



COVID-19 in the Pediatric Population

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April 20202

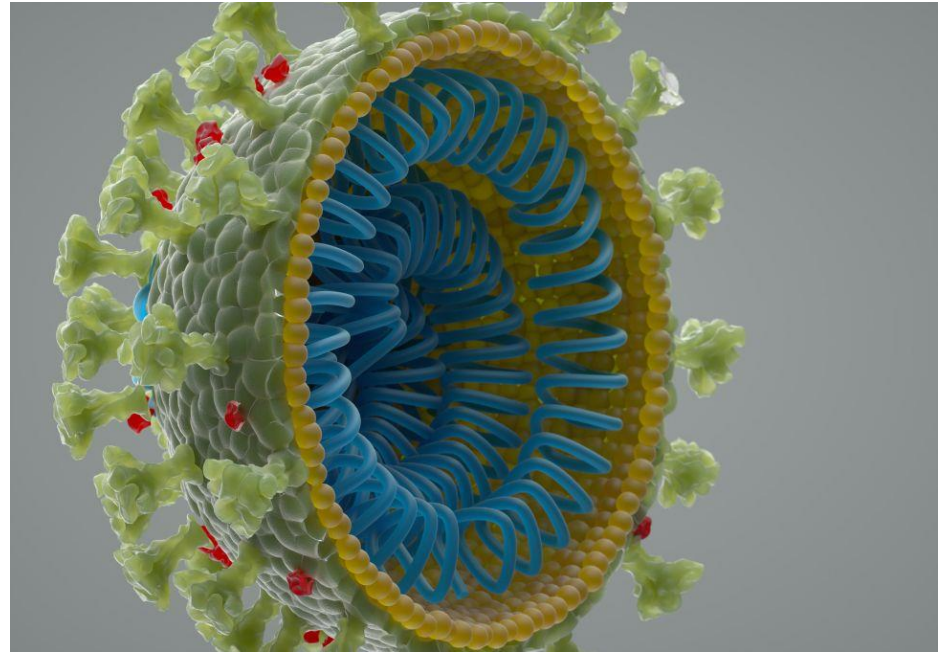


**Moving
Through
COVID-19
Together**

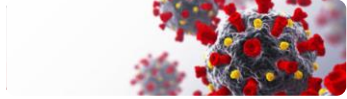
Objective

The objective of this presentation is to help the Syneos Health employees involved in pediatric clinical trials to better understand specifics of COVID-19 in children and represents an overview of publically available data as of 7th of April 2020

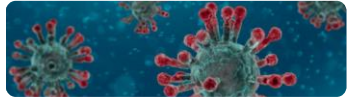
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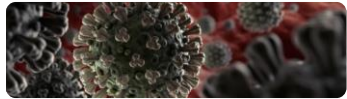
Agenda



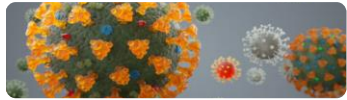
Executive Summary



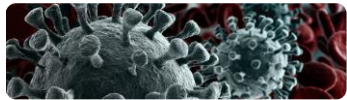
Introduction



Clinical Picture



Prevention & Socio-ecological impact



Frequently Asked Questions



COVID-19 Clinical Trials in Children



**Moving
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Executive Summary

Compared to adults, there has been a significantly smaller number of reported cases of COVID-19 in the pediatric population, although the incidence is increasing every day.

All pediatric age groups can be affected including newborns

Symptoms in children are similar to those in adults, namely fever, dry cough, and fatigue, with some also experiencing abdominal pain and diarrhea and are generally mild

The severity and mortality of the infection in young children, contrary to circulating influenza viruses, are lower than in adults.

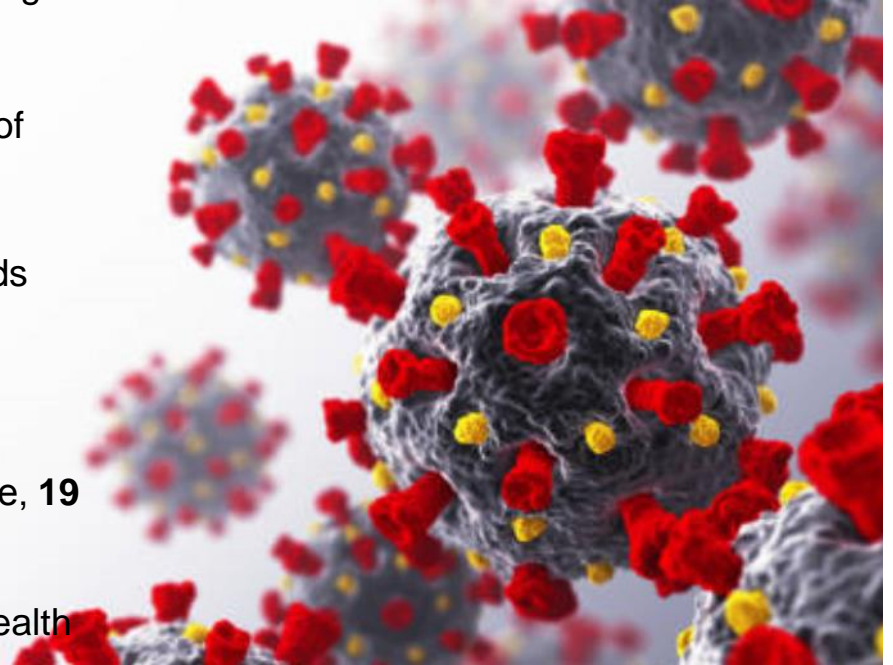
Infants are especially susceptible to severe disease, as are children with comorbid respiratory, myocardial or immunocompromising conditions.

Markers of poorer outcomes, are evidence of organ dysfunction and evidence of superimposed bacterial infection.

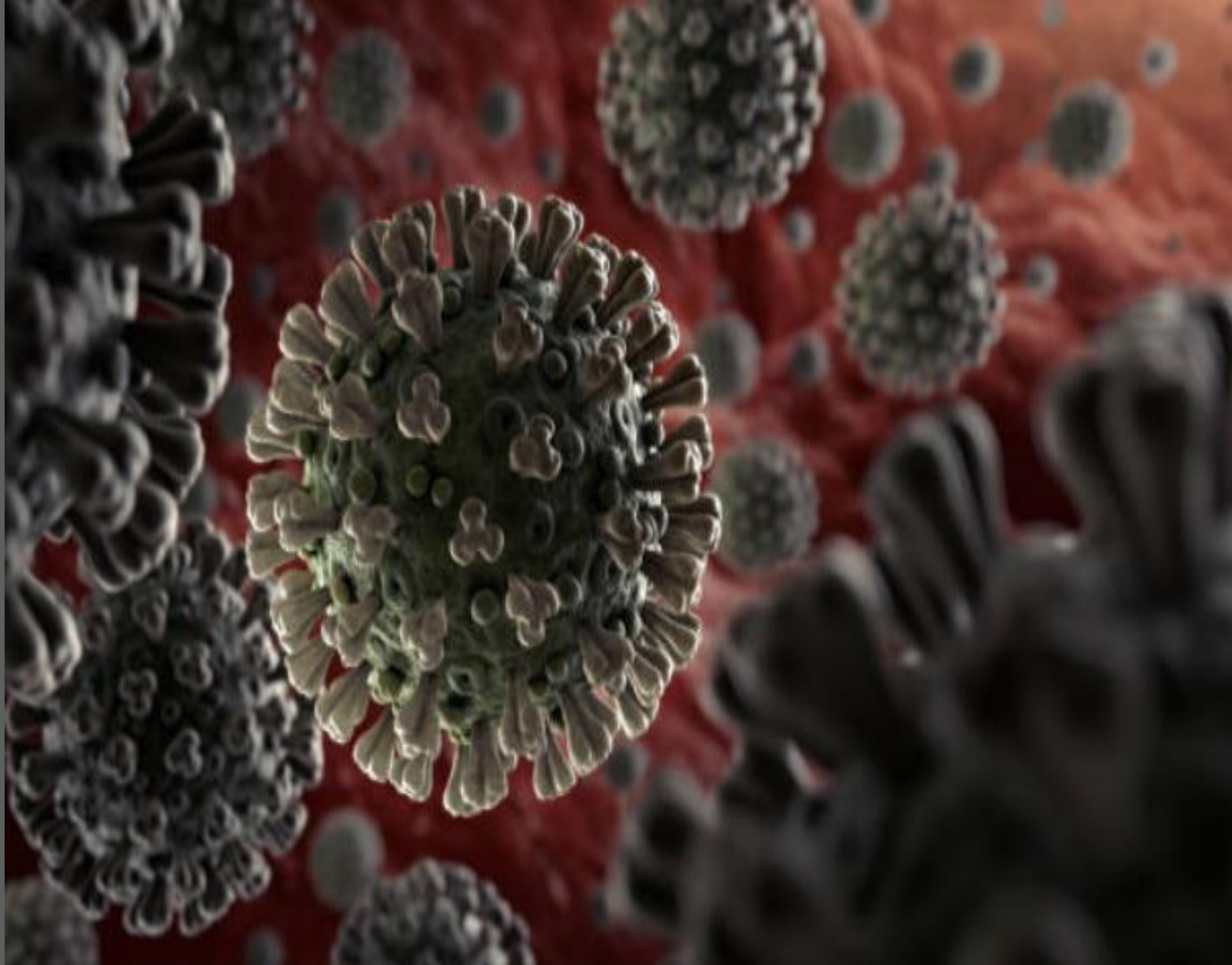
Children have an important role in the community-based transmission

Introduction

- Coronaviruses are important human and animal pathogens
- A novel coronavirus, new strain is named:
SARS CoV-2 is a new virus linked to the same family of viruses as Severe Acute Respiratory Syndrome (SARS CoV-1), Middle East Respiratory Syndrome (MERS CoV) and some types that cause common colds
- The disease associated with the infection is named:
Coronavirus disease 2019 (COVID-19)
'CO' stands for corona, 'VI' for virus, and 'D' for disease, **19** is for 2019
- COVID-19 was declared a pandemic by the World Health Organization (WHO) on 11 March 2020.



Clinical Picture



Transmission

- Mainly via respiratory droplets (coughing, sneezing, or talking)
 - Droplets typically do not travel more than six feet / two meters and do not linger in the air.
- Infection can also occur if a child touches an infected surface and then touches his or her eyes, nose, or mouth.



Enveloped virus (with plasma membrane) so it is **killed by soap/detergents, ethanol, Windex (contains detergents), bleach**

Survival

- On steel, plastic: 10 fold drop in ~12 hours
- On cardboard: 1 hour
- On a napkin like on cardboard or lower

Michael Lin, Stanford University

Infectivity and incubation period

Similar as in adults



Period of infectivity

- Uncertain, but transmission more likely in the earlier stage of infection
- The duration of viral shedding is also variable (range of 8 to 37 days)
- Transmission from an individual with symptomatic or asymptomatic infection

Incubation period

- Within 14 days following exposure, with most cases occurring approximately four to five days after exposure






Asymptomatic children are an important part of the transmission chain

Clinical presentation

Most common symptoms:

-  **Fever**
-  **Fatigue**
-  **Dry cough**

Some patients may also have:

-  **Aches and pains**
-  **Runny nose**
-  **Sore throat**
-  **Shortness of breath**
-  **Diarrhoea**

Asymptomatic

Without any clinical symptoms and signs and the chest imaging is normal, while the SARS CoV-2 nucleic acid test is positive within 14 day of exposure.

Mild

Symptoms of acute URTI, fever, fatigue, myalgia, cough, sore throat, sneezing. Physical examination congestion of the pharynx and no auscultatory abnormalities. Sometimes no fever, or only digestive symptoms

Moderate

With pneumonia, fever and cough, mostly dry cough /productive cough or wheezing, Sometimes no clinical signs and symptoms, but chest CT shows lung lesions Physical examination congestion of the pharynx and no auscultatory abnormalities. Some cases may have no fever, or have only digestive symptoms

Severe

Early respiratory symptoms fever and cough, may be accompanied by gastrointestinal symptoms such as diarrhea. The disease usually progresses within 1 week, and dyspnea occurs, with central cyanosis. Oxygen saturation is < 92%, with hypoxia manifestations.

Critical

Children can quickly progress to acute respiratory distress syndrome (ARDS) or respiratory failure, and may also have shock, encephalopathy, myocardial injury or heart failure, coagulation dysfunction, and acute kidney injury. Organ dysfunction can be life threatening

COVID-19 Symptomatic infections

China 

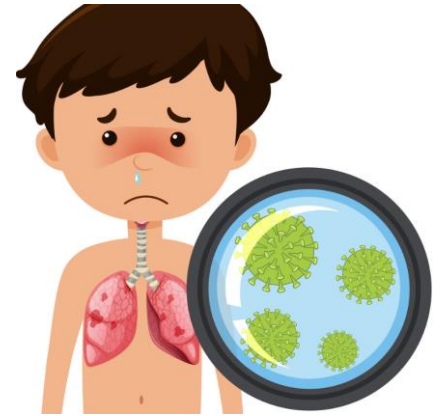
- 2 % of infections were in individuals younger than 20 years old

South Korea 

- 6.3 % in those younger than 20 years

“Predominantly affected in their upper airways (nose, mouths, and throats) so they get cold-like features rather than the virus managing to access their lower airways, ie lungs, and giving the pneumonia and life-threatening Sars picture that we see with adult patients.”

Slightly more than half showed **mild symptoms** of fever, cough, sore throat, runny nose, body aches and sneezing; while around a third showed signs of pneumonia, with frequent fever, a productive cough and wheeze but without the shortness of breath and difficulty breathing seen in more severe cases.



COVID-19 Fatality Rate by AGE

WHO-China Joint Mission published on Feb. 28 by WHO
Chinese CCDC released on Feb. 17,

AGE	DEATH RATE confirmed cases	DEATH RATE all cases
80+ years old	21.9%	14.8%
70-79 years old		8.0%
60-69 years old		3.6%
50-59 years old		1.3%
40-49 years old		0.4%
30-39 years old		0.2%
20-29 years old		0.2%
10-19 years old		0.2%
0-9 years old		no fatalities

Deaths in
infants
reported in
US and EU

Death Rate = (number of deaths / number of cases) = probability of dying if infected by the virus (%). it represents, for a person in a given age group, the **risk of dying** if infected with COVID-19.

Death Rate = (number of deaths / number of cases) = probability of dying if infected by the virus (%).

Complications:

Acute respiratory distress syndrome (ARDS),
Arrhythmias, acute cardiac injury, and shock, cardiomyopathy.



In critical cases, COVID-19 can cause severe pneumonia or a multiple-organ failure and can lead to death.

COVID-19 Kids under 10 years old



Spain

- 26% hospitalization rate
- one child in the ICU (0.8%);
- no fatalities.



Italy, South Korea, and China,
- no reported fatalities



US

- No ICU admittances or deaths reported among people under age 20 as of March 21,
- 1.6 percent hospitalized



Infants appear more vulnerable than toddlers and elementary school kids. Overall, though, only a small number of children under 10 years old are requiring hospitalization and very few have died

Worst outcomes in children were often among infants.

- 30 % of childhood Covid-19 cases deemed “**severe**” and more than half of Covid-19 cases deemed “**critical**” were among children less than 1 year old.
- Though the overall numbers were small — 7 infants had critical illness and 33 suffered severe illness — it did show that younger children faced a higher likelihood of more dangerous outcomes.

CDC March 22, 2020

Cruz A, Zeichner S. COVID-19 in children: *Pediatrics*. 2020; doi: 10.1542/peds.2020-0834

Covid -19 in Teens (10 to 19 years old)



Spain

- 7% hospitalized
- none have ended up in intensive care
- One person in this age range has died, a 0.4 % fatality rate.



Italy and South Korea

- no fatalities

China



- 0.2% end in death.



CDC March 22, 2020

Older kids and teenagers may be more resilient than their younger peers in some ways (lower hospitalization and ICU rates in Spain, the only country we have data to separate the 0-9 and 10-19 cohorts), but there is still a small risk of serious complications or death.

Underlying medical conditions add to a person's vulnerability.

The absence of health problems does not mean the absence of risk:

[CNN reported](#) CNN Reported a 12-year-old girl in Atlanta with Covid-19 who has no known health conditions and who is nevertheless on a ventilator

Results of the biggest COVID -19 pediatric study (retrospective)

- 2143 children.
 - Median age 7 (interquartile range, 2-13) years.
 - 56.6% (1213) boys.
- 34.1% (731) laboratory-confirmed COVID-19; 65.9% (1412) suspected disease.
 - 4.4% (94) asymptomatic.
 - 50.9% (1091) mild.
 - 38.8% (831) moderate severity.
- Severe, critical case rates by age group:
 - 1-5 years: 7.3%.
 - 6-10 years: 4.2%.
 - 11-15 years: 4.1%.
 - ≥ 16 years: 3.0%.
- Median time from illness onset to diagnosis: 2 (range, 0-42) days.
 - Most cases diagnosed 1 week after illness onset.

Epidemiological Characteristics of 2143 Pediatric Patients With 2019 Coronavirus Disease in China

Yuanyuan Dong, Xi Mo, Yabin Hu, Xin Qi, Fang Jiang, Zhongyi Jiang, Shilu Tong

DOI: 10.1542/peds.2020-0702

Journal: *Pediatrics*

Pre-publication Release

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Coronavirus Disease 2019 in Children

United States, February 12–April 2, 2020



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- 2,572 COVID-19 cases in children aged <18 years,
- The median age was 11 years (range 0–17 years).
 - 32% (813) in children aged 15–17 years,
 - 27% (682) in children aged 10–14 years
 - 15% (388) in children aged 5–9 years.
 - 11% (291) in children aged 1–4 years,
 - 15% (398) in children aged <1 year,
- Among 2,490 pediatric COVID-19 cases for which sex was known:
 - 57% (1,408) occurred in males (in adults 53%)
- 7,2% (184) cases in children aged <18 years with known exposure information, 16 (9%) were associated with travel and 168 (91%) had exposure to a COVID-19 patient in the household or community.



Why children get generally milder symptoms?

“The virus is so new that we don’t really know and further research is needed”

- Possible reasons:
 - “Children, with immature immune systems, appear to be less capable of mounting cytokine storms to fight off viral infections”
 - Ageing of the immune system (immunosenescence), which makes the body less able to fight off new infections?
 - Children, especially those in nursery or school, are exposed to a large number of novel respiratory infections and this might result in them having higher baseline levels of antibodies against viruses than adults.
 - “It is very possible that the children’s immune systems are better able to control the virus, localise it to their upper airways without it causing too many other problems and eliminate the virus”.
 - “It might also be that children previously infected with the other four types of coronavirus might experience cross protection from previous infections,”
 - “The coronavirus seems to use the Angiotensin converting enzyme II (ACE-2) receptor for this purpose. It may be that children have less ACE-2 receptors in their lower airways (lungs) than in their upper airways, which is why it is their upper airways (nose, mouths and throats) that are predominantly affected.”
 - The study of childhood cases in China suggest that because children have fewer chronic cardiovascular and respiratory conditions, they are more resilient to severe coronavirus infection than elderly adults.

Laboratory and Imaging findings

• Laboratory findings

- Lymphopenia appears most common, but leukopenia and leukocytosis are also reported
- Elevated lactate dehydrogenase and ferritin levels are common, and elevated aminotransferase levels have also been described.
- On admission, many patients with pneumonia have normal serum procalcitonin levels; however, in those requiring ICU care, they are more likely to be elevated
- High D-dimer levels and more severe lymphopenia have been associated with mortality



• Imaging findings

- Chest CT in patients with COVID-19 most commonly demonstrates ground-glass opacification with or without consolidative abnormalities, consistent with viral pneumonia. More likely to be bilateral, with peripheral distribution, and involve the lower lobes.
- The American College of Radiology recommends not using chest CT for screening or diagnosis of COVID-19 and recommends reserving it for hospitalized patients when needed for management
- Resolution of radiographic abnormalities may lag behind improvements in fever and hypoxia



Immunity

- Antibodies to the virus are induced in those who have become infected. Some of these antibodies are protective. Moreover, it is unknown whether all infected patients mount a protective immune response and how long any protective effect will last.
- The FDA has approved a test that qualitatively identifies immunoglobulin (Ig)M and IgG antibodies against SARS-CoV-2 in serum or plasma
- Should evidence confirm that the presence of these antibodies reflects a protective immune response, serologic screening will be an important tool to understand population immunity and distinguish individuals who are at lower risk for reinfection.

Evaluation and diagnosis

Clinical suspicion and criteria for testing

- To be considered primarily in children with new onset fever and/or respiratory tract symptoms (eg, cough, dyspnea). Although these syndromes can occur with other viral respiratory illnesses, the likelihood of COVID-19 is increased if the patient:
 - A family member is infected
 - Resides in or has traveled within the prior 14 days to a location where there is community transmission of COVID-19 or
- Children with suspected COVID-19 who do not need emergency care should be encouraged to call prior to presenting to a health care facility for evaluation.
- The diagnosis cannot be definitively made without microbiologic testing, but limited capacity may preclude testing all patients with suspected COVID-19. Each country may have specific criteria for testing.

It is recommended to collect of a nasopharyngeal swab specimen to test

Oropharyngeal, nasal mid-turbinate, or nasal swabs are acceptable alternatives if nasopharyngeal swabs are unavailable.

Reverse-transcription polymerase chain reaction (RT-PCR) generally confirms the diagnosis

Serologic tests, able to identify patients who have either current or previous infection



COVID-19 Prevention



Prevention

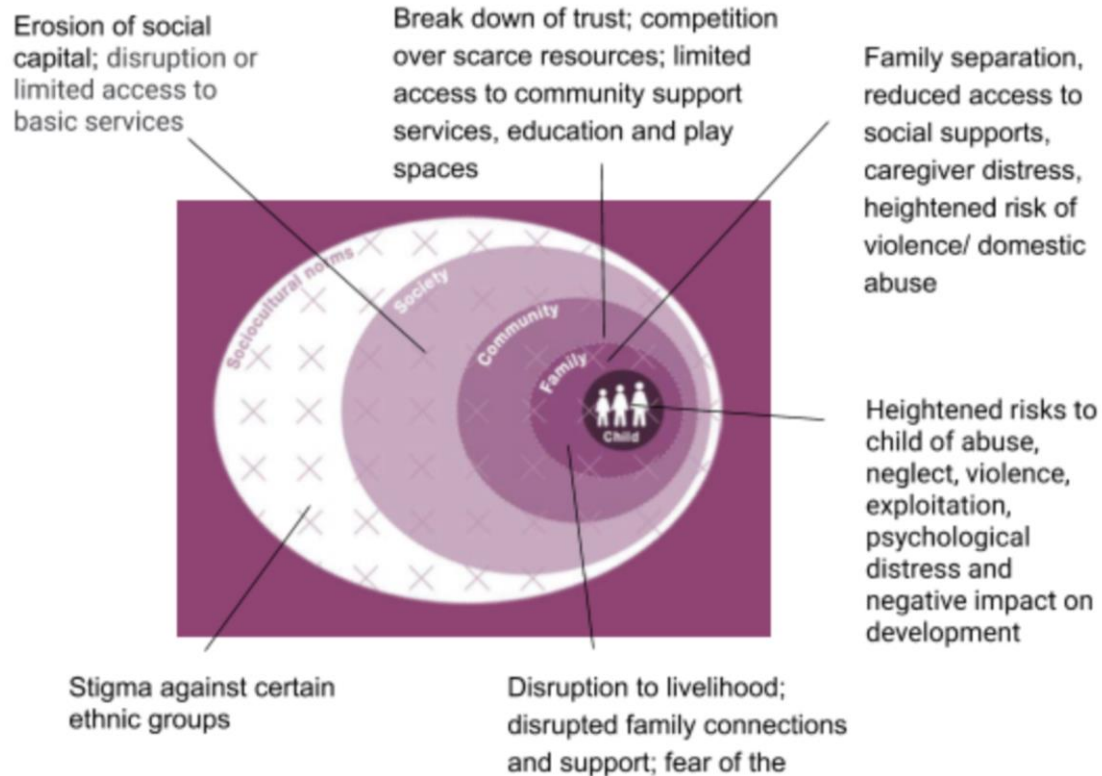
- Prevention measures are the same for children and for adults, but special measures should be taken with the youngest population



Local
guidelines
to be
followed



Socio-ecological impact of COVID-19 on children



Child Protection Risk: Physical and emotional maltreatment

Risks presented by COVID-19 and related control measures	Causes of risks
<ul style="list-style-type: none">● Reduced supervision and neglect of children● Increase in child abuse and domestic/interpersonal violence● Poisoning and other danger and risks of injuries to children● Pressure on or lack of access to child protection services	<ul style="list-style-type: none">● Childcare/school closures, continued work requirements for caregivers, illness, quarantine/isolation of caregivers● Increased psychosocial distress among caregivers and community members● Availability and misuse of toxic disinfectants and alcohol● Increased obstacles to reporting incidents

Child Protection Risk: Gender-based violence (GBV)

Risks presented by COVID-19 and related control measures	Causes of risks
<ul style="list-style-type: none">● Increased risk of sexual exploitation of children, including sex for assistance, commercial sexual exploitation of children and forced early marriage● Pressure on or lack of access to child protection/GBV services	<ul style="list-style-type: none">● Reduced family protection of children● Reduced household income and/or reliance on outsiders to transport goods and services to the community● Girls' gender-imposed household responsibilities such as caring for family members or doing chores● Increased obstacles to reporting incidents and seeking medical treatment or other supports

Child Protection Risk: Mental health and psychosocial distress

Risks presented by COVID-19 and related control measures	Causes of risks
<ul style="list-style-type: none">● Distress of children due to the death, illness, or separation of a loved one or fear of disease● Worsening of pre-existing mental health conditions● Pressure on or lack of access to MHPSS services	<ul style="list-style-type: none">● Increased stress levels due to isolation in treatment units or home-based quarantine● Children and parents/caregivers with pre-existing mental health conditions may not be able to access usual supports or treatments● Quarantine measures can create fear and panic in the community, especially in children, if they do not understand what is happening

Child Protection Risk

Risks presented by COVID-19 and related control measures	Causes of risks
Child labour	
<ul style="list-style-type: none"> ● Increased engagement of children in hazardous or exploitative labour 	<ul style="list-style-type: none"> ● Loss or reduction in household income ● Opportunity or expectation to work due to school closure
Unaccompanied and separated children	
<ul style="list-style-type: none"> ● Separation ● Becoming unaccompanied or child head of household ● Being placed in institutions 	<ul style="list-style-type: none"> ● Loss of parents/caregivers due to disease ● Isolation/quarantine of caregiver(s) apart from child(ren) ● Children sent away by parents to stay with other family in non-affected areas

Child Protection Risk: Social exclusion

Risks presented by COVID-19 and related control measures	Causes of risks
<ul style="list-style-type: none">● Social stigmatisation of infected individuals or individuals/groups suspected to be infected● Increased risk/limited support for children living/working on the street and other children already at risk● Increased risk/limited support to children in conflict with the law, including those in detention	<ul style="list-style-type: none">● Social and racial discrimination of individuals/groups suspected to be infected● Disproportionate impact on more disadvantaged and marginalized groups● Closure/inaccessibility of basic services for vulnerable children and/or families● Disruption to birth registration processes due to quarantine

Child Protection Response

- A multi-sectoral response ensures that children and caregivers' needs are addressed holistically and (b) leads to better outcomes for children.
 - Standard procedures for documenting and referring children's cases that may need follow-up;
 - Clear protocols to prevent/reduce family separation and other forms of child protection risks;
 - Reduce stigma and social exclusion that may result from the disease; and
 - Clear, coordinated, child-friendly community messaging on children's unique risks and vulnerabilities related to the outbreak.



Why it's important to talk to children about Covid-19

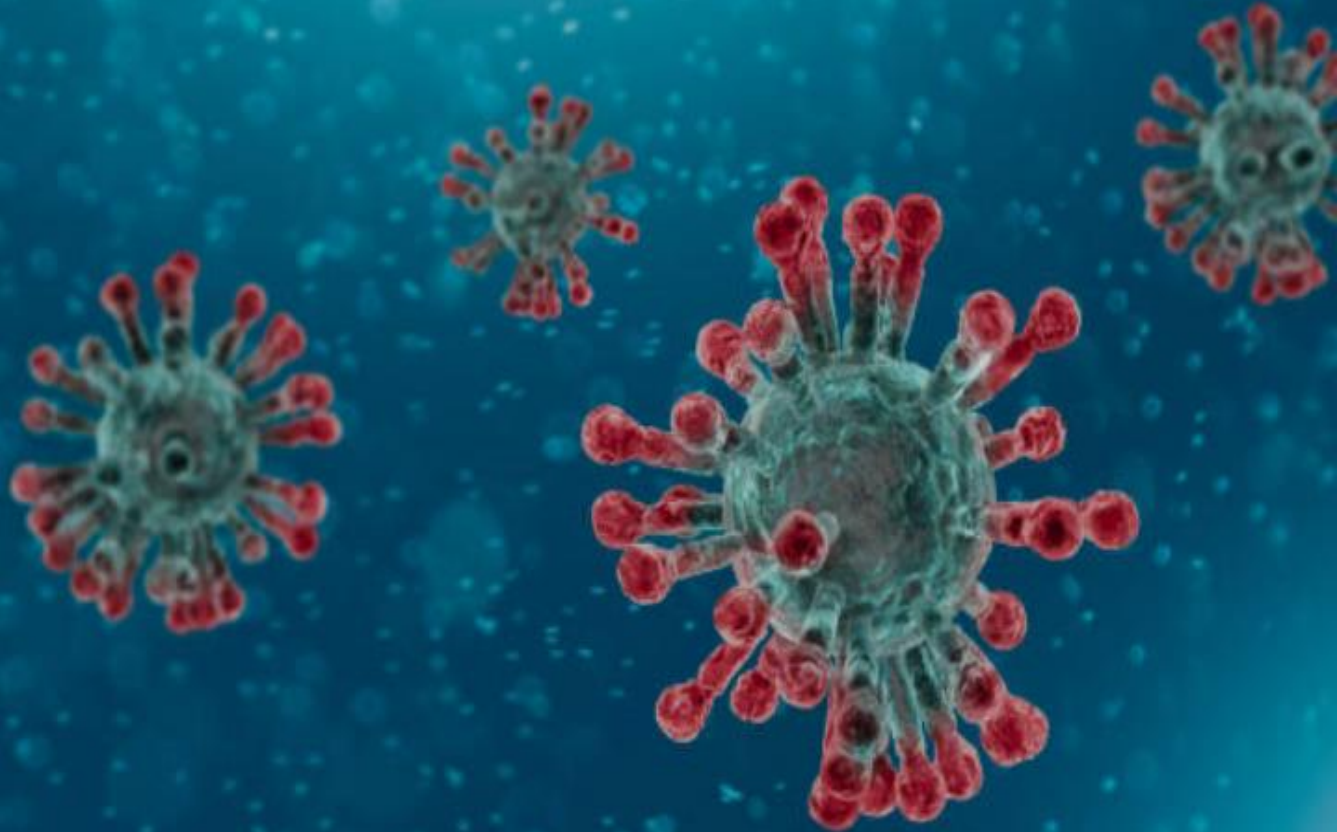
Due to strong Covid-19 presence in media, it is important that parents understand their role and the necessity to speak with their children. The main message is that children are not going to die from Covid-19, but that they have to respect the rules of protection and be patient.

7 tips for talking to kids about COVID-19

1	Don't be afraid to talk about it	Use emotionally reassuring tone
2	Be age appropriate	Focus on answering their questions, Be honest and clear. It is OK if you cannot answer everything
3	Follow their lead	Encourage them to ask questions and share their perspective
4	Check yourself	If you feel anxious, take some time to calm down
5	Focus on actions you can take	Emphasize safety precautions
6	Stick to routine	Structured days with regular mealtimes and bedtimes
7	Keep talking	Let them know that you will share all new information



Frequently Asked Questions



What is the risk of my child becoming sick with COVID-19?

- Based on available evidence, children do not appear to be at higher risk for COVID-19 than adults. While some children and infants have been sick with COVID-19, adults make up most of the known cases to date.

Are the symptoms of COVID-19 different in children than in adults?

- No. The symptoms of COVID-19 are similar in children and adults. However, children with confirmed COVID-19 have generally presented with mild symptoms. Reported symptoms in children include cold-like symptoms, such as fever, runny nose, and cough. Vomiting and diarrhea have also been reported..

How can I protect my child from COVID-19 infection?



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- Encourage your child to help stop the spread of COVID-19 by teaching them to do the same things everyone should do to stay healthy.
- Avoid close contact with people who are sick.
- Stay home when you are sick, except to get medical care.
- Cover your coughs and sneezes with a tissue and throw the tissue in the trash.
- Wash your hands often with soap and water for at least 20 seconds, especially after blowing your nose, coughing, or sneezing; going to the bathroom; and before eating or preparing food.
- If soap and water are not readily available, use an alcohol-based hand sanitizer with at least 60% alcohol.
- Clean and disinfect frequently touched surfaces and objects (e.g., tables, countertops, light switches, doorknobs, and cabinet handles).
- Launder items, including washable plush toys, as appropriate and in accordance with the manufacturer's instructions. If possible, launder items using the warmest appropriate water setting for the items and dry items completely. Dirty laundry from an ill person can be washed with other people's items.

How do I prepare my children in case of COVID-19 outbreak in our community?



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- Outbreaks can be stressful for adults and children. Talk with your children about the outbreak, try to stay calm, and reassure them that they are safe. If appropriate, explain to them that most illness from COVID-19 seems to be mild.
- **Children respond differently to stressful situations than adults**

Should children wear masks?

- No. If your child is healthy, there is no need for them to wear a facemask. Only people who have symptoms of illness or who are providing care to those who are ill should wear masks.

What steps should parents take to protect children during a community outbreak?

- This is a new virus and we are still learning about it, but so far, there does not seem to be a lot of illness in children. However, children do get the virus and become ill. Many schools across the country have announced dismissals for temporary periods. Keep track of school dismissals in your community. Read or watch local media sources that report school dismissals. If schools are dismissed temporarily, use alternative childcare arrangements, if needed.
- If your child/children become sick with COVID-19, notify their childcare facility or school. Talk with teachers about classroom assignments and activities they can do from home to keep up with their schoolwork.
- Discourage children and teens from gathering in other public places while school is dismissed to help slow the spread of COVID-19 in the community.

Are pregnant women at higher risk from COVID-19?

- at present there is no evidence that pregnant women are at higher risk of severe illness than the general population

Can COVID-19 be passed from a woman to her unborn or newborn baby?

- We still do not know if a pregnant woman with COVID-19 can pass the virus to her foetus or baby during pregnancy or delivery. To date, the virus has not been found in samples of amniotic fluid or breastmilk

Should pregnant women be tested for COVID-19?

- Testing protocols and eligibility vary depending on where you live.
-
- However, WHO recommendations are that pregnant women with symptoms of COVID-19 should be prioritized for testing. If they have COVID-19, they may need specialized care.

What care should be available during pregnancy and childbirth?

- A safe and positive childbirth experience includes:
- Being treated with respect and dignity;
- Having a companion of choice present during delivery;
- Clear communication by maternity staff;
- Appropriate pain relief strategies;
- Mobility in labour where possible, and birth position of choice.
- If COVID-19 is suspected or confirmed, health workers should take all appropriate precautions to reduce risks of infection to themselves and others, including hand hygiene, and appropriate use of protective clothing like gloves, gown and medical mask

Do pregnant women with suspected or confirmed COVID-19 need to give birth by caesarean section?

- No. WHO advice is that caesarean sections should only be performed when medically justified.
- The mode of birth should be individualized and based on a woman's preferences alongside obstetric indications.

Can women with COVID-19 breastfeed?

- Yes. Women with COVID-19 can breastfeed if they wish to do so. They should:
 - Practice respiratory hygiene during feeding, wearing a mask where available;
 - Wash hands before and after touching the baby;
 - Routinely clean and disinfect surfaces they have touched.

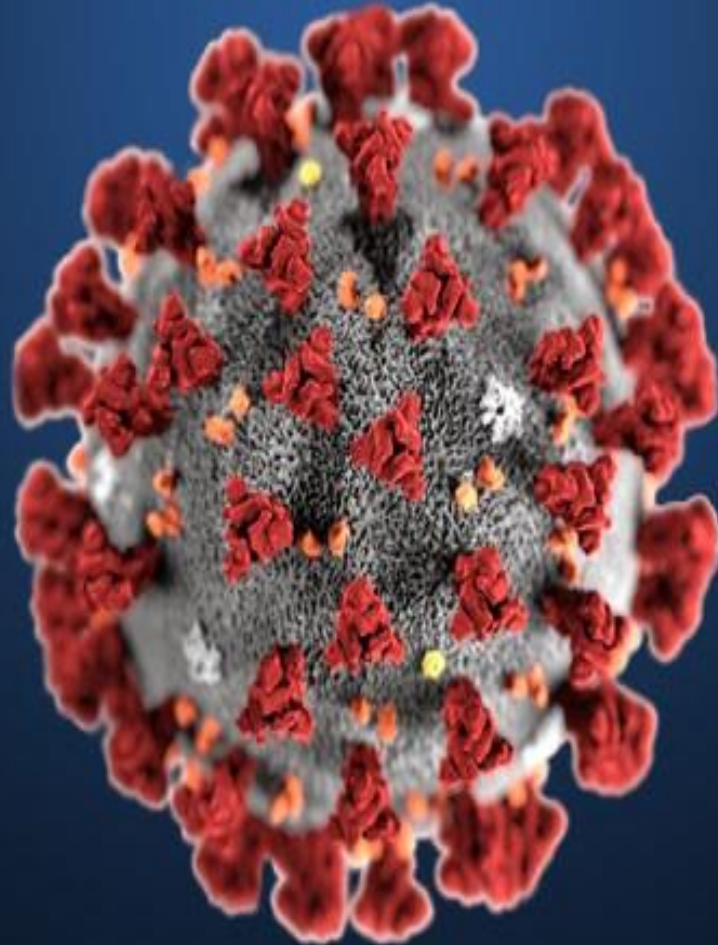
Can I touch and hold my baby if I have COVID-19?

- Yes. Close contact and early, exclusive breastfeeding helps a baby to thrive. You should be supported to
- Breastfeed safely, with good respiratory hygiene
- Hold your newborn skin-to-skin, and
- Share a room with your baby
- You should wash your hands before and after touching your baby, and keep all surfaces clean.

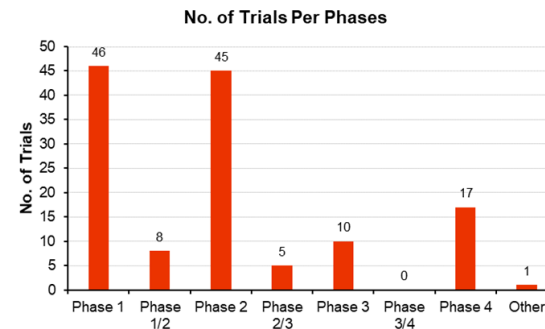
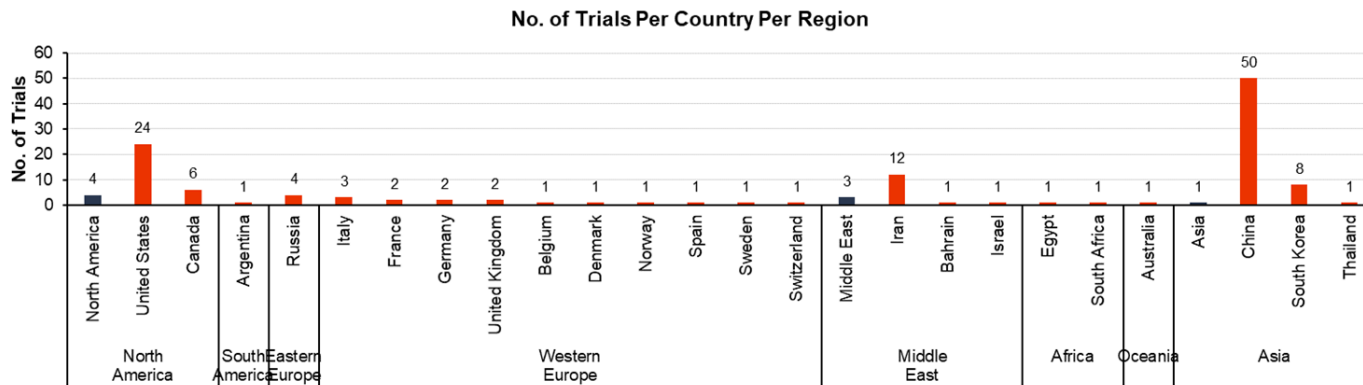
I have COVID-19 and am too unwell to breastfeed by baby directly. What can I do?

- If you are too unwell to breastfeed your baby due to COVID-19 or other complications, you should be supported to safely provide your baby with breastmilk in a way possible, available, and acceptable to you. This could include:
- Expressing milk;
- Relactation;
- Donor human milk.

COVID-19 Clinical Trials in Children



COVID-19 Clinical trials including pediatric population



COVID-19 Clinical trials including pediatric population

Trial ID	Status	Sponsor	Study Drug	Start Date	End Date	Target Randomized	Sites	Countries
NCT04331470	Planned	(Other Hospital/Academic/Medical Center)	budesonide/formoterol, unspecified levamisole (oral)	Mar-2020	Apr-2020	30	-	Iran
NCT04330638	Planned	(Other Hospital/Academic/Medical Center)	siltuximab anakinra tocilizumab	Apr-2020	Sep-2020	342	9	Belgium
NCT04323345	Planned	(Other Hospital/Academic/Medical Center)	natural product	Mar-2020	Apr-2020	1000	1	Egypt
TrialTroveID-370765	Open	(Other Hospital/Academic/Medical Center)	natural product	Mar-2020	-	30	1	Iran
TrialTroveID-370221	Planned	(Other Hospital/Academic/Medical Center) (Other government agency) Jiangxi Mayo Biotechnologies Co.	human umbilical cord mesenchymal stem cells natural killer cells, unspecified	Mar-2020	Aug-2020	20	2	China
TrialTroveID-369537	Open	(Other Hospital/Academic/Medical Center)	natural product	Feb-2020	Mar-2020	50	1	China
TrialTroveID-369503	Planned	(Other Hospital/Academic/Medical Center)	natural product	Feb-2020	Oct-2020	120	1	China
NCT04299724	Open	(Other Hospital/Academic/Medical Center)	Covid-19/aAPC vaccine	Feb-2020	Jul-2023	100	1	China
TrialTroveID-369141	Planned	(Other Hospital/Academic/Medical Center)	natural product	Feb-2020	Jun-2020	400	3	China
TrialTroveID-368882	Planned	(Other Hospital/Academic/Medical Center)	natural product	Feb-2020	Apr-2020	40	-	China
TrialTroveID-368660	Open	(Other Hospital/Academic/Medical Center)	undisclosed - FDA approved drug natural product	Jan-2020	Dec-2020	120	1	China
NCT04276896	Open	(Other government agency)	LV-SARS-CoV-2-DC vaccine, Shenzhen Geno-Immune Medical Institute COVID-19-specific cytotoxic T cells, Shenzhen Geno-Immune Medical Institute	Feb-2020	Jul-2023	100	-	China
TrialTroveID-368084	Planned	(Other Hospital/Academic/Medical Center)	undisclosed - FDA approved drug G-CSF, unspecified	Feb-2020	Apr-2020	200	4	China
TrialTroveID-367960	Open	Fudan University - Shanghai, China (Other government agency)	undisclosed - FDA approved drug natural product	Feb-2020	Dec-2020	30	1	China
TrialTroveID-367900	Open	(Other Hospital/Academic/Medical Center)	natural product	Feb-2020	Apr-2020	110	-	China
TrialTroveID-367732	Open	(Other Hospital/Academic/Medical Center)	undisclosed - FDA approved drug natural product	Feb-2020	May-2020	600	1	China
TrialTroveID-367478	Open	(Other Hospital/Academic/Medical Center)	natural product	Feb-2020	Feb-2021	200	4	China
NCT04251767	Terminated	(Other Hospital/Academic/Medical Center)	fecal bacteriotherapy	Feb-2020	Mar-2020	40	1	China
NCT04251871	Open	(Other Hospital/Academic/Medical Center)	interferon alpha, unspecified lopinavir/ritonavir, unspecified oxygen natural product	Jan-2020	Jan-2021	150	1	China
TrialTroveID-366864	Planned	(Other Hospital/Academic/Medical Center)	natural product	Feb-2020	Mar-2020	200	1	China
TrialTroveID-366848	Open	(Other Hospital/Academic/Medical Center)	natural product	Feb-2020	Apr-2020	140	1	China
TrialTroveID-366830	Open	(Other Hospital/Academic/Medical Center)	natural product	Feb-2020	Apr-2020	100	1	China

COVID-19 Clinical trials including only pediatric population

NCT Number	Title	Status	Study Results	Conditions	Interventions	Sponsor/Collaborators	Phases	Enrollment
NCT04330690	Treatments for COVID-19: Canadian Arm of the SOLIDARITY Trial	Active, not recruiting	No Results Available	COVID-19	Drug: Lopinavir/ritonavir	Sunnybrook Health Sciences Centre AbbVie	Phase 2	440
NCT04328129	Household Transmission Investigation Study for COVID-19 in French Guiana	Recruiting	No Results Available	Coronavirus Infections Severe Acute Respiratory Syndrome SARS-CoV Infection	Procedure: Human biological samples	Institut Pasteur Institut Pasteur de la Guyane Centre Hospitalier Andr�e Rosemon de Cayenne	Not Applicable	450
NCT03808922	Phase III DAS181 Lower Tract PIV Infection in Immunocompromised Subjects (Substudy: DAS181 for COVID-19): RCT Study	Recruiting	No Results Available	Lower Respiratory Tract Infection Parainfluenza Immunocompromised COVID-19	Drug: DAS181 Drug: Placebo Drug: DAS181 COVID-19 Drug: DAS181 OL	Ansun Biopharm, Inc.	Phase 3	250
NCT03331445	Inhaled Gaseous Nitric Oxide (gNO) Antimicrobial Treatment of Difficult Bacterial and Viral Lung (COVID-19) Infections	Active, not recruiting	No Results Available	Respiratory Tract Infections Corona Virus Infection	Drug: Nitric Oxide 0.5 % / Nitrogen 99.5 % Gas for Inhalation	University of British Columbia Mallinckrodt	Phase 2	20

Clinical Trials.Gov

68 studies less than 18 years (27 interventional; 4 industry)

Instead of conclusion

COVID-19 has outstanding impact on world population and clinical trials requesting innovations and proper planning for post-crisis

**Protecting the most vulnerable children from the impact of coronavirus
Global coordination is needed to prevent this health crisis from becoming a child-rights crisis.**

Pediatric Consortium of Syneos Health well prepared to support clinical teams involved in pediatric research

