Protocol for Management of Covid-19 in the Paediatric Age Group
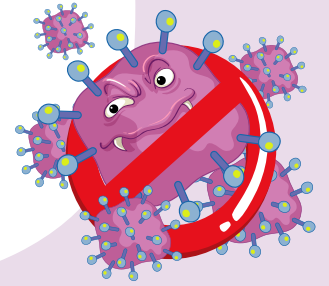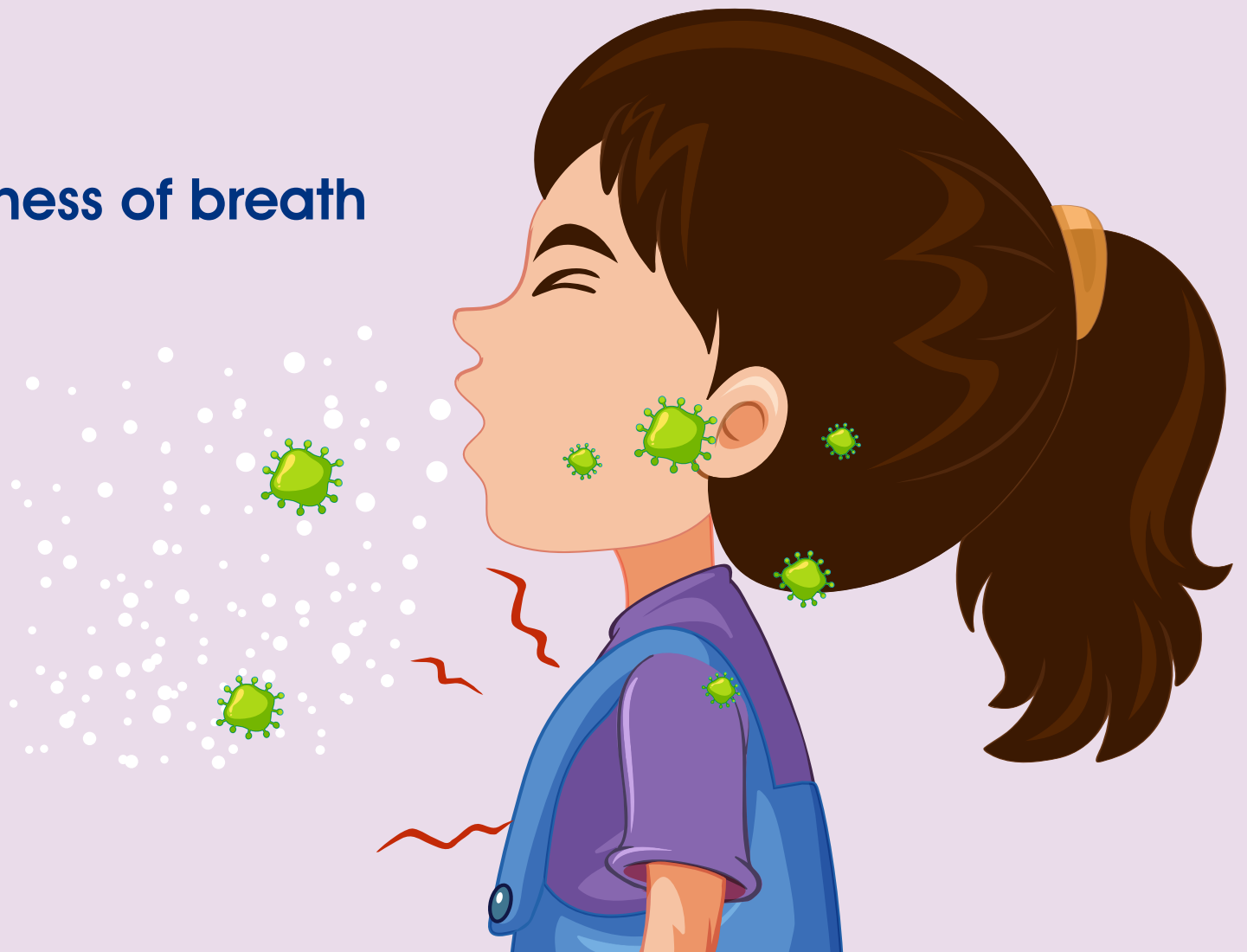
Clinical Features:

Majority of children with Covid infection may be asymptomatic or mildly symptomatic.

Common symptoms include-

- Fever
- Cough
- Breathlessness/shortness of breath
- Fatigue
- Myalgia
- Rhinorrhea
- Sore Throat
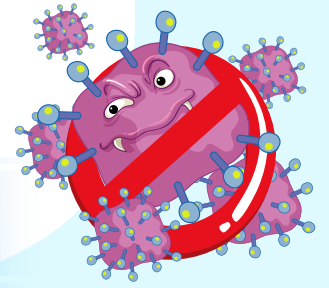- Diarrhea
- Loss of smell
- Loss of taste etc.

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Protocol for Management of Covid-19 in the Paediatric Age Group

Management of asymptomatic children:

Children with Covid-19 infection may be asymptomatic, mildly symptomatic, moderately sick or severe illness.

Asymptomatic children are usually identified while screening,

- If family members are identified.

- Such children do not require any treatment except monitoring for development of symptoms and subsequent treatment according to assessed severity.
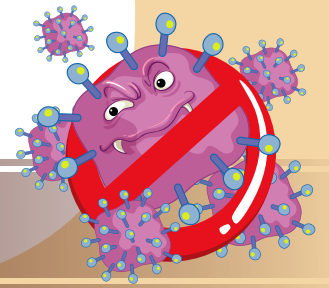
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Protocol for Management of Covid-19 in the Paediatric Age Group

Symptoms of children with Mild Covid-19 disease

Mild disease: Children with mild disease may present with sore throat, rhinorrhea, cough with no breathing difficulty. Few children may have gastrointestinal symptoms also. Such children do not need any investigations.

These children can be managed at home with home isolation and symptomatic treatment.
For home isolation it is important to assess whether home isolation is feasible by following steps:

STEP 01 There is requisite facility for isolation at his/her residence and also for quarantining the family contacts

STEP 02 Parents or other care taker who can monitor and take care of child

STEP 03 If available, Arogya Setu App should be downloaded

STEP 04 The parents/care giver has agreed to monitor health of the child and regularly inform his/her health status to the Surveillance Officer/ doctor

STEP 05 The parents/ care giver has filled an undertaking on self-isolation and shall follow home isolation/quarantine guidelines
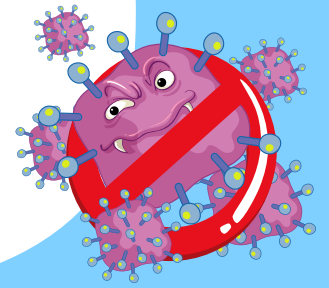
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Protocol for Management of Covid-19 in the Paediatric Age Group

Treatment of children with Mild Covid-19 disease

Treatment of mild illness in home isolation is symptomatic.

For Fever:
Paracetamol 10-15 mg/kg/dose; may repeat every 4-6 hours

For Cough:
Throat soothing agents like warm saline gargles- in older children and adolescents

Fluids & feeds:
Ensure oral fluids to maintain hydration, and nutritious diet

Antibiotics:
Not indicated

Monitoring at home: Explain parents/ care taker to maintain a monitoring chart including counting of respiratory rates 2-3 times a day when child is not crying, looking for chest indrawing, bluish discolouration of body, cold extremities, urine output, oxygen saturation monitoring (hand held pulse oximeter) if feasible, fluid intake, activity level, especially for young children.

There should be regular communication to doctor or health care worker. Parents/caretaker should be explained whom to contact in case of emergency
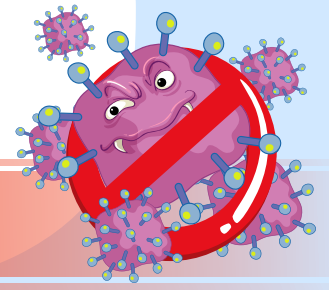
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Protocol for Management of Covid-19 in the Paediatric Age Group

Symptoms of children with Moderate Covid-19 disease

Moderate illness Pneumonia

Fast breathing (age based):

Age: less than 2 months:
≥60/ min

Age: 2 to 12 months:
≥50/min

Age: 1 to 5 years:
≥40/min

Age: more than 5 years:
≥30/min

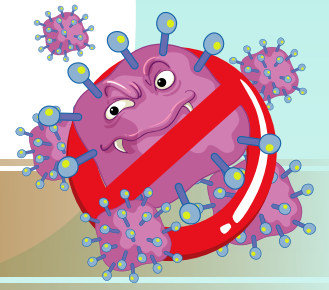## No signs of severe pneumonia/illness

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Protocol for Management of Covid-19 in the Paediatric Age Group

Treatment of children with Moderate Covid-19 disease

Children with moderate Covid–19 disease should be administered:

01 For fever: Paracetamol 10-15 mg/kg/dose. May be repeated every 4-6 hourly. (temperature > 38°C, i.e. 100.4°F).

02 Amoxycillin to be administered, if there is evidence/ strong suspicion of bacterial infection.

03 For SpO2 below 94%, oxygen supplementation is required.

04 Corticosteriods may be administered in rapidly progressive disease. It is not required in all children with moderate illness, specifically during first few days of illness.

05 Supportive care for comorbid conditions, if any.

STOP VIRUS

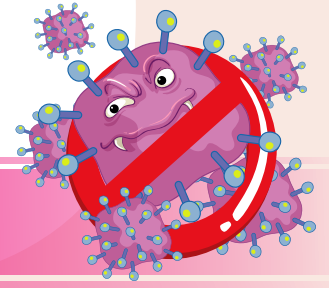wear mask

use disinfectant

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Protocol for Management of Covid-19 in the Paediatric Age Group

Symptoms of children with Severe Covid-19 disease

Management of children with Severe Covid-19 disease:

Children with SpO2 level less than 90% are categorized as having severe degree of Covid-19 infection.

Such children may be having severe

- Pneumonia,
- Acute Respiratory Distress Syndrome,
- Septic Shock,
- Multi-organ dysfunction syndrome (MODS),
- Pneumonia with Cyanosis.

Clinically, such children may present with

- Grunting,
- Severe retraction of chest,
- Lethargy,
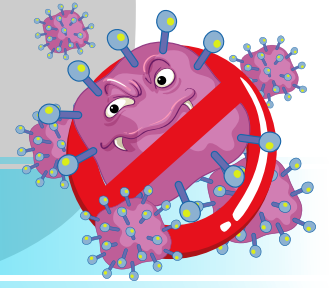- Somnolence,
- Seizure.

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Protocol for Management of Covid-19 in the Paediatric Age Group

Treatment of children with severe Covid-19

Intravenous fluid therapy

I. Corticosteriods: Dexamethasone 0.15 mg/kg per dose (max 6 mg) twice a day is preferred. Equivalent dose of methylprednisolone may be used for 5 to 14 days depending on continuous clinical assessment.
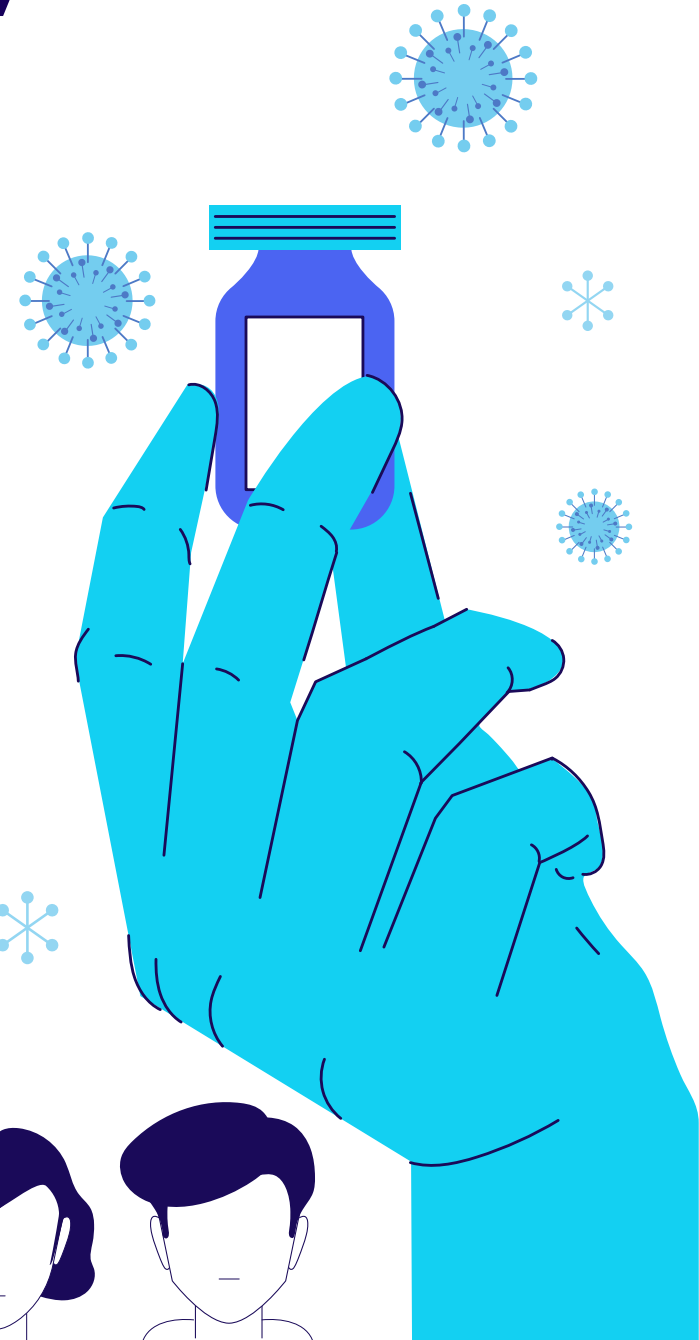
ii. Anti-viral agents: Remdesivir is antiviral agent.

iii. Children may need organ support in case of organ dysfunction;

e.g. Renal Replacement Therapy.

iv. Admit, preferably in ICU/HDU those with ARDS/ Sepsis/ Septic shock/ MODS

Evaluate for thrombosis, hemophagocytic lymphohistiocytosis, organ failure

Steroids± Remdesivir Empiric antimicrobials Oxygen therapy:

nasal prong, face mask, HFNC and NIV SpO2 target > 94% during resuscitation (once stable > 90%) Consider Awake Prone positioning (in older children) Restrictive fluid therapy Organ support (e.g.: RRT)
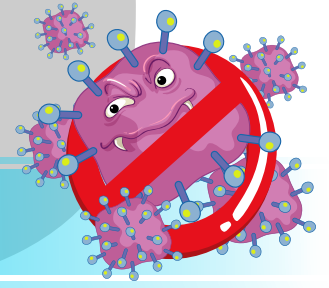
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Protocol for Management of Covid-19 in the Paediatric Age Group

Treatment of children with severe Covid-19

Intravenous fluid therapy

Management of Acute Respiratory Distress Syndrome (ARDS):

The principles of treatment are similar to that of ARDS due to any other underlying illness.
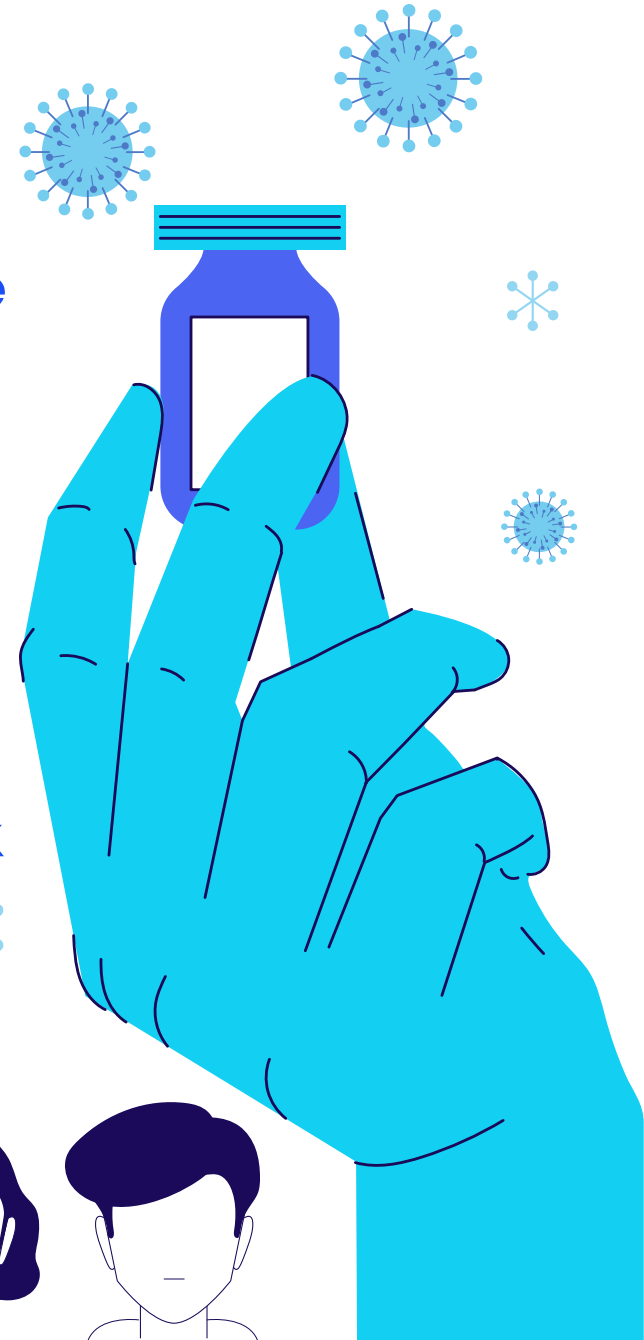
» Mild ARDS: High Flow Nasal Oxygenation, Non-invasive ventilation may be given.

» Severe ARDS: Mechanical ventilation may be given with low tidal volume (<6 mL/kg and High Positive End Expiratory Pressure).

Management of Shock: If the child develops septic shock or myocardial dysfunction then he/she may require:

» Crystalloid bolus administration: 10 to 20 ml/kg over 30 to 60 minutes; be cautious if cardiac dysfunction is there.

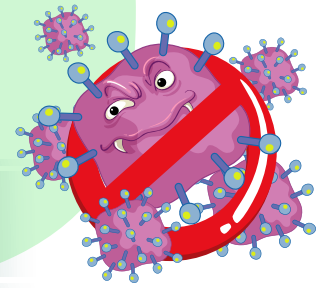» Early inotrope support with monitoring of fluid overload like any other cause of shock.

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Protocol for Management of Covid-19 in the Paediatric Age Group

Symptoms of children with MIS Covid-19 disease

Management of Multisystem inflammatory syndrome in children and adolescents temporally related to COVID-19 (MIS-C)

A new syndrome with name of multisystem inflammatory syndrome as been described in children. Such cases are characterized by:

unremitting fever > 380 C, epidemiological linkage with SARS CoV – 2 and clinical features suggestive of Multi System Inflammatory

Diagnostic criteria of MISC in Children (WHO criteria): a constellation of clinical and laboratory parameters has been suggested for diagnosis. These include:
■ Children and adolescents 0–19 years of age with fever ≥ 3 days

AND two of these:
■ Rash or bilateral non-purulent conjunctivitis or muco-cutaneous inflammation signs (oral, hands or feet).
■ Hypotension or shock.
■ Features of myocardial dysfunction, pericarditis, valvulitis, or coronary abnormalities (including ECHO findings or elevated Troponin/NTproBNP),
■ Evidence of coagulopathy (by PT, PTT, elevated d-Dimers).
■ Acute gastrointestinal problems (diarrhoea, vomiting, or abdominal pain).

AND
Elevated markers of inflammation such as ESR, C-reactive protein, or procalcitonin.
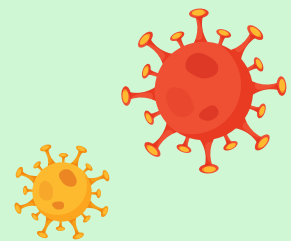
AND
■ No other obvious microbial cause of inflammation, including bacterial sepsis, staphylococcal or streptococcal shock syndromes.

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

Investigations:
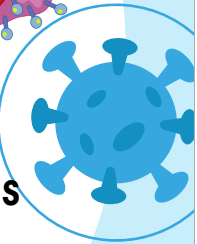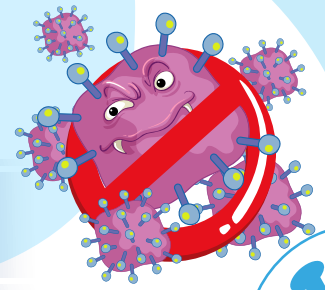as listed above in criteria and investigations to rule out common differential diagnoses.

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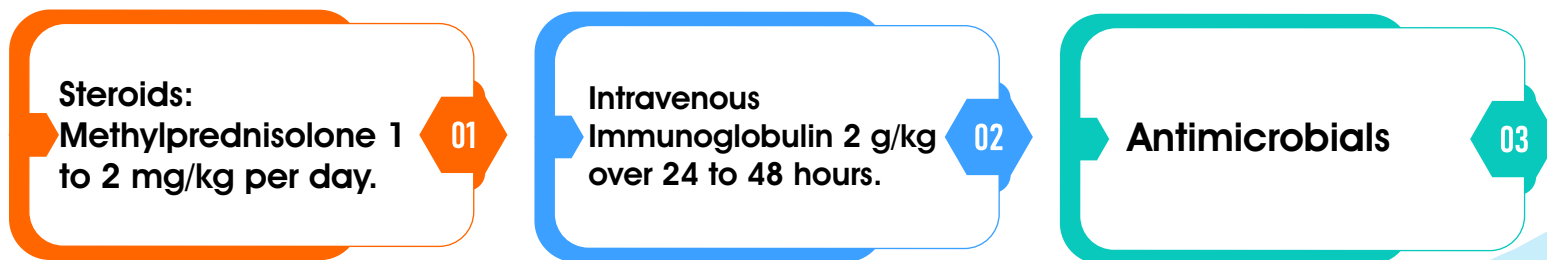
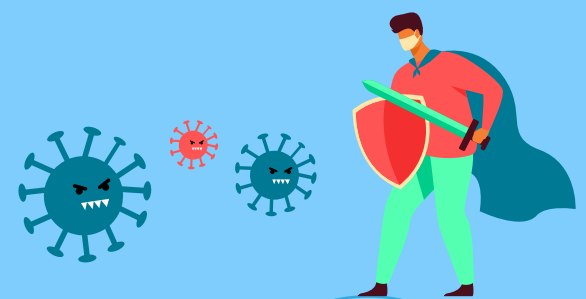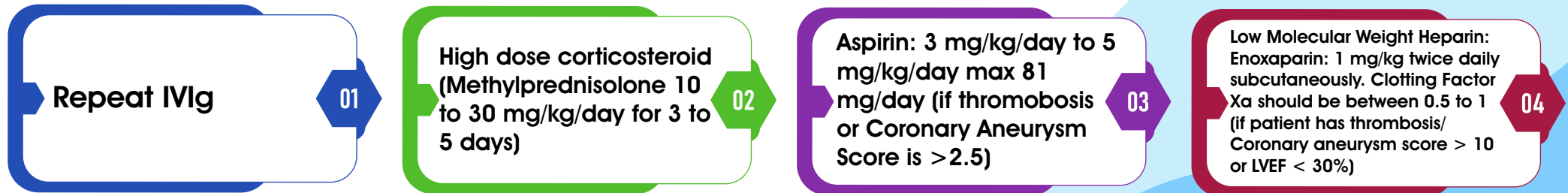# Protocol for Management of Covid-19 in the Paediatric Age Group

Treatment of children with MIS Covid-19 disease

Treatment of MIS-C

Drugs to be used in case of Multi System Inflammatory Syndrome in Children in case the child has cardiac dysfunction, shock, coronary involvement, multi organs dysfunction (for details, see algorithm):

01 Steroids: Methylprednisolone 1 to 2 mg/kg per day.

02 Intravenous Immunoglobulin 2 g/kg over 24 to 48 hours.

03 Antimicrobials

If the child does not improve with the above treatment or deteriorates, options include:

01 Repeat IVIg

02 High dose corticosteroid (Methylprednisolone 10 to 30 mg/kg/day for 3 to 5 days)

03 Aspirin: 3 mg/kg/day to 5 mg/kg/day max 81 mg/day (if thromobosis or Coronary Aneurysm Score is >2.5)

04 Low Molecular Weight Heparin: Enoxaparin: 1 mg/kg twice daily subcutaneously. Clotting Factor Xa should be between 0.5 to 1 (if patient has thrombosis/ Coronary aneurysm score > 10 or LVEF < 30%)

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