommendations)

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- Discharge for postpartum women should follow recommendations described in the guidelines for discharge of Hospitalized Patients with COVID-19.

- Test should be negative and maternal and foetal/neonatal condition should be stable.

Termination of pregnancy during COVID-19 pandemic

- Abortion and reproductive healthcare might be affected due to delayed presentation of patients, lack of providers and disruptions of the supply chain of material and drugs.

- Abortion is essential healthcare. It is critical to ensure that women who seek abortion and family planning do not suffer from lack of access.

- The services should continue to be provided by public and private providers

    - Early abortions are safer for women and the MTP Act places limits on the gestational age for abortions. This makes the provision of abortion time-sensitive.

    - It is also well established that women who seek an abortion tend to get it one way or another. A lack of these services may mean that women seek an abortion from unsafe providers thus harming them.

Training and managing the healthcare cadre

- Especially with the correct use of PPE.
- A baseline sensitization should be carried out for every staff member to make them aware of the risk of infection and dispel undue myths and rumors.
- If case loads increase, the staff should be divided into different teams: limited to a maximum of 4 hours of working in an isolation ward.
- Before going off duty, staff must wash themselves and conduct necessary personal hygiene regimens to prevent possible infection.
- Operating with PPE gear can be a formidable task. There can be difficulty with communication (hearing, tactile sensation are reduced).
- Therefore it is good to have a set operating team which is generally familiar with standard operative steps of a particular procedure
- There may be increase in operative time.
- Airconditioning has to be switched off to prevent the spread of the virus into the atmosphere and the operating team is faced with heat, perspiration and humidity.

Keeping up the team spirit is essential

- Workforce safety is a high priority, active training in the proper use of barrier precautions and hygiene practices is important.
- Psychological stress and burnout of healthcare workers is common so provide emotional support, encouragement and appreciation.
- Reduce stigmatization of ill-informed members of the public.
- Special provision of meals to boost morale; laundry service for used scrubs
- Provision of frequent updates and encouragements
- Health insurance
- Care of workers who may have medical conditions should be given appropriate care themselves


thank
you