

# COVID-19 Treatment and Care for Adolescents and Youth

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Mitigating the Direct and Indirect Consequences of COVID-19 on the Health  
and Well-Being of Young People in the Americas  
March 10<sup>th</sup>, 2022

Dr Wilson Were

Medical Officer, Child Health Services

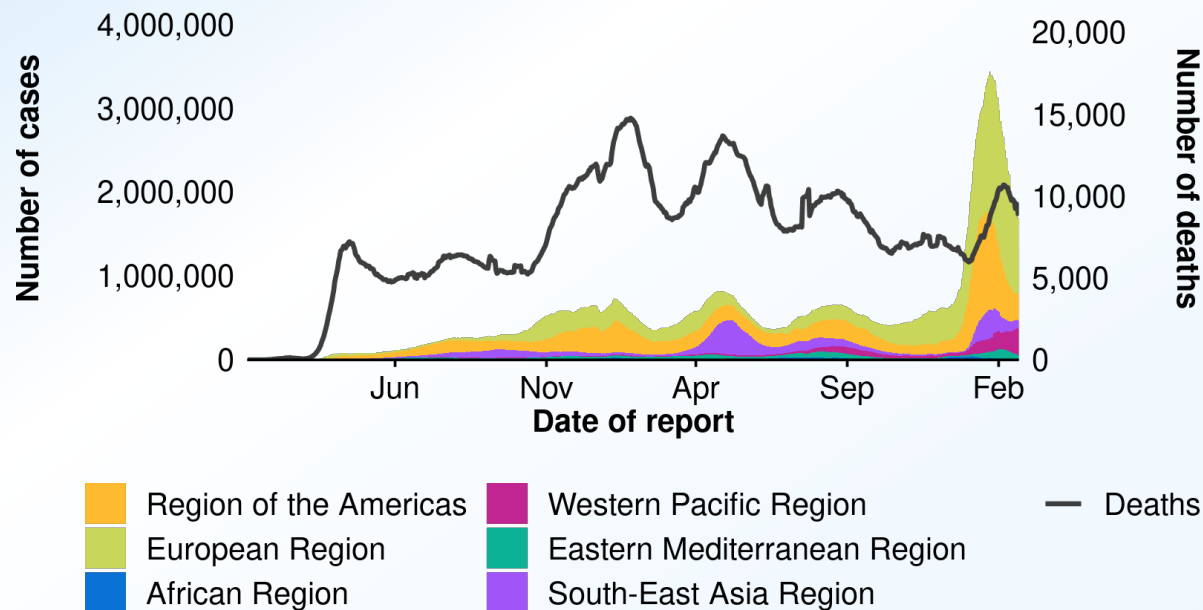


World Health  
Organization

# Current global situation

CASES REPORTED TO WHO AS OF 9<sup>th</sup> MARCH 2022

- Cases: > 448 million
- Deaths: > 6 million



*data smoothed with 7-day moving average*

*\* Data are incomplete for the current week. Cases depicted by bars; deaths depicted by line*



CHECK OUT THE LATEST  
GLOBAL SITUATION

[WHO](#)  
[Coronavirus](#)  
[Disease \(COVID-19\)](#)  
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# Global epidemiological overview on children and adolescents

(30 December 2019 to 21 February 2022, 182 countries)



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## COVID-19 cases and deaths with age and sex reported

Country, area or territory

All

Time period for which cases/deaths are summarized

12/30/2019

2/21/2022

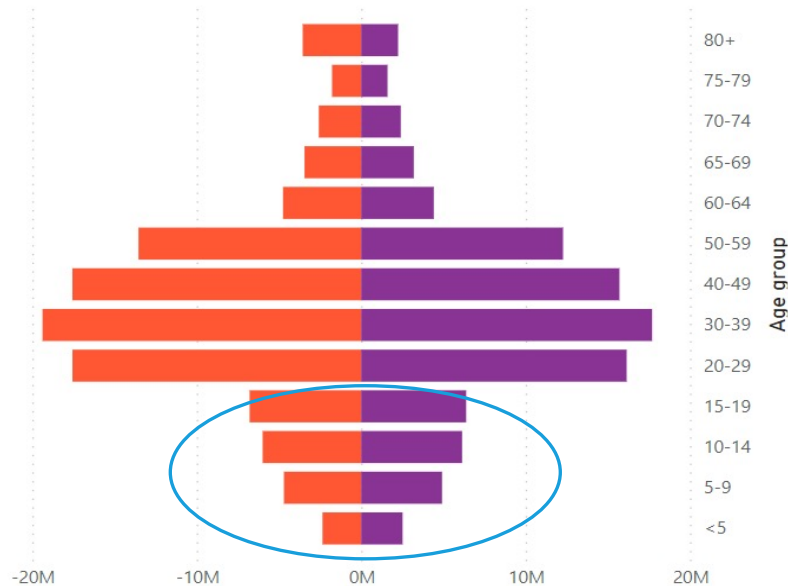
WHO region

- ☐ Select all
- ☐ AFR
- ☐ AMR
- ☐ EMR
- ☐ EUR
- ☐ SEAR
- ☐ WPR

### Cases (confirmed and probable)

Number of cases  
199599612

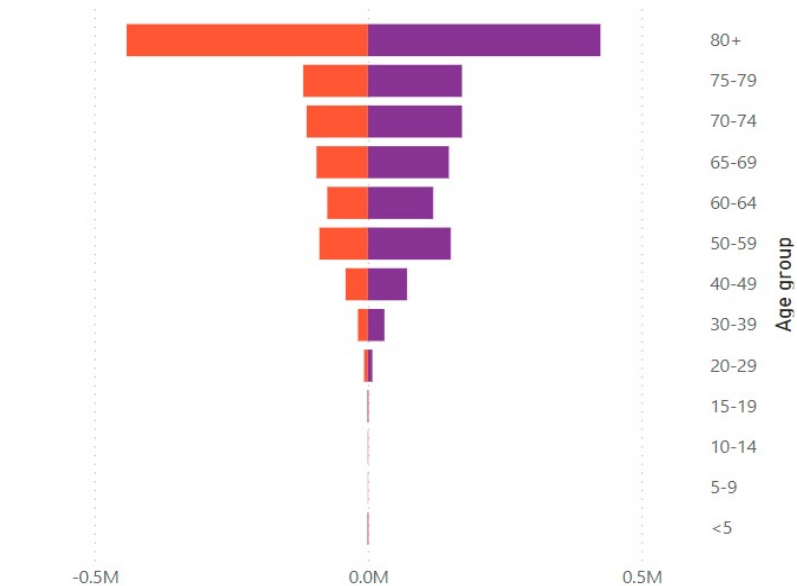
Female Male



### Deaths (confirmed and probable)

Number of deaths  
2298003

Female Male



Number of countries, areas or territories

182

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# Global epidemiological overview on children and adolescents

(30 December 2019 – 21 February 2022)

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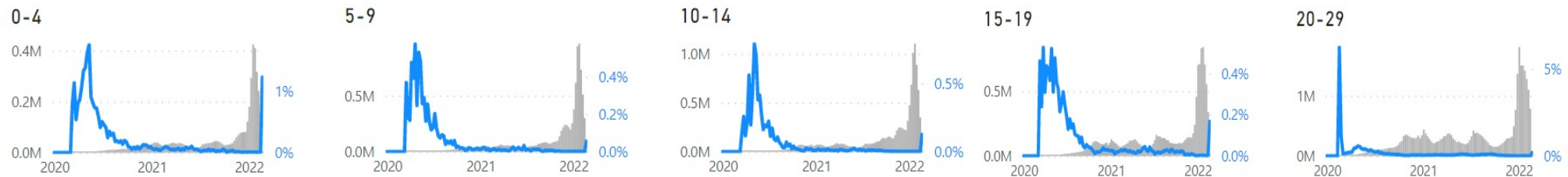
Age group	Number of cases	Proportion to global cases (%)
< 5 years	4,906,940	2.4
5- 14 years	21,832,334	10.8
15- 24 years	29,397,538	14.6

Total global cases (confirmed and probable) reported to WHO, all ages: 201,896,813

Age group	Number of deaths	Proportion to global deaths (%)
< 5 years	2,183	0.1
5- 14 years	1,607	0.1
15- 24 years	8,328	0.4

Total global deaths (confirmed and probable) reported to WHO, all ages: 2,336,784

## Case Fatality Ratio (CFR) and cases (confirmed and probable)



# COVID-19 Clinical CARE Pathway



**Confirm**  
SARS-CoV-2  
infection



**Assess**  
Symptoms, risk factors  
and severity



**Respond**  
With appropriate  
care and treatment



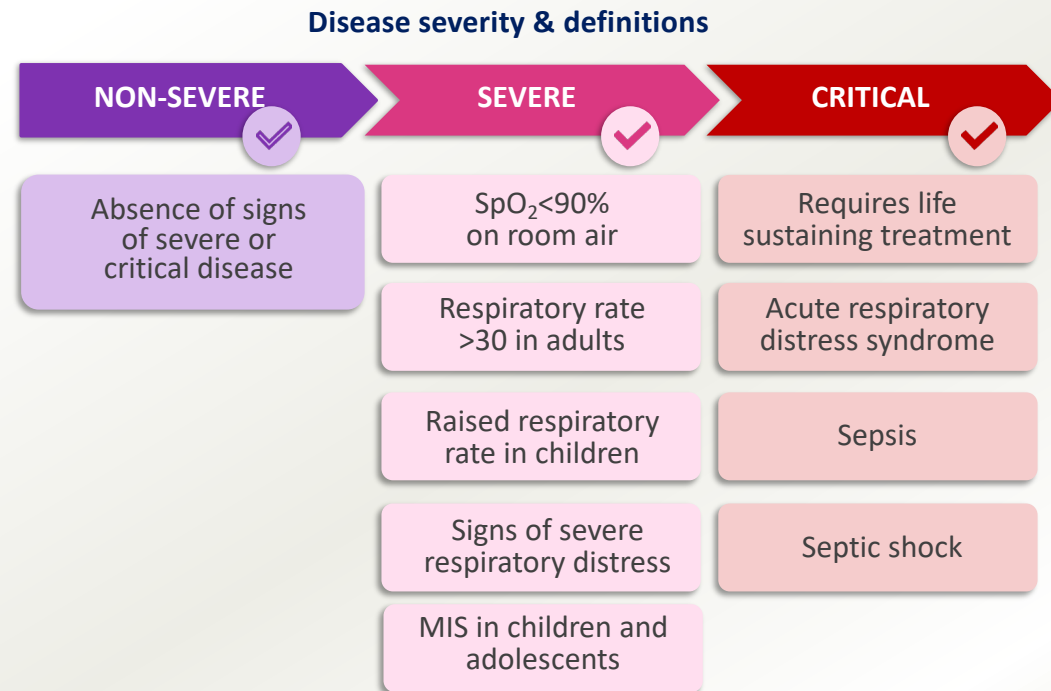
**Evaluate**  
Clinical response  
and recovery



<https://www.who.int/tools/covid-19-clinical-care-pathway>

# Care is based on the severity of COVID-19

## Three disease severity groups and key characteristics



SpO<sub>2</sub> = oxygen saturation

<https://app.magicapp.org/#/guideline/nBkO1E>

# Frequency of clinical symptoms in adolescents and youth diagnosed with COVID-19 infection

- The symptoms are similar as in adults but are milder and frequency varies.
- Symptoms overlap with common illnesses and co-infections may exist.
- Most have mild or moderate disease and recover within 1-2 weeks of disease onset.

Symptom	Frequency
Headache and malaise	Up to 60% <sup>†</sup>
Fever	46–64%
Cough	32–56%
Rhinorrhoea	<10–20%
Sore throat	<10–20%
Dyspnoea	<10–20%
Gastrointestinal symptoms (diarrhoea, nausea, vomiting and/or abdominal pain)	10–20%
Other: fatigue, myalgia, arthralgia, rash, conjunctivitis, disturbances of smell or taste	Up to 20%

# Mild and moderate disease

- Like adults can be managed at home unless they have a chronic condition that increases their risk of severe disease.
  - Symptomatic and supportive care are the primary management priorities.
  - Prevention of transmission to others
- Monitoring for clinical deterioration and escalation to hospital if the develop
  - severe respiratory distress
  - chest pain or pressure
  - central cyanosis
  - signs of shock (e.g., cold, clammy, mottled skin; new confusion; difficulty arousing; substantially reduced urine output)



# Risk factors for severe disease

- Immunocompromised
- Pre-existing medical conditions
  - obesity,
  - asthma,
  - diabetes mellitus and
  - Cancer
- Lack of COVID-19 vaccination



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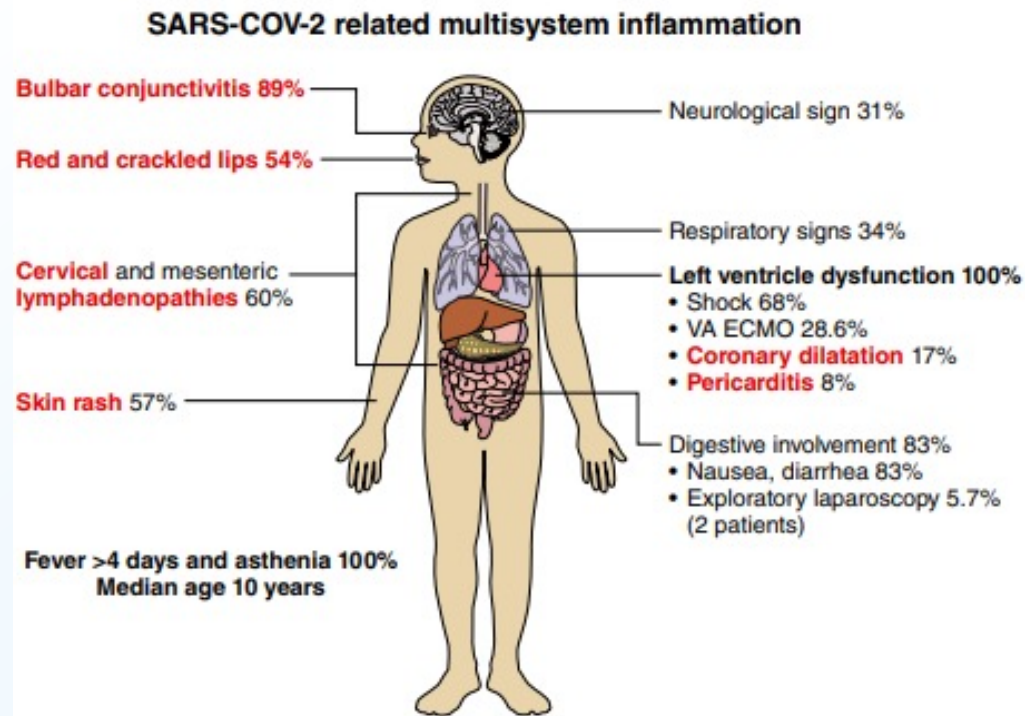
# Severe COVID-19 infection in adolescent and Youth



- Pulmonary disease is most common in those hospitalised
  - timing of respiration deterioration is not well characterized
- Rarely extrapulmonary manifestations in < 5% of those hospitalised
  - neurological manifestations - status epilepticus, encephalopathy, encephalitis, Guillain-Barré syndrome and acute demyelinating syndromes.
  - cardiac dysfunction of varying severity - acute myocardial injury, myocarditis, arrhythmias and cardiomyopathy.
  - Cutaneous manifestations, e.g., maculopapular, urticarial, and vesicular eruptions.
- Some develop multisystem inflammatory syndrome (MIS-C)

# Multisystem inflammatory syndrome in children (MIS-C)

- Occurs in individuals aged <21 years
- Is a rare but serious condition associated with COVID-19
- Presents with fever, laboratory evidence of inflammation, and evidence of multisystem (>2) organ involvement



Riphagen S, Gomez X, et al. Hyperinflammatory shock in children during COVID-19 pandemic. Lancet. 2020. Epub 2020/05/11.  
DeBiasi RL, Song X, et al. Severe COVID-19 in Children and Young Adults in the Washington, DC Metropolitan Region. J Pediatr. 2020  
Jones VG, Mills M, et al. COVID-19 and Kawasaki Disease: Novel Virus and Novel Case. Hosp Pediatr. 2020. Epub 2020/04/09  
Belhadjer Z, Méot M, Bajolle F, et al. Acute heart failure in multisystem inflammatory syndrome in children (MIS-C) in the context of global SARS-CoV-2 pandemic [published online ahead of print, 2020 May 17]. Circulation. 2020;10.1161/CIRCULATIONAHA.120.048360. doi:10.1161/CIRCULATIONAHA.120.048360



# Laboratory findings



Laboratory findings are variable but similar to adults and may include:

- Elevated C-reactive protein (CRP), ESR, serum ferritin, lactate dehydrogenase, D-dimers, procalcitonin, and leukocyte count.
- Lymphocytopenia
- Lymphocytosis
- Elevated serum aminotransferases
- Elevated creatine kinase myocardial band

Elevated inflammatory markers and lymphocytopenia may indicate MIS-C

Kidney dysfunction may occur in severely ill

# Imaging findings



## COVID-19 Use of chest imaging in COVID-19

A RAPID ADVICE GUIDE  
11 JUNE 2020



- Imaging findings are in most cases like adults, variable and may be present before symptoms occur.
- Common reported abnormalities on chest X-ray or CT include:
  - bilateral lesions, ground glass opacities, and consolidation or pneumonic infiltrates.
- Typical findings as of other viral respiratory infections (e.g., hyperinflation, peribronchial markings) have not been reported.
- Subpleural consolidations have also been found on lung ultrasonography.

# Management of Severe or critical COVID-19

- Mainly supportive care
  - Respiratory support - supplemental oxygen and ventilatory support (noninvasive or invasive)
  - Fluid and electrolyte support
  - empiric antibiotics as indicated
  - Patient monitoring –BP for hypotension, oxygen saturation and biomarkers.
- Immunomodulatory therapy
  - corticosteroids (dexamethasone)
  - biologic agents (tocilizumab)
- Other therapeutic use is predominantly extrapolated from adults.



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# WHO therapeutic recommendations for Adolescents & Youth with confirmed COVID-19

+For adolescents & Youth > 12 yrs with MIS-C

++For those with the highest risk of hospitalization & confirmed SARS-CoV-2


+++ For adolescents & Youth over 12 years at risk for progression of disease and hospitalization


++++ For adolescents & Youth >18 years of age

\*\* Unless there is clinical suspicion of a bacterial infection

\*\*\* Except in the context of a clinical trial

\*\*\*\* except in the context of a clinical trial for patients with severe disease

 Strong recommendation

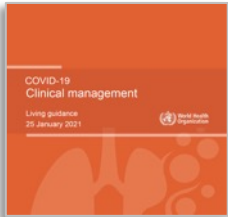
 Conditional recommendation

<https://www.who.int/publications/i/item/WHO-2019-nCoV-therapeutics-2021.1>

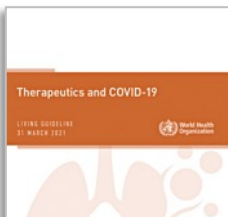
	NON-SEVERE	SEVERE	CRITICAL
RECOMMENDED		Oxygen therapy	
		Corticosteroids	
		Corticosteroids MIS-C in children	
		Thromboprophylaxis <sup>+</sup>	
		Tocilizumab or Sarilumab IL-6 receptor blockers	
		Baricitinib - JAK inhibitor	
	Casirivimab & Imdevimab <sup>++</sup>	Casirivimab and Imdevimab <sup>++</sup> Monoclonal antibodies - For seronegative status	
NOT RECOMMENDED	Sotrivimab <sup>+++</sup>		
	Molnupiravir <sup>++++</sup> Antiviral therapy		
		Antibiotic therapy <sup>**</sup>	
		Hydrochloroquine	
		Lopinavir/Ritonavir	
		Remdesivir	
		Ivermectin <sup>***</sup>	
		Convalescent plasma <sup>***</sup>	
		Ruxolitinib or Tofacitinib <sup>****</sup>	



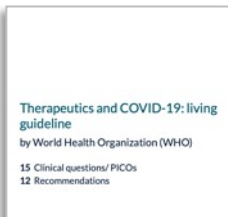
# Additional resources



- **COVID-19 Clinical management: living guidance**  
Providing comprehensive, holistic guidance for the optimal care of COVID-19 patients throughout their illness  
<https://www.who.int/publications/i/item/WHO-2019-nCoV-clinical-2021-1>



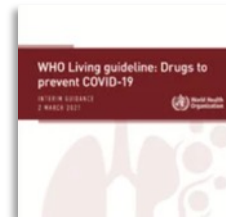
- **Therapeutics and COVID-19: living guideline**  
The Organization's most up-to-date recommendation of therapeutics in the treatment of COVID-19 endations for the use  
<https://www.who.int/publications/i/item/WHO-2019-nCoV-therapeutics-2021.1>



- **Therapeutics and COVID-19: living guideline (MAGICapp)**  
Dynamically updated evidence and recommendations, focusing on what is new while keeping recommendations within the guidelines  
<https://app.magicapp.org/#/guideline/nBkO1E>



- **Drug treatments for covid-19: living systematic review & network meta-analysis**  
Comparing the effects of treatments for COVID-19  
<https://www.bmj.com/content/370/bmj.m2980>



- **WHO living guideline: Drugs to prevent COVID-19**  
<https://www.who.int/publications/i/item/WHO-2019-nCoV-prophylaxes-2021-1>



- **What is the role of drugs in preventing covid-19?**  
<https://www.bmj.com/content/372/bmj.n526>



- **Therapeutics and COVID-19**  
Therapeutics and COVID-19 WHO webpage  
<https://www.who.int/teams/health-care-readiness-clinical-unit/covid-19/therapeutics>



- **Pharmacologic treatments for COVID-19 patients**  
Treatment comparisons  
[https://covid-nma.com/living\\_data/index.php](https://covid-nma.com/living_data/index.php)





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**THANK YOU**