University Hospitals Birmingham
NHS Foundation Trust

Evidence Update on COVID-19
Paediatrics

This is not a clinical guideline or SOP. This is a summary of the latest evidence available internationally on the management, treatment and science underlying COVID-19 disease.

Children (0-18years) appear to have milder symptoms and are less likely to be tested

Risk to children - children are less likely to be diagnosed - risk remains low

- Children make up small number diagnosed cases in China (2%), Italy (1.2%) Japan (2.4%), South Korea (6.5%), Iceland (10%) and USA (5%, of which 1% in hospital) Ludvigsson, Lu, Mizumoto, CDC, COVID-IS
- Incubation period 2-10 days
- Deaths attributed to COVID-19 - very low (1/45,000 in China, 0/22500 in Italy, 1/4200 in USA)

Cases

- Asymptomatic - up to 90% Dong (4.4% - confirmed/suspected)
- Mild - up to 90% (50.9% mild)
- (38.8% moderate)
- Severe - 5.2%
- Critical 0.6% (presents with ARDS, shock, multi-organ failure)

Children in ICU mostly have underlying health conditions
Most children recover within 1-2 weeks
No increased incidence in children with respiratory disease so far - asthma, cystic fibrosis, or in immunosuppressed children including chemotherapy and transplant D'Antiga

Symptoms in 0-18 year olds Dong, Zheng

Symptom	Fever	Cough	Fatigue	Rhinorrhea	Diarrhoea	Vomiting	Dypsnea
% cases (n)	41% (71) 52% (13)	48% (83) 44% (11)	7.5% (13)	7.5% (13) 8% (2)	9% (15) 12% (3)	6.5% (11) 8% (2)	12% (3)

Other reported symptoms - sore throat, myalgia, wheeze
Risk of late and more severe presentation of other childhood illnesses due to changes in behavior around seeking healthcare.

Clinical presentation - Lu

- Lymphopenia is rare - 3.5% in children compared to 85% in adults
- Bilateral ground glass opacity 33%
- Tachycardia 42% (72)
- Tachypnea 29% (49)

No serological studies to determine whether children are a source of transmission (need more data)

- China - 90% of infections in children were through familial or household infection (china contact tracing) - higher risk of adult-child transmission during social distancing
- No infectious virus found in stool suggests low risk of transmission from feces (n=9) Wolfel

Pregnancy
No evidence to date of effect on fetus

Newborns

- Possible evidence for in-utero transmission
    - In 9 C-section births from infected mothers, no virus was found in amniotic fluid, cord blood or neonatal throat swab. Also no infection in breast milk (no PCR performed, small sample size) Chen
    - One case of IgM antibodies in neonate (suggests in utero infection) but negative swabs from baby - unclear Dong
- Studies with no infection in newborn (SARS-Cov2 positive mother)
    - 11 births, no infection in neonate (mothers showed mild disease) Liu,
    - 38 births showed no infection in neonate 1-9 days post birth (not all mothers were PCR positive, despite showing symptoms) Schwartz

No specific treatments in children

Indirect consequences to children

- Increased poverty
- Loss of education
- Domestic violence
- Mental health