Care for a children and Young Persons with mild and moderate COVID-19 at home

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Disclaimer:
NO CONFLICT OF INTEREST
Outline

- Epidemiology
- Mild case
- Management strategies: isolation at home
- Standard of care
- Treatment strategy in COVID-19 children with comorbidities
- Conclusion
# Global epidemiological overview on children and adolescents

(30 December 2019-04 October 2021; 172 countries)

<table>
<thead>
<tr>
<th>Age group</th>
<th>Number of cases</th>
<th>Proportion to global cases (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 5 years</td>
<td>1,738,962</td>
<td>1.8</td>
</tr>
<tr>
<td>5- 14 years</td>
<td>6,211,429</td>
<td>6.6</td>
</tr>
<tr>
<td>15- 24 years</td>
<td>13,903,170</td>
<td>14.7</td>
</tr>
</tbody>
</table>

Total global cases (confirmed and probable) reported to WHO, all ages: 94,828,010

<table>
<thead>
<tr>
<th>Age group</th>
<th>Number of deaths</th>
<th>Proportion to global deaths (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 5 years</td>
<td>1,776</td>
<td>0.1</td>
</tr>
<tr>
<td>5- 14 years</td>
<td>1,272</td>
<td>0.07</td>
</tr>
<tr>
<td>15- 24 years</td>
<td>6,626</td>
<td>0.4</td>
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</tbody>
</table>

Total global deaths (confirmed and probable) reported to WHO, all ages: 1,873,639
Confirmed Pediatric Case in Indonesia
Indonesia COVID-19 task force

1st case: start March 2020
1st wave: November 2020
2nd wave: Jul 2021
3rd wave: Feb 2021

Jul - Aug 2021
- Confirmed: 8.65-8.83%
- Death: 1.56-1.82%

Februari 2022
- confirmed 9.09%
- Death 1.96%

Alpha variants
Delta variants enter Indonesia
Omicron variants enter Indonesia

Number of cases

Confirmed
Death

Juli - Aug 2021
7780 7656 10746 10626 22067 21395 2343 20697 18585 6889 14448 23715 83124 74335 11475 2993 1802 642 8120 107037


On March 1, 2022. A 2-year-old boy had a fever for three days. His temperature was as high as 38.9 °C with dry cough, cold and sneezing.

- He presented no fast breathing, GI problems, irritability, and no weakness; with good appetite.
- There was also no clear history of exposure to patients infected with SARS-CoV-2 or other infectious diseases in the family and day care.
- No history of food and drug allergies or other medical conditions.
- Term infant.

SARS-CoV-2 RT-PCR
Gene N detected
CT value 23.02
Manifestations and organ/apparatus involvement in the pediatric population with SARS-CoV-2 infection

- **UPPER AIRWAYS**
  - Sore throat - Nasal congestion - Running nose - Cough

- **LOWER AIRWAYS**
  - Cough – Tachypnea - Shortness of breath – Dyspnea – Cyanosis - Oxygen saturation < 92% - Acute respiratory distress syndrome

- **GASTROINTESTINAL SYSTEM**
  - Nausea/vomiting - Abdominal pain – Diarrhea - Trouble feeding

- **CENTRAL NERVOUS SYSTEM**
  - Headache – Dizziness - Seizures

- **SYSTEMIC FEATURES**
  - Fever – Fatigue – Myalgia - Skin rash - Multiple organ failure - Multi-system inflammatory syndrome

Neither absence nor presence of signs or symptoms are accurate enough to rule in or rule out COVID-19.

Do you live in an area with malaria, dengue or other endemic infectious diseases?

Need further testing

Patient came to primary care or hospital outpatient settings with signs & symptoms

Management strategies
**Children with confirmed COVID-19**

**Non-severe**
- Absence of signs of severe or critical diseases
  - fever, cough, sore throat, malaise, headache, muscle pain, nausea, vomiting, diarrhea, loss of taste or smell
  - no shortness of breath, dyspnea, or abnormal chest imaging

**Isolation at home**

**Severe**
- SpO2 <90%*
- Raised RR
- Signs of severe respiratory distress
- presence of any other general danger signs**

**Critical**
- Requires life sustaining treatment
  - ARDS
  - Sepsis
  - Septic shock

**Inability to breastfeed or drink, lethargy, convulsions or reduced level of consciousness**

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*WHO. Therapeutics & COVID-19. 20 Nov 2020*
Provide support:

• Support the well-being of the child
• Help cover basic needs
  • For most children, symptoms last a few days and usually feel better after a week
  • Some (OTC) medicines for fever
  • Drinks a lot of fluids; continue breastfeeding
  • Rests

Protect yourself

• Limit contact
• Use a separate bedroom & bathroom
• Open the window to increase air circulation
• Avoid sharing personal items
• Throw out stuffs contain child’s body fluid into the bin
• Washed hands
• Wear mask
• Test to prevent spread to others

HCW’s decision
Virus can spread “after infected people sneeze, cough on, or touch surfaces, or objects, such as tables, doorknobs and handrails”.

The WHO adds that “disinfection practices are important to reduce the potential for COVID-19 virus contamination”.

As aerosol in the air*: Up to 3 hrs
On copper: Up to 4 hrs
On cardboard: Up to 24 hrs
On plastic: 2 - 3 days
On stainless steel: 2 - 3 days

Study and paper by:
New England Journal of Medicine
CDC
Universities of California, LA, Princeton

*Researchers used a nebulizer to simulate coughing or sneezing, and found that the virus became an aerosol.
Are you caring for children under the age of 5?
• People who are at greater risk of serious illness from COVID-19 (e.g., older adults, people with some chronic health issues) should avoid caring.

• Having one parent/caregiver care for the child can reduce the risk of COVID-19 spread to other household members.

• If the child has COVID-19, the household members need to self-isolate. This may be for additional time after the child’s last day of self-isolation.
Therapy strategies: symptomatic treatment
<table>
<thead>
<tr>
<th>Clinical picture</th>
<th>Supportive care</th>
<th>Antiviral treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Asymptomatic infection</strong></td>
<td>None</td>
<td>None</td>
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<tr>
<td><strong>Mild case:</strong></td>
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<td></td>
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<tr>
<td>Upper respiratory signs, non-respiratory problems (GI problems, etc)</td>
<td>• Paracetamol (10–15 mg/kg every 4–6 h) in case of fever &gt; 38 °C</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>• Vitamin</td>
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<tr>
<td><strong>Moderate case:</strong></td>
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</tr>
<tr>
<td>Pneumonia without respiratory distress</td>
<td>• Paracetamol in case of fever &gt; 38 °C</td>
<td>• Dexamethasone (0.1–0.2 mg/kg) or methylprednisolone (1–2 mg/kg day)</td>
</tr>
<tr>
<td></td>
<td>• Oxygen therapy if needed (target oxygen saturation &gt; 95%)</td>
<td>• Antivirus Remdesivir (5 mg/kg/1st day than 2.5 mg/kg for 5 days) or favipiravir</td>
</tr>
<tr>
<td></td>
<td>• Intravenous access, adequate fluid and caloric intake based on hydration status</td>
<td>• Antivirus</td>
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<td></td>
<td>• Antivirus</td>
<td>• Corticosteroid</td>
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<tr>
<td></td>
<td>• Corticosteroid</td>
<td>• Avoid empiric antibiotic treatment if no evidence of bacterial infection (consult an ID specialist)</td>
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<td></td>
<td>• Avoid empiric antibiotic treatment if no evidence of bacterial infection (consult an ID specialist)</td>
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<tr>
<td><strong>Severe illness:</strong></td>
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<tr>
<td>Severe pneumonia (nasal flare, chest indrawing, cyanosis, desaturation Sp02 &lt;95%)</td>
<td>• Paracetamol in case of fever &gt; 38 °C</td>
<td>• Dexamethasone</td>
</tr>
<tr>
<td></td>
<td>• Airway maintanence</td>
<td>• Antivirus Remdesivir (5 mg/kg/1st day than 2.5 mg/kg for 5 days) or favipiravir</td>
</tr>
<tr>
<td></td>
<td>• Oxygen therapy (target oxygen saturation &gt; 95%)</td>
<td>• Empiric antibiotic treatment if any evidence of bacterial infection (consult an ID specialist)</td>
</tr>
<tr>
<td></td>
<td>• Intravenous access, adequate fluid and caloric intake based on hydration status. Monitor urinary output.</td>
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<td></td>
<td>• Antivirus</td>
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<td></td>
<td>• Corticosteroid</td>
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<td></td>
<td>• Monitor vital signs</td>
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<tr>
<td><strong>Critical illness:</strong></td>
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<td></td>
</tr>
<tr>
<td>ARDS, respiratory failure, shock, heart failure, MODS</td>
<td>• Paracetamol in case of fever &gt; 38 °C</td>
<td>• Dexamethasone or methylprednisolone (1–2 mg/kg day)</td>
</tr>
<tr>
<td>Conditions requiring mechanical ventilation or ECMO</td>
<td>• Airway maintanance</td>
<td>• Antivirus</td>
</tr>
<tr>
<td></td>
<td>• Oxygen therapy using mechanical ventilation or extracorporeal membrane oxygenation</td>
<td>• Empiric antibiotic treatment if any evidence of bacterial infection (consult an ID specialist)</td>
</tr>
<tr>
<td></td>
<td>• Intravenous access, adequate fluid and caloric intake based on hydration status. Monitor urinary output.</td>
<td>• Team decision: anticoagulant, IVIG, mn-Ab, etc</td>
</tr>
<tr>
<td></td>
<td>• Antivirus</td>
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<tr>
<td></td>
<td>• Corticosteroid</td>
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<tr>
<td></td>
<td>• Monitor vital signs</td>
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</tbody>
</table>
## WHO Recommendations AGAINST Treatment of Patients With COVID-19

<table>
<thead>
<tr>
<th>WHO Guidance¹</th>
<th>Patient Population</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not recommended</td>
<td>Non-severe COVID-19 patient</td>
<td>• A conditional recommendation against systemic corticosteroids</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• A conditional recommendation against remdesivir regardless of disease severity</td>
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<tr>
<td></td>
<td></td>
<td>• A strong recommendation against convalescent plasma.</td>
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<tr>
<td></td>
<td></td>
<td>• A strong recommendation against hydroxychloroquine</td>
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<tr>
<td></td>
<td></td>
<td>• A strong recommendation against lopinavir/ritonavir</td>
</tr>
<tr>
<td>Not recommended</td>
<td>Severe and critical COVID-19 patient</td>
<td>• A conditional recommendation against remdesivir regardless of disease severity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• A conditional recommendation against ruxolitinib and tofacitinib.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• A strong recommendation against hydroxychloroquine</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• A strong recommendation against lopinavir/ritonavir</td>
</tr>
</tbody>
</table>


¹WHO Guidance
Considerations for AMR in the Covid-19 pandemic

The overall proportion of COVID-19 patients who have a bacterial coinfection is lower than in previous influenza pandemics.
COVID-19
The timeline: discharge from isolation
August 2020

Someone has a positive PCR test and no COVID-19 symptoms

- The day of the test is counted as day 1. Watch for symptoms.
- If no symptoms appear, isolate for 10 days.

Day 1: PCR Test Positive
Isolation for 10 days from the day of a positive PCR test
Discharge from isolation on day 11

Someone with COVID-19 symptoms and a positive PCR test

- Isolation always includes 10 days from symptom onset plus an additional 3 days without symptoms.
- The minimum isolation period is 13 days, with release on day 14 (or later if symptoms persist).

Symptoms start (day 1) and last up to 10 days:
10 days isolation

Plus 3 days isolation without symptoms

Discharge from isolation on day 14

Symptoms persist for more than 10 days:
Isolation continues throughout the whole period

Plus 3 days isolation without symptoms

Discharge from isolation on the 4th day without symptoms
A 16-year-old male HIV patient had a fever for two days. His temperature was as high as 39.3 °C with chill, muscle ache, weakness, and dry cough.

He presented no fast breathing, chest tightness or chest pain, GI problems, and no dizziness.

There was also no clear history of exposure to patients infected with SARS-CoV-2 both in the family and school.

Antiretroviral adherence treatment was poor with clinical failure and he was in treatment of tuberculosis.

He had one shot of COVID-19 vaccination.
Therapy strategies
### Hospitalization

<table>
<thead>
<tr>
<th>Medical condition</th>
<th>Risk ratio (95% CI)</th>
<th>Lower risk of hospitalization</th>
<th>Higher risk of hospitalization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1 diabetes</td>
<td>4.60 (3.91-5.42)</td>
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<tr>
<td>Obesity</td>
<td>3.07 (2.66-3.54)</td>
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</tr>
<tr>
<td>Cardiac and circulatory congenital anomalies</td>
<td>2.12 (1.83-2.45)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Epilepsy, convulsions</td>
<td>1.97 (1.62-2.39)</td>
<td></td>
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</tr>
<tr>
<td>Other specified status</td>
<td>1.96 (1.63-2.37)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trauma and stressor-related disorders</td>
<td>1.82 (1.51-2.18)</td>
<td></td>
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<tr>
<td>Neurodevelopmental disorders</td>
<td>1.64 (1.47-1.83)</td>
<td></td>
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<tr>
<td>Type 2 diabetes</td>
<td>1.59 (1.30-1.95)</td>
<td></td>
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<tr>
<td>Depressive disorders</td>
<td>1.58 (1.34-1.87)</td>
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<tr>
<td>Essential hypertension</td>
<td>1.51 (1.29-1.78)</td>
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<tr>
<td>Anxiety and fear-related disorders</td>
<td>1.47 (1.27-1.70)</td>
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<tr>
<td>Asthma</td>
<td>1.23 (1.13-1.34)</td>
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<tr>
<td>Tobacco-related disorders</td>
<td>1.15 (0.96-1.38)</td>
<td></td>
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<tr>
<td>Other congenital anomalies</td>
<td>1.15 (0.93-1.41)</td>
<td></td>
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<tr>
<td>Esophageal disorders</td>
<td>1.14 (0.98-1.34)</td>
<td></td>
<td></td>
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<tr>
<td>Other upper respiratory disease</td>
<td>1.14 (0.89-1.45)</td>
<td></td>
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<tr>
<td>Sleep/wake disorders</td>
<td>1.09 (0.93-1.28)</td>
<td></td>
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</tr>
<tr>
<td>Headache including migraine</td>
<td>1.06 (0.81-1.39)</td>
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</tr>
</tbody>
</table>

Know your risk:

Until December 2020:
- 37,706 reported confirmed
- 175 cases resulted in death (CFR 0.46).

Comorbidities:

- Genetic disorder: 6.4%
- Autoimmune disease: 1.9%
- Chronic Kidney Disease: 5.8%
- Congenital Heart Disease: 9.0%
- Cerebral Palsy: 3.8%
- Tuberculosis: 5.6%
- Malnutrition: 18.0%
- Malignancy: 17.3%
### WHO Recommendations FOR patients with non-severe COVID-19:

<table>
<thead>
<tr>
<th>WHO Guidance¹</th>
<th>Patient Population</th>
<th>Treatment</th>
</tr>
</thead>
</table>
| Recommendation | • A conditional recommendation for those at highest risk of hospitalization. | • Sotrovimab  
|                 |                    | • Molnupiravir → not for pediatric |
| Recommends in clinical trial only | • Not recommended, regardless of COVID-19 disease severity | • ivermectin |

*Local variants should be considered when selecting monoclonal antibody treatment.

¹NIH guidelines warn against using casirivimab/imdevimab as PEP, citing lack of efficacy vs Omicron VOC.²

Efficacy reduced the risk of hospitalization or death through Day 28

- **Paxlovid®**
  - 88-89%
  - Use in pediatric patients aged ≥12 years and weighing ≥40 kg
  - $530 for each 5-day course

- **Sotrovimab**
  - 79-85%
  - Use in pediatric patients aged ≥12 years and weighing ≥40 kg
  - $2,100 for one i.v treatment

- **Remdesivir**
  - 87%
  - Use in pediatric patients age <12 years and weighing ≥3.5 kg
  - $2,340 for a 5-day course of treatment ($390/vial)

- **Molnupiravir**
  - 30%
  - Use for age ≥18 years
  - $700 per five-day course

NIH COVID-19 treatment guideline, 24 Feb 2022
## Monitoring

**Panduan Isolasi Mandiri Anak**

*versi tanggal 28 Juni 2021 (living document)*

### Logbook

<table>
<thead>
<tr>
<th>Gejala</th>
<th>Senin</th>
<th>Selasa</th>
<th>Rabu</th>
<th>Kamis</th>
<th>Jumat</th>
<th>Sabtu</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Tangan</td>
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</tbody>
</table>

Diary isolasi mandiri anak IDAI 2021
it's time to go to the health care facility.
Conclusion

• Most children and young people who get COVID-19 don’t get very ill or don’t have any symptoms.
  • Isolation at home
  • All care at home should be done under clinical supervision
• The protocol treatment for isolate your COVID-19 children are provide support children well-nourished, well-hydrated, the well-being of the child and protect yourself (parents/caregiver)
• The WHO gives a conditional recommendation drugs for those at highest risk of hospitalization.
• Monitor the condition regularly and complications/red flags
Thank you