COVID-19

Short Pediatric Guidance For Hospitals

Role of Hospitals in Facing COVID-19 Pandemic

Available global data suggests that incidence, in less than 18 years old, is 1-2%.[1] Majority of the Children are either asymptomatic or have a mild illness.

Children are less likely to spread, however asymptomatic transmission from adults is a real danger.

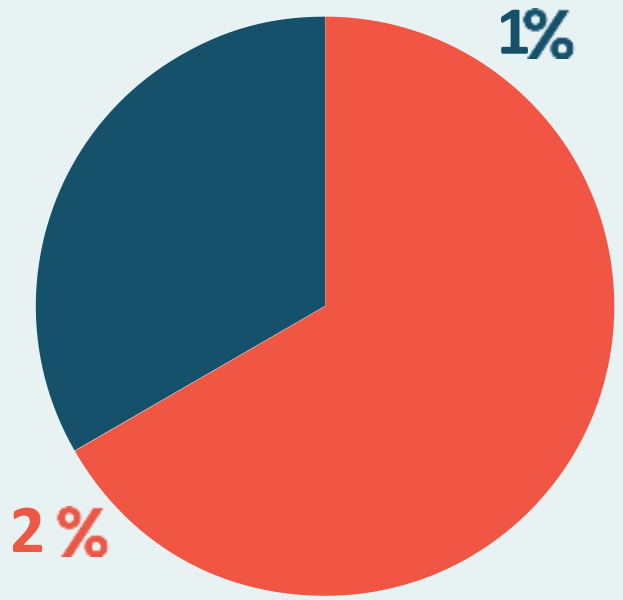
Hospitals should have a policy of allowing one parent/caregiver to enter at the main gate.

Hospitals should make available sanitizers / hand washing facilities in all areas.

Hospital policy: Masks not to be allowed to dangle around the neck after or between each use.

At the main entrance there should be a tent for waiting (social distancing arrangement) and screening clinic for all those children with fever & cough/difficult breathing.

Those suspected of COVID-19 should have a separate one way passage towards COVID-19 clinic, Isolation



Available global data suggests that incidence, in less than 18years old, is 1-2%

Screening Criteria at First level Fever Clinic / Tent at entrance[2]

See all children with fever & cough/breathing difficulty

If any danger sign (see below) or any one of the following present then refer with mask to designated COVID-19 Clinic

1. Fast breathing* and/or Chest indrawing / breathing difficulty
2. Residence or in contact with a patient from an outbreak locality
3. Contact (Face to face at <2m for >15 minutes[3]) with a confirmed case of COVID-19 (2 & 3 above, within last 14 days)
4. Disease Clustering: Two or more cases with fever and cough/difficult breathing from one home, office, shop etc

All other children: Give a referral note to say screened and refer to routine OPD or A&E, with proper counseling & preferably with mask.

Fast breathing upto 2 months

2 months upto 12 months

12 months up to 5 years)

Assessment at COVID-19 clinic/ Admission Criteria

If other causes for the following conditions can't be excluded then admit to COVID-19 area. When in doubt, seek guidance from senior consultant on duty.

URTI with severe chronic illness (primary or secondary immunodeficiency, cardio-pulmonary disease etc)

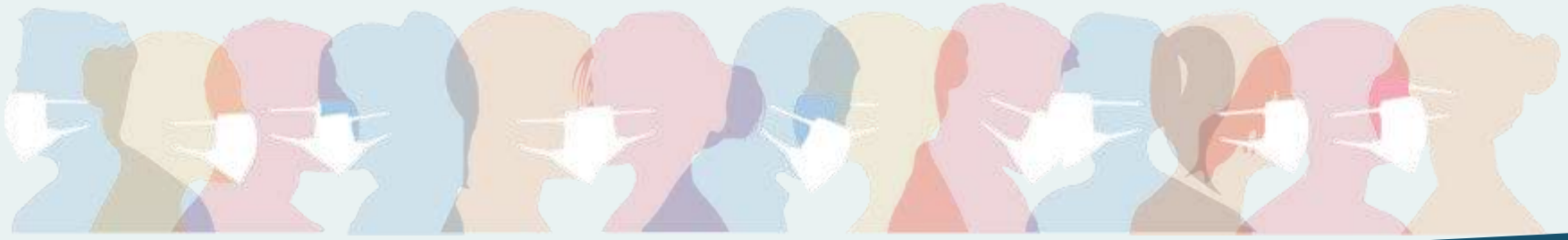
Pneumonia with chest indrawing & O_2 Saturation< 93% at room air (HDU cubicle)

Pneumonia with Fast breathing with suggestive CXR, Lymphopenia N:L ratio>3.3, Raised CRP (HDU cubicle) Admit in ICU if any danger sign[4] present: O_2 Saturation< 93% at room air,Altered mental state, Convulsions, Persistent vomiting, Severe dehydration,Cyanosis, Septicemia, Shock.

All other cases may be sent for home isolation*with appropriate advice and follow up instructions OR be refereed to routine pediatric service for non-COVID-19 hospitaladmission.

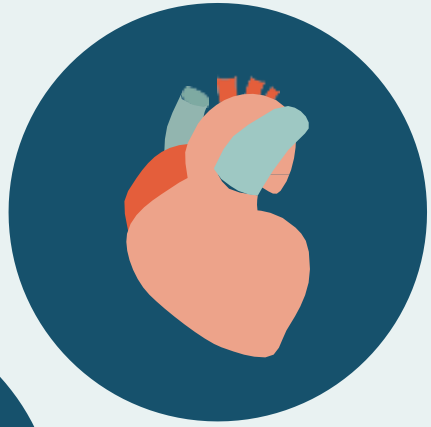
*Home Isolation[5]

Child can isolate at home with other family members, Child must not leave home, No visitors should be allowed,Strict isolation for 7days.*



Keep high index of suspicion for common Non COVID-19 emergencies

Acute severe Asthma, Severe croup, Foreign body inhalation, Pneumothorax.
Cardiac failure in the setting of CHD, Viral Myocarditis may be difficult to differentiate. Meningitis/Encephalitis, Cerebral Malaria.Diabetic Ketoacidosis, Hepatic coma, Renal Failure. Metabolic acidosis in a child with known inborn error.



Laboratory Investigations[5,6]

(Observe strict isolation precautions while taking samples)

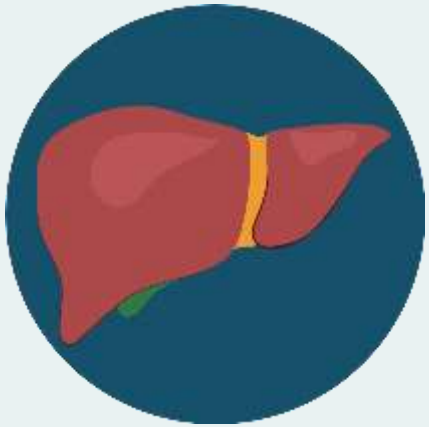
RT-PCR for COVID-19 on a nasopharyngeal specimen in all admitted suspected cases. (Bronchoalveolar lavage in ventilated children)

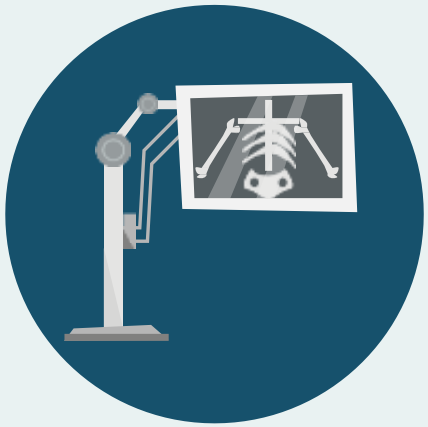
CBC (N:L ratio >3.13), ESR/CRP. Chest X-ray

Electrolytes, BUN, serum creatinine, Liver function tests (as per indication)

(Additional investigations depending on clinical condition and availability)

d-Dimers, LDH, Lactate, Ferritin, Procalcitonin, Interleukin-6, ECG, Cardiac enzymes. Echocardiography. Blood cultures and any other relevant cultures.CT Scan chest





Management Principles[5]

Suspected COVID-19 cases must be isolated in a single cubicle. One attendant will stay isolated with the child till discharge.

Confirmed cases can be put together in one ward with 2 m separation between beds. Treatment is mainly supportive.

Oxygen to keep O2Saturation>93% at room air

Oseltamivir, if H1N1 suspected.

Nursing in prone position helps improve Oxygenation. Fluid restriction advised.

Avoid NSAIDS and steroids.

Broad spectrum antibiotics if secondary infection suspected.

Aerosol generating procedures (HFNO, suctioning, nebulization, performing NPAs) should be avoided unless absolutely essential and perform in isolated cubicle or ideally negative pressure room.

Waste should be managed appropriately. Terminal cleaning of room with chlorine

Investigational drugs in severe cases

Remdesivir, Lopinavir/ritonavir (LPV/r), IVIG, Plasma therapy, Methylprednisolone, Azithromycin, Hydroxychloroquine Tocizilumab, Anti-coagulation therapy

Hydroxychloroquine/Chloroquine (Ongoing trials have not confirmed the initial promise of efficacy of antimalarials in COVID-19. Hence it is not recommended at present)

Avoid Azithromycin without rationale and avoid in combination with HCQ/ Chloroquine (reports of cardiotoxicity)

Multisystem inflammatory syndrome in children[7]

Consider this syndrome in children with features of typical or atypical Kawasaki disease or toxic shock syndrome.

Children 0-19 years of age with fever >3 days AND two of the following:

a)Rash or bilateral non-purulent conjunctivitis or muco-cutaneous inflammation signs (oral, hands or feet).

b) Hypotension or shock.

c) Features of myocardial dysfunction, pericarditis, valvulitis, or coronary abnormalities (including ECHO findings or elevated Troponin/NT-proBNP),

d) Evidence of coagulopathy (by PT, PTT, elevated d-Dimers).

e)Acute gastrointestinal problems (diarrhoea, vomiting, or abdominal pain).

AND

Elevated markers of inflammation such as ESR, C-reactive protein, or procalcitonin

AND

No other obvious microbial cause of inflammation, including bacterial sepsis, staphylococcal or streptococcal shock syndromes.

AND

Evidence of COVID-19 (RT-PCR, antigen test or serology positive), or likely contact with patients with COVID-19

Newborn with suspected COVID-19[5,6,8]

Any newborn, born to the mothers with a history of COVID 2019 infection between 14 days before delivery and 28 days after delivery, or the newborns directly exposed to those infected with COVID-19.

Management

Full PPE protection (Level 1) for newborn resuscitation &AGPs for baby of "suspected" or "confirmed" COVID-19 mother. PPE level 2 or 3 as per risk assessment. Avoid neonatal admission if safe and possible. Asymptomatic COVID-19 positiv infants are unlikely to transmit the virus, providing everyone adheres to basic hygiene measures.

Newborn with suspected COVID-19[5,6,8]

Mother COVID-19 Suspected and well

Infant well: Admit with mother in isolation room with routine newborn monitoring &care. Mother to wear fluid resistant surgical mask, practice hand hygiene and all other Infection Prevention & Control precautions.Trace mother result. If negative, No further action. And aim for early discharge.

Infant symptomatic: Admit to isolation cubicle in Neonatal unit. Management is mainly supportive, in incubator, as per standard neonatal guidelines. Collect oro/ nasopharyngeal swab at 24 hours. Parents are not allowed to visit till their COVID-19 status is clear.

Mother COVID-19 Positive and well

Infant well: Current guidance is that well babies of COVID-19 positive mothers should only be routinely tested if unwell.

Infant COVID-9 positive & Symptomatic: As in 1.b above. Collect oro / nasopharyngeal swab every 48-72 hours until negative. Minimize routine investigations, if possible. Infant should be kept in incubator for 14 days. COVID-19 suspected or confirmed mothers should not visit NICU until negative and symptom free.

Newborn with suspected COVID-19[5,6,8]

Breastfeeding[9] and Immunization

Support mothers with COVID-19 to hold her newborn to practice skin to skin contact & breast feed while rooming in (where possible) with mother wearing fluid resistant surgical mask, hand hygiene and all other Infection Prevention & Control precautions.

Encourage breastfeeding through supporting mothers to express milk (EBM). Mothers should have a designated breast pump for exclusive use under strict local infection control policies.

BCG, Hepatitis B and Polio vaccination as per standard EPI guidelines

HANDS SANITIZER

FACE MASK

CLEAN EVERYTHING

Discharge Criteria for older children[4]

Once symptoms resolve or after 7 days, whichever is later. Cough may persist longer but there should be no breathing difficulty Plus two negative RT-PCR for COVID-19., 24 hours apart.

Personal Protective Equipment (PPEs)[10]

ICU/ HDU: Aerosol Generating Procedures*(AGPs): N99 respirator mask, Gloves, Long sleeved gown, Goggles & Visor.

Confirmed COVID-19: HDU/ ward: If no AGPs: N95 mask. Gloves, Long sleeved gown, Goggles & Visor
(If <2m).

COVID-19 Assessment Clinic: Fluid resistant surgical mask/N95 mask: Sessional use. Disposable apron: Sessional use; if no direct contact. Single use disposable gloves or preferably hand wash below elbow/ sanitize in between patients. Eyes protection depending on risk.

First level Fever clinic: As above.

Visiting / ward round suspected COVID-19 case in a cubicle: Single use Fluid resistant surgical mask / N95 mask , gloves, disposable apron. Eyes protection depending on risk.

*AGPs: High flow humidified Oxygen >35%, High Flow nasal Oxygen (HFNO),Nebulization, Intubation, Newborn resuscitation, NIV, Airway / ET tube suction, Throat examination, Bronchoscopy

General OPD Guidelines[5]

Waiting area: Keep sanitizer at entrance. Avoid overcrowding. Must be well ventilated. Allow only one parent/caregiver. Keep at least 2 m distance from each other. If possible avoid facing each other.

Consultation: All should wear surgical masks. Doctor to use same mask & disposable apron for the whole session. Avoid child's direct contact with the apron. Wear gloves for single use only. Otherwise wash hands below elbow/sanitize, in between physical examination. Sanitize Diaphragm of stethoscope after each use. Keep desk top free of clutter. Be mindful of other potential sources of cross infection e.g. Pen, Cell phone, tendon hammer, torch, Patient file, chair arms etc.

Avoid routine throat examination
Do not use nebulizer in clinic
Use inhaler with Mask/spacers

References

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for every child

Ministry of National Health Services,
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Government of Pakistan

PAKISTAN PEDIATRIC ASSOCIATION
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THANK YOU