SASA COVID-19 UPDATE

ENDORSED

CHILDREN, COVID-19 AND ANAESTHESIA

STATEMENT BY PACSA

25 March 2020

PACSA would like to alert clinicians to certain important features of COVID-19 infection in paediatric patients. The American Academy of Pediatrics (AAP) has suggested that, during this pandemic, we should "keep children out of the health care system if at all possible". However, we may need to manage children if they present for urgent/emergent surgery or critical care.

Children may be important contributors to the spread of the pandemic: they may act as "SUPER VECTORS", shedding the virus asymptomatically as children often look well or only have mild disease, and are thus not suspected by either parents or healthcare workers as being infected with the virus (SARS-CoV-2) or having the disease (COVID-19). This prevents us from "flattening the curve" and from halting the pandemic.

We therefore ask that you, as the paediatric anaesthesia community:

- Help identify children that may be infected with SARS-CoV-2
- Discourage children from entering the health sector unless care is urgent or emergent
- Help educate parents and colleagues about "well" looking children that may be contributing to the pandemic

This is not intended as a clinical guideline and clinicians are encouraged to frequently update their knowledge as the information on the disease and pandemic is developing rapidly and recommendations and diagnostic criteria may change.

Do children have reduced susceptibility to COVID-19? How does presentation differ?

- It is unclear if children are less susceptible
- Children are usually exposed in a family cluster
- Differences in **presentation** may be related to different development in immune system
    - Speculative - children are less sensitive to severe COVID-19 because the maturity and function (e.g. binding ability) of ACE2 in children may be lower vs adults

Diagnosis	Signs and Symptoms (NEJM)
16-50% asymptomatic disease 20% URTI 60% LRTI	Cough, pharyngeal erythema, fever 40-50% Up to 50% may have fever < 37.5°C Fever may be short lived: median 3d (range 1-16d) Additional signs & symptoms Diarrhoea, vomiting, rhinorrhoea, fatigue Tachypnoea, tachycardia and desaturation Fever and signs may resolve quickly

- There is clear evidence of prolonged **respiratory** and **faecal shedding** in the convalescent phase when children can still transmit the infection
    - Difficult to teach children hand hygiene and difficult to enforce social distancing
    - Care givers and HCW exposed during care for child

- **TAKE HOME**
    - May have less severe disease and resolve quickly
    - May remain infective in convalescent phase
    - Higher chance of being ASYPTOMATIC
    - Far higher chance of not being detected/suspected
    - Become "SUPER VECTORS" and perpetuate pandemic

What makes identifying a suspected case difficult in children?

- **Differential diagnosis**
    - Children often experience viral respiratory infections e.g. RSV
    - Children may present with GIT symptoms such as vomiting and diarrhoea as part of COVID-19 infection (or the only sign) and this is confused with gastroenteritis
    - Surgical pathology may mask signs of COVID-19 infection
- **TAKE HOME**
    - Maintain high index of suspicion
    - Screen not only child but accompanying care giver
    - Identify an epidemiological link to a confirmed adult cases
    - Limit number of care givers/ accompanying persons

How is severity and age related?

- The median age of all children's COVID-19 cases
    - Median 7 years (IQR 11)
    - Ranged from 1 day to 18 years.
- The incidence of severe disease is related to age

AGE (years)	RISK OF SEVERE COVID-19 DISEASE
< 1	10.6%
1-5	7.3%
6-10	4.2%
11-15	4.1%
>15	3%

- **Implications**
    - Severe disease will have significant respiratory and cardiovascular and implications for conduct of anaesthesia
    - Intubation may be difficult in children **and** is a high risk procedure for viral aerosolization in COVID-19 disease
    - Anaesthesia perioperative risk is also related to younger age and severe comorbidity
- **TAKE HOME**
    - All ages of children are susceptible to COVID-19
    - Young children, particularly infants are more vulnerable to severe disease
    - This is compounded by increased PERIOPERATIVE risk in younger age groups

Controversy - Ibuprofen use in children with COVID-19

The AAP and World Health Organization on the use of ibuprofen during the COVID-19 pandemic:

- Current opinion is that there is not enough evidence to recommend avoiding ibuprofen, unless there is an underlying medical condition that makes ibuprofen less safe.
- Using paracetamol is a reasonable and safe option.

However

- French health ministry advises against its use in children
- Paracetamol a safer option

FINAL TAKE HOME

- Children will contract COVID-19 but may be missed due to mild or asymptomatic disease.
- Children remain infective in the convalescent phase from both respiratory and faecal shedding
- Younger children, especially < 1y will have more severe disease and pose increased risk
- Maintain a high index of suspicion, especially if there is a positive contact in the family unit

We need to prevent any further spread of this pandemic and "flatten the curve". Failure to suspect or diagnosed mild or asymptomatic COVID-19 disease in children will hamper these efforts.

Complied by the PACSA Committee, 25 March 2020

Bibliography

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Lu X, Zhang L, Du H, Zhang J, Li YY, Qu J, Zhang W, Wang Y, Bao S, Li Y, Wu C. SARS-CoV-2 Infection in Children. New England Journal of Medicine. 2020 Mar 18.

Day M. Covid-19: ibuprofen should not be used for managing symptoms, say doctors and scientists. BMJ (Clinical research ed.). 2020 Mar 17;368:m1086.

Resources

The following websites have excellent resources although few are anaesthesia specific

https://www.clinicalguidelines.scot.nhs.uk/ggc-paediatric-guidelines/ggc-guidelines/emergency-medicine/covid-19-patient-pathway-2020-rhcg-clinical-policy/

https://picsociety.uk/wp-content/uploads/2020/03/PICS-Covid-19-guidance-v4.0-14Mar2020-1.pdf

https://dontforgetthebubbles.com/evidence-summary-paediatric-covid-19-literature/

https://www.aappublications.org/news/2020/02/28/coronavirus022820

https://www.maskinduction.com/uploads/3/1/6/4/31643965/j._lau_covid-19_for_peds_anes_3.17.20.pdf

https://www.cps.ca/en/documents/position/can-nsaids-be-used-in-children-when-covid-19-is-suspected

https://journals.lww.com/pccmjournal/FullText/2020/02000/Surviving_Sepsis_Campaign_International_Guidelines.20.aspx