COVID-19
CASE MANAGEMENT
Webinar Series

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

Assoc. Prof. Anggraini Alam, MD, PhD, Pediatric Infectious Disease

Child Health Dept. Faculty of Medicine Universitas Padjadjaran-hasan Sadikin Hospital
Head of Infection Trop. & Disease The Indonesian Pediatric Society (IPS)
COVID-19 Task Force of The Indonesia Pediatric Society
Member of The SAG On Covid-19, Antimicrobial Resistance, And Infectious Disease of The IPA

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)

Age group	Number of cases	Proportion to global cases (%)
< 5 years	1,738,962	1.8
5- 14 years	6,211,429	6.6
15- 24 years	13,903,170	14.7

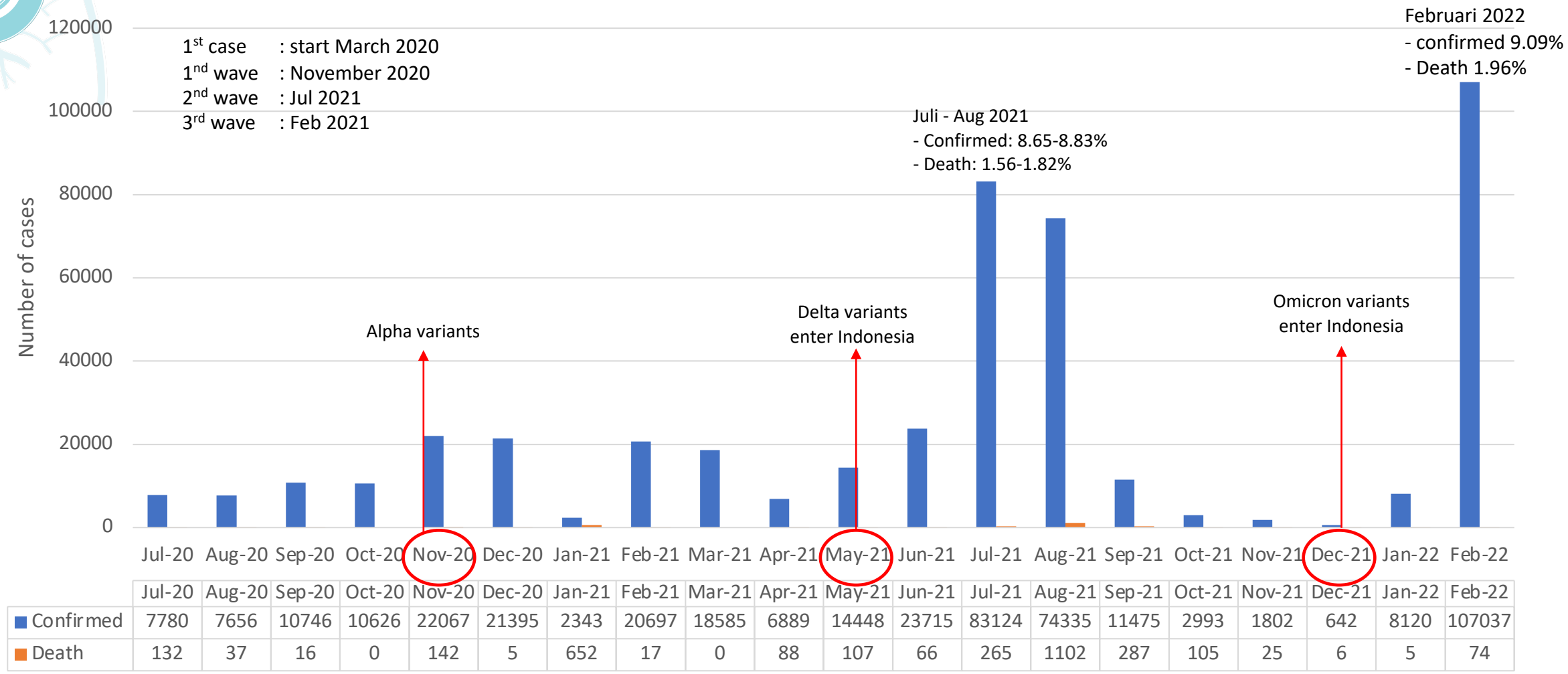
Total global cases (confirmed and probable) reported to WHO, all ages: 94,828,010

Age group	Number of deaths	Proportion to global deaths (%)
< 5 years	1,776	0.1
5- 14 years	1,272	0.07
15- 24 years	6,626	0.4

Total global deaths (confirmed and probable) reported to WHO, all ages: 1,873,639

Confirmed Pediatric Case in Indonesia

Indonesia COVID-19 task force



	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22
Confirmed	7780	7656	10746	10626	22067	21395	2343	20697	18585	6889	14448	23715	83124	74335	11475	2993	1802	642	8120	107037
Death	132	37	16	0	142	5	652	17	0	88	107	66	265	1102	287	105	25	6	5	74

- 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 ofbreath – Dyspnea – Cyanosis - Oxygen saturation < 92% - Acute respiratory distress syndrome
GASTROINTESTINAL SYSTEM	Nausea/vomiting - Abdominal pain – Diarrhea - Trouble feeding
CENTRAL NERVOUS SYSTEM	Headache – Dizzines - Seizures
SYSTEMIC FEATURES	Fever – Fatigue – Myalgia - Skin rash - Multiple organ failure - Multi-system inflammatory syndrome

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

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?

World Health Organization

Need further testing

Borrelli M, et al. Front Pediatr. 2021 May 28;9:668484
Struyf T, et al. Cochrane Database Syst Rev. 2021 Feb 23;2(2):CD01366.

Management strategies

Disease severity (WHO)

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

- **Sp02 ≤90%***
- Raised RR
- Signs of severe respiratory distress
- presence of any other **general danger signs****

inability to breastfeed or drink, lethargy, convulsions or reduced level of consciousness

Critical

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

1st the ideal scenario

HCW's decision

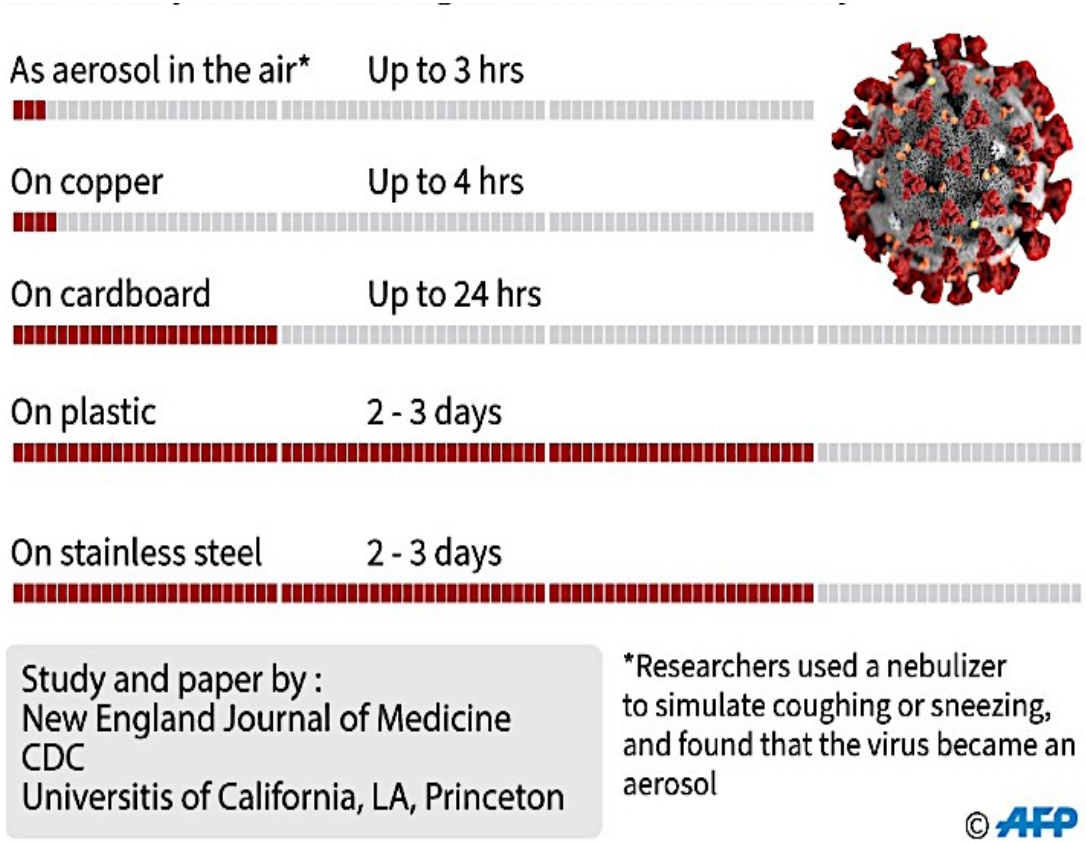
Provide support:

- 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

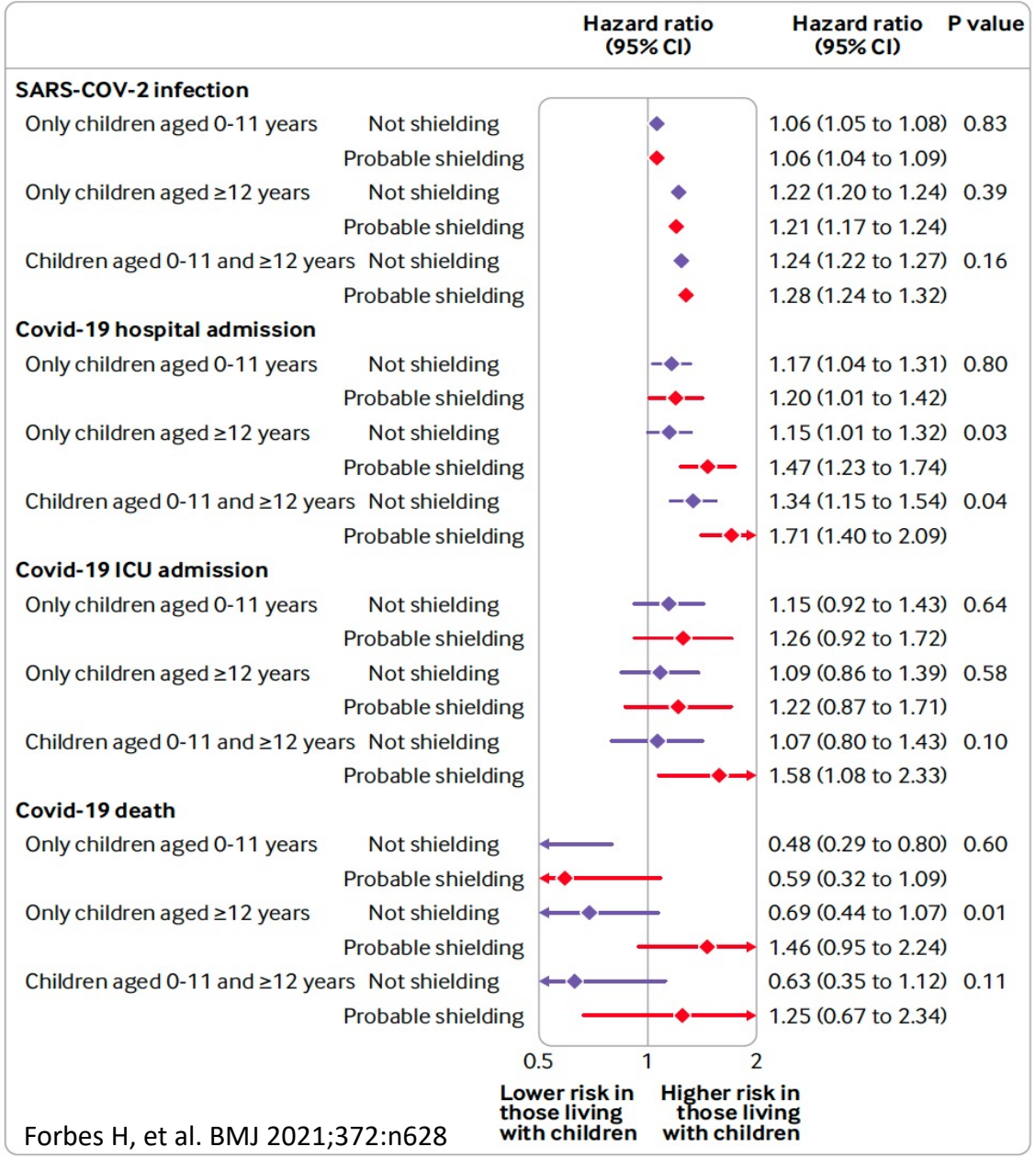
and frequently clean and disinfect surfaces



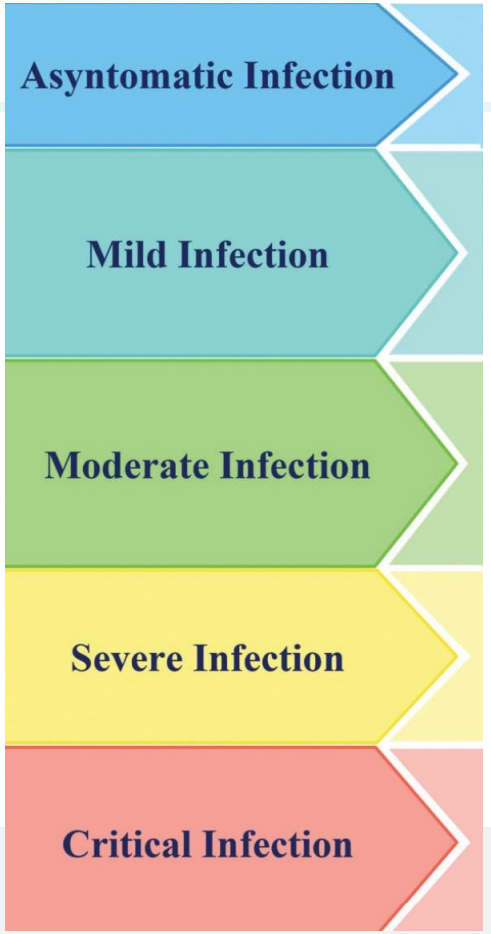
- Virus can spread “after infected people sneeze, cough on, or touch surfaces, or objects, such as tables, doorknobs and handrails”.
- The WHO adds that “**disinfection practices are important to reduce the potential for COVID-19 virus contamination**”.


World Health Organization
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 the household members need to self-isolate. This may be for additional time after the child's last day of self-isolation



Forbes H, et al. BMJ 2021;372:n628



Therapy strategies: symptomatic treatment

Indonesia COVID-19 in children treatment guideline

MOH – 5 Indonesian Proffesional Organization Guideline, 2020

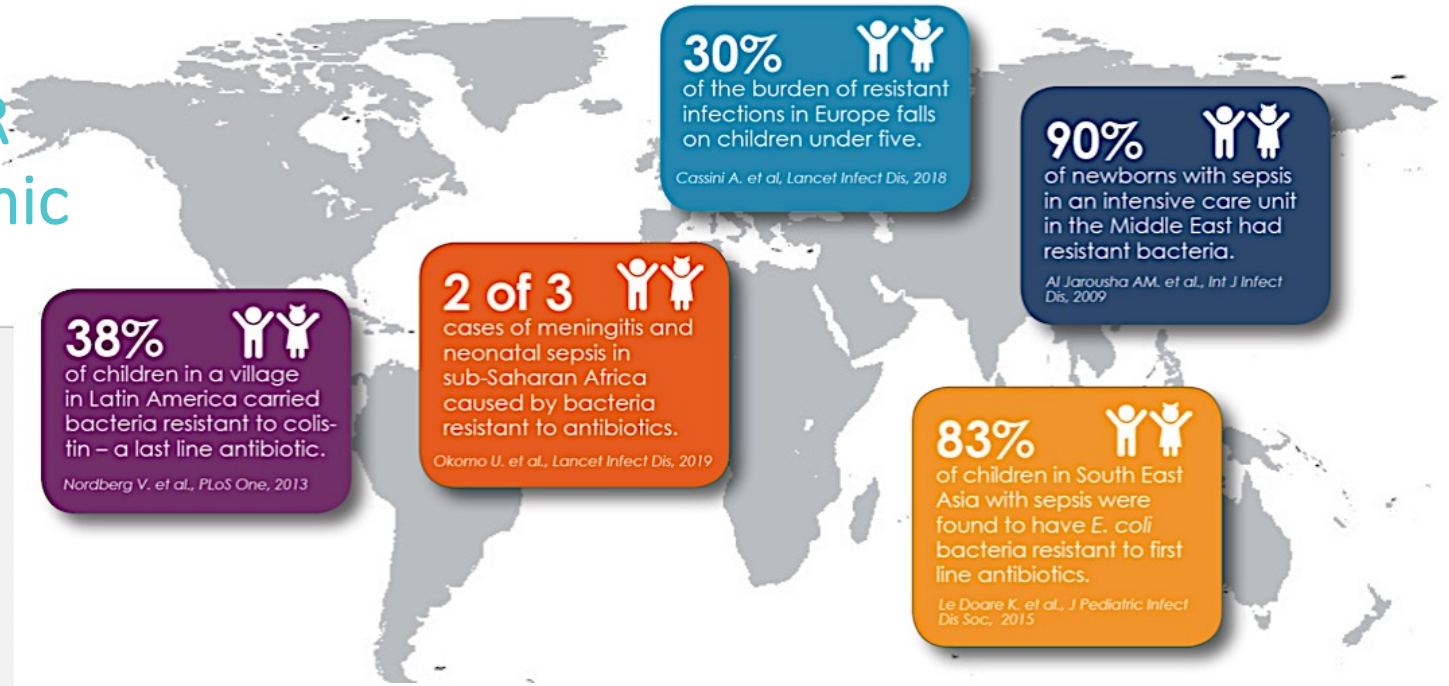
Clinical picture	Supportive care	Antiviral treatment
Asymptomatic infection	None	None
Mild case: Upper respiratory signs, non-respiratory problems (GI problems, etc)	• Paracetamol (10–15 mg/kg every 4–6 h) in case of fever > 38 °C • Vitamin	None
Moderate case: Pneumonia without respiratory distress *Takipnea <2 month old ≥60x/menit; 2–11 month old ≥50x/menit; 1–5 yo ≥40x/menit, >5 yo ≥30x/menit	• Paracetamol in case of fever > 38 °C • Oxygen therapy if needed (target oxygen saturation > 95%) • Intravenous access, adequate fluid and caloric intake based on hydration status • Antivirus • Corticosteroid • Avoid empiric antibiotic treatment if no evidence of bacterial infection (consult an ID specialist)	• Dexamethasone (0.1–0.2 mg/kg) or methylprednisolone (1–2 mg/kg day) • Antivirus Remdesivir (5 mg/kg/1st day than 2.5 mg/kg for 5 days) or favipiravir
Severe illness: Severe pneumonia (nasal flare, chest indrawing, cyanosis, desaturation Sp02 <95%) Danger signs (seizure, decrease of conciousness, profuse vomiting, inability to drink) with or without respiratory problems	• Paracetamol in case of fever > 38 °C • Airway maintanance • Oxygen therapy (target oxygen saturation > 95%) • Intravenous access, adequate fluid and caloric intake based on hydration status. Monitor urinary output. • Antivirus • Corticosteroid • Monitor vital signs	• Dexamethasone • Antivirus Remdesivir • Empiric antibiotic treatment if any evidence of bacterial infection (consult an ID specialist)
Critical illness: ARDS, respiratory failure, shock, heart failure, MODS Conditions requiring mechanical ventilation or ECMO	• Paracetamol in case of fever > 38 °C • Airway maintanance • Oxygen therapy using mechanical ventilation or extracorporeal membrane oxygenation • Intravenous access, adequate fluid and caloric intake based on hydration status. Monitor urinary output. • Antivirus • Corticosteroid • Monitor vital signs	• Dexamethasone or methylprednisolone (1–2 mg/kg day) • Antivirus • Empiric antibiotic treatment if any evidence of bacterial infection (consult an ID specialist) • Team decision: anticoagulant, IVIG, mn-Ab, etc
MIS-C		

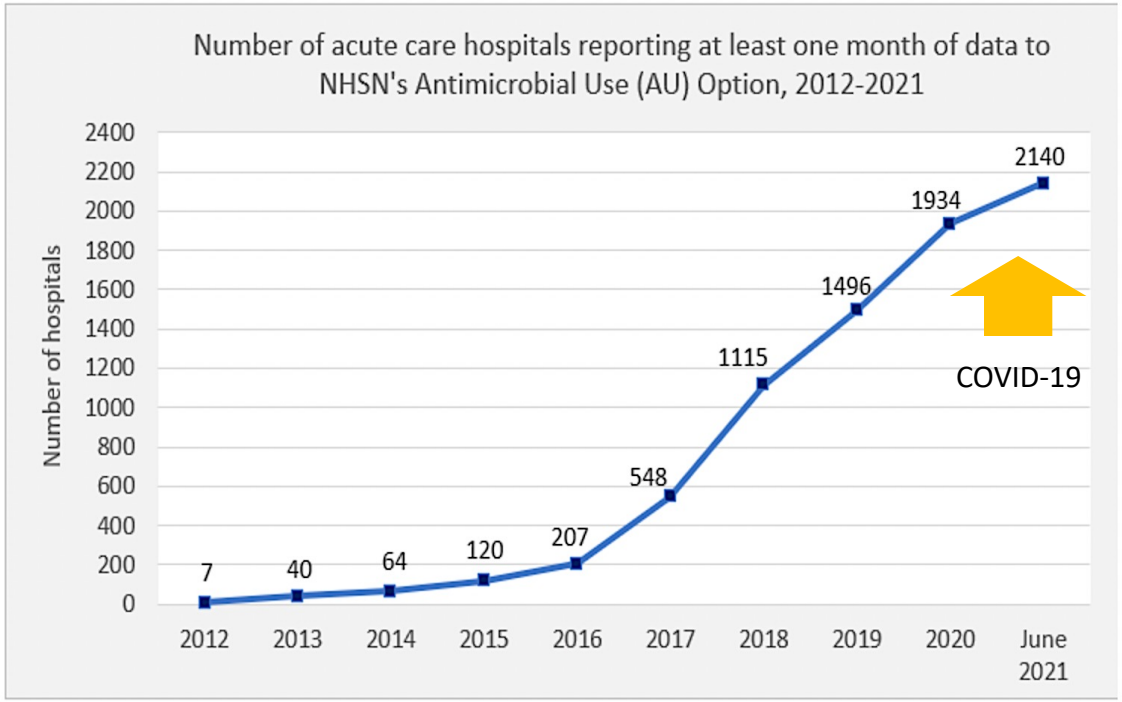
WHO Recommendations AGAINST Treatment of Patients With COVID-19

WHO Guidance[1]	Patient Population	Treatment
Not recommended	Non-severe COVID-19 patient	• A conditional recommendation against systemic corticosteroids • A conditional recommendation against remdesivir regardless of disease severity • a strong recommendation against convalescent plasma. • a strong recommendation against hydroxychloroquine • a strong recommendation against lopinavir/ritonavir
Not recommended	Severe and critical COVID-19 patient	• A conditional recommendation against remdesivir regardless of disease severity • a conditional recommendation against ruxolitinib and tofacitinib. • a strong recommendation against hydroxychloroquine • a strong recommendation against lopinavir/ritonavir

WHO Guideline. March 3, 2022.

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**

Only **6.9%** of COVID-19 patients were found to have bacterial co-infections or secondary infections[6]

US CDC. Antibiotic Use in the United States, 2021
Bogdanić N, et al. PLoS ONE. 2022;17(2): e0263437 Diaz, A.,et al. Curr Trop Med Rep 5, 5–15 (2018).
https://www.reactgroup.org/news-and-views/news-and-opinions/year-2020
COVID-19 and Antimicrobial Resistance: Dual Health Threats. Nov 2020
L. Lansbury, B. Lim and V. Baskaran et al. / Journal of Infection 81 (2020) 266–275

COVID-19

World Health Organization

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

COVID-19

World Health Organization

The timeline: discharge from isolation

August 2020

Someone with COVID-19 symptoms and a positive PCR test

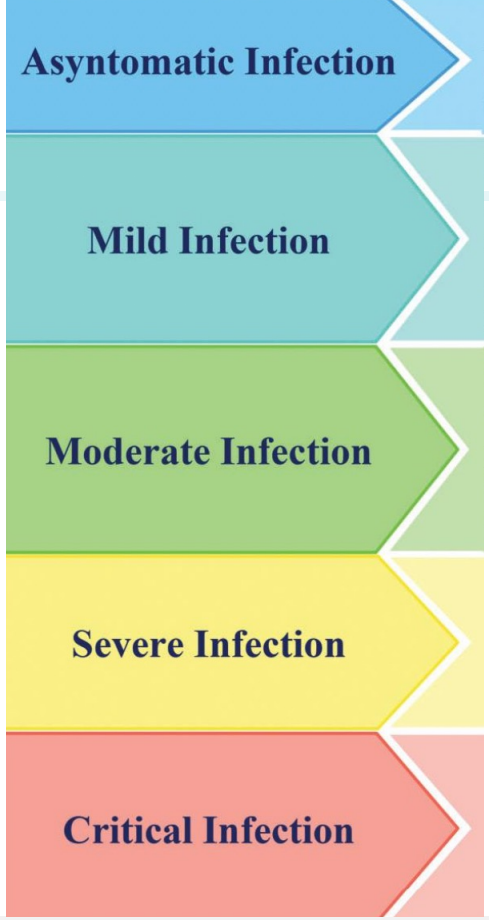
- Isolation always includes 10 days from symptom onset plus an additional 3 days without symptoms.
- The minimum isolation period is 13 days, with release on day 14 (or later if symptoms persist).

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

2nd scenario

- 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

SARS-CoV-2 RT-PCR
Gene N detected
CT value 12.00



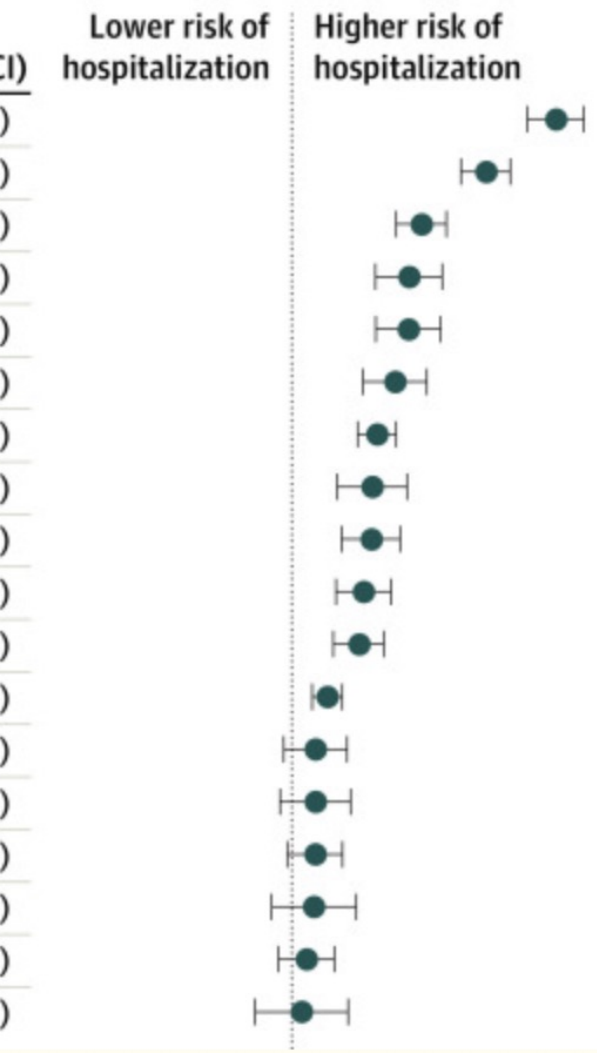
AND

Therapy strategies

Know your risk:

A Hospitalization

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



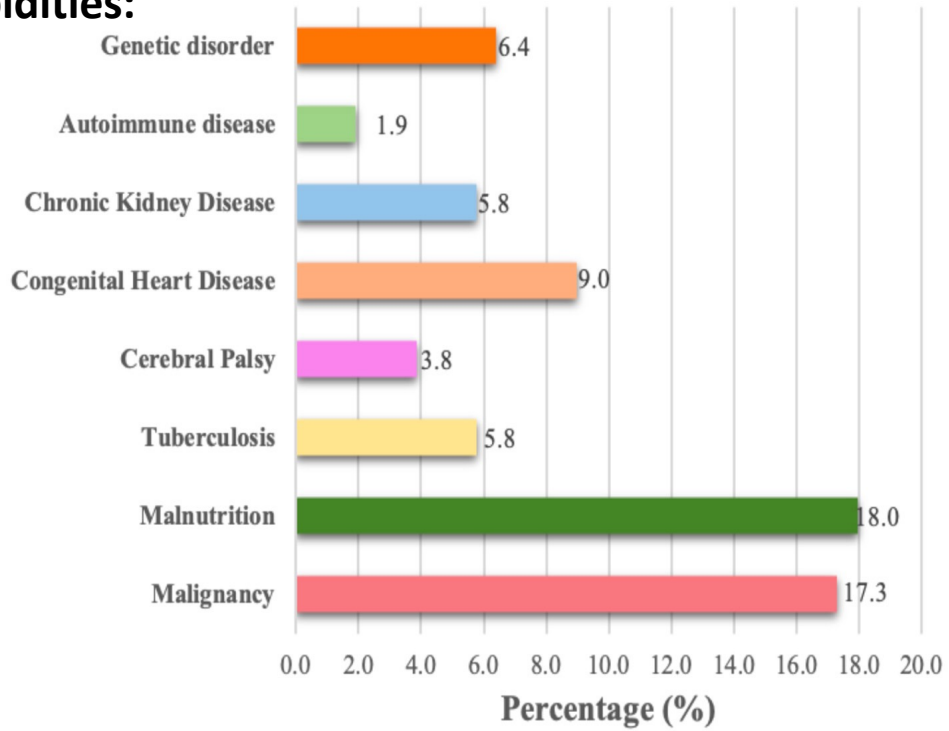
Kompaniyets L, et al. JAMA Netw Open. 2021;4(6):e2111182. Published 2021 Jun

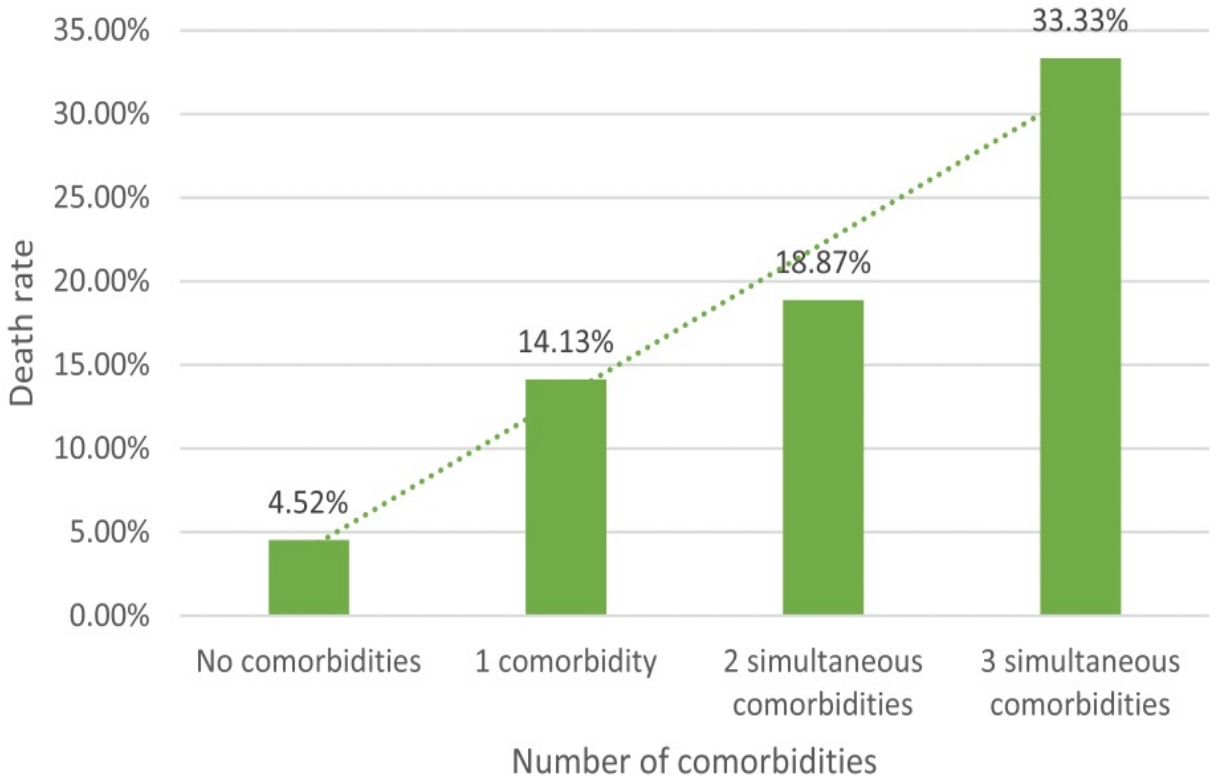
Report From Indonesian Pediatric Society Data Registry: Death case

Until December 2020:

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

Comorbidities:





Pudjiadi AH, et al. Front. Pediatr. 9:716898. doi: 10.3389/fped.2021.716898
Madani et al. BMC Pediatrics (2021) 21:563

WHO Recommendations FOR patients with non-severe COVID-19:

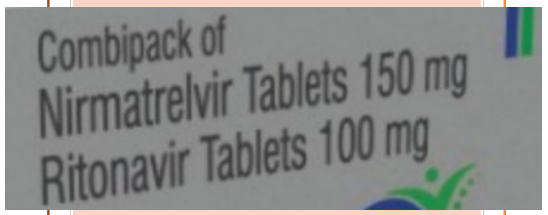
WHO Guidance[1]	Patient Population	Treatment
Recommendation	• A conditional recommendation for those at highest risk of hospitalization.	• Sotrovimab • Molnupiravir → not for pediatric
Recommends in clinical trial only	• Not recommended, regardless of COVID-19 disease severity	• ivermectin

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

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

WHO Guideline. March 3, 2022.

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

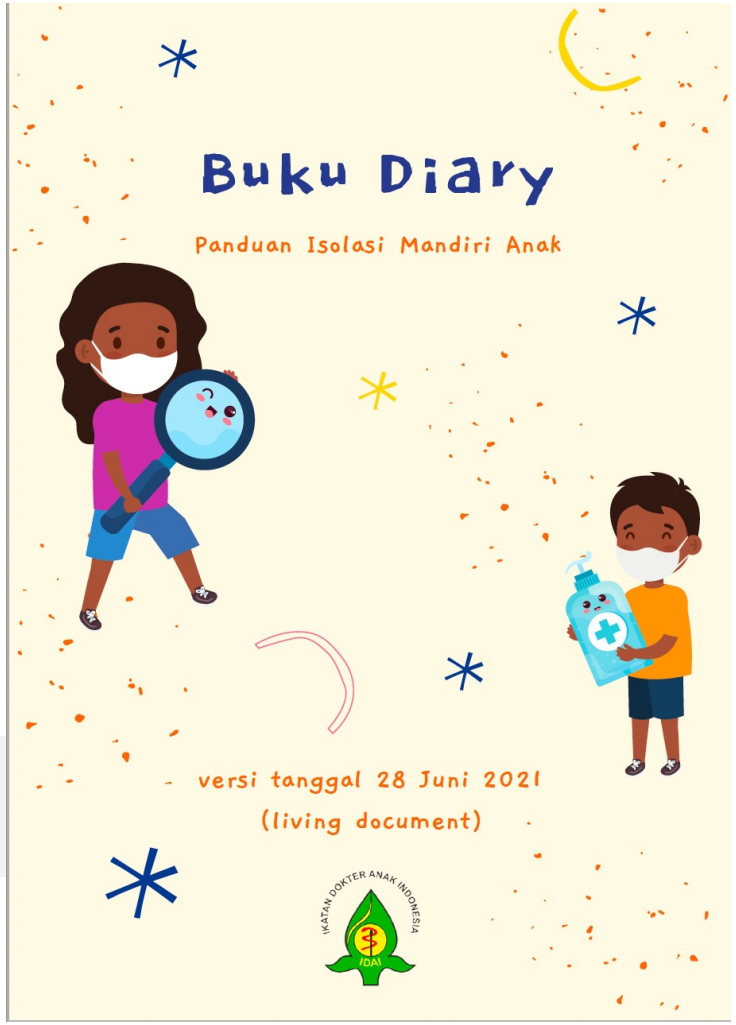
30%

Use for age ≥18 years

$700 per five-day course

NIH COVID-19 treatment guideline, 24 Feb 2022

Monitoring



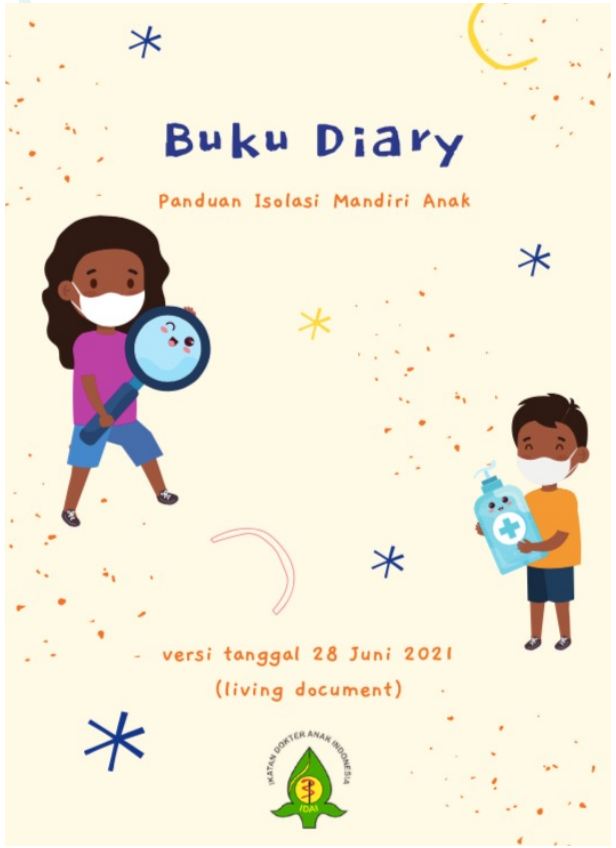
Diary isolasi mandiri anak IDAI 2021

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



KEMENTERIAN KESEHATAN REPUBLIK INDONESIA

Kelompok usia 29 hari – 6 tahun

Thank you