

## SAGE meeting paper: Cover sheet

*Please complete this cover sheet for each substantive and non-routine paper being discussed at SAGE, unless these details are clearly provided in the paper itself.*

**SAGE meeting date:** 15/10/2020

**Paper title:** Transmission and Symptoms in Children

**Paper ID:** To be completed by SAGE Secretariat

**Author(s):** Russell Viner; Children's Task and Finish Group

**Supporting papers:** DfE Slide Deck from Children's TFC  
(for storage in the repository) NHS Digital: Mental Health of Children and Young People in England, 2020 Wave 1 Follow up to the 2017 survey

**Handling instructions:** Click or tap here to enter text.

**Suitable for publication:** Choose an item.  
(please include reason if not) Choose an item.  
for immediate publication) Click or tap here to enter text.

**Written on:** 12/10/2020

**Considered at:** SPI-M ☐  
SPI-B ☐  
NERVTAG ☐  
Nosocomial working group ☐  
Environmental and Modelling group ☐  
Children sub-group x  
Evaluation group ☐  
[Other] ☐  
Click or tap here to enter text.

**Word count:** 592

### Summary of paper

1. Reason for bringing to SAGE (include links to any commissions from SAGE or elsewhere); how does this build on previous SAGE discussions?

Updates SAGE discussions / advice on the role of children in transmission with new evidence and data

2. What are the key conclusions of the paper (and confidence in these)?

### Transmission in children

Russell Viner has provided an updated systematic review<sup>1</sup> on the transmission of SARS-CoV-2 from children and young people, which finds:

---

<sup>1</sup> Russell Viner; Transmission of SARS-CoV-2 / COVID-19 by children and young people: a systematic review of epidemiological studies; 8<sup>th</sup> Oct 2020, provided to SAGE 15<sup>th</sup> Oct

Deadline for submission of papers is 6pm the evening before the SAGE meeting, unless other arrangements have been made with the secretariat

sage@ Irrelevant & Sensitive

- There is moderate but consistent evidence that **transmission from children in education settings is limited**, although many studies were conducted with low background prevalence (medium confidence).
- There is **conflicting evidence of transmission from children in households**, with some suggesting secondary attack rates from children similar to adults, and others finding little evidence of transmission from children to others within households. The majority of studies suggest transmission from children is low (low confidence).
- Overall, **emerging evidence suggests that children and young people have a limited role in transmission of SARS-CoV-2, with very limited transmission from children in educational settings** (medium confidence).
- **Data are insufficient to make firm conclusions relating to age differences within childhood/adolescence**, however the majority of available data relate to children of or below primary school age.

### Symptoms in children

Viner et al. have also conducted a rapid review of reviews of symptoms and signs of COVID-19 in children and adolescents, which finds:

- **In mostly hospitalised patients, fever and cough are the predominant symptoms of COVID-19 in children and young people, and other symptoms such as runny nose, sore throat and gastrointestinal symptoms are far less common** (high confidence).
- Fever and cough appear equally prevalent across younger and older children, but there are insufficient data to conclude if there are age differences in the frequency of other symptoms in children.
- In data from a much smaller number of studies in the community, lower proportions of children present with fever or cough, consistent with a higher asymptomatic proportion (low confidence).
- No data on loss or change of smell were included in the reviews analysed

### DfE view on COVID-19 testing and school attendance data

DfE analysis has been provided<sup>2</sup> to October 2020 which finds:

- There is weak but converging evidence that schools are not playing a major role in transmission. ONS testing figures of age 2 to year 6 are consistently low.
- JBC data shows that incidence rates in 0 – 15 year olds are low. Higher incidence rates have been documented among older children and young adults. (16-29) In this age category, there is some evidence of increased incidence for 15-17 year olds, but this is dwarfed by incidence in 18-21 year olds.
- The increased incidence in these age groups may be caused by the social behaviours of this age group, with young people of this age having a wider network of contacts.
- Schools not being “fully open” seems to be associated with community incidence – possibly implying this is not driven by transmission within schools (weak evidence).
- The ONS testing data finds the highest prevalence of infection in School Year 12 – Age 24. The higher than expected prevalence in School 7 to 11 may provide some indication (low confidence)

<sup>2</sup> DfE; Update on schools, children and COVID-19; slide pack provided to SAGE 15<sup>th</sup> Oct

Deadline for submission of papers is 6pm the evening before the SAGE meeting, unless other arrangements have been made with the secretariat

that a higher percentage of asymptomatic cases in older secondary school aged pupils. – but this has not led to any major outbreaks in schools

- There are limited indications that secondary schools and schools with certain characteristics are seeing bigger impacts (higher percentage of schools not being fully open) over recent weeks
  - DfE will continue to investigate this as data improves (via better access to JBC testing data and the improved school attendance collection)
  - The DHSC school infection survey will improve understanding of the role of schools in transmission.

### **Behavioural considerations**

Along with evidence in previous reports<sup>3</sup>, behavioural considerations have been outlined by SPI-B:

#### **Evidence of the impacts of school closures**

- Keeping schools open enables many of the developmental and support issues to be addressed. Opportunities to identify vulnerable children, and those with learning/developmental needs are interrupted by school closures, some of the associated risks are outlined below and, in the SAGE report 'The role of children in transmission'
- Vulnerable children are likely to be most affected by school closures. This is expected to be the case among a range of vulnerabilities, for example those with SEND are very likely to be adversely affected.
- Educational outcomes are seriously at risk, especially for disadvantaged pupils as a result of school closures (DfE 2020, p.1).
- A period of learning at home is likely to reinforce inequalities between children. Extended periods away from school could mean that emerging learning problems are missed by educational psychologists. Additionally, an important minority of students do not have access to devices and the internet.
- Risks to vulnerable children's welfare increase significantly as a result of school closures. The risk of harm and abuse in the home is likely to be higher due to isolation and financial stress. The most vulnerable will also be negatively impacted by existing family distress, housing, poverty, lack of outside space and opportunities for play and exercise, crucial for positive mental health and wider development.
- Children's social and emotional development is likely to be adversely affected. 67% of respondents noted school closures had impacted on their child's mental health (DfE 2020, p. 7). Many children will miss opportunities for pro-social interactions with their peer group.
- Even with the schools open, the demand for initial peak, and longer term developmental, psychological, educational and social support stands to overwhelm the system<sup>4</sup>. This is an opportunity to redesign the provision of children's services in schools and beyond.

#### **Mixing beyond the school setting**

---

<sup>3</sup> <https://www.gov.uk/government/publications/spi-m-the-role-of-children-in-transmission-16-april-2020> ;  
<https://www.gov.uk/government/publications/tfc-risks-associated-with-the-reopening-of-education-settings-in-september-8-july-2020>

<sup>4</sup> <https://www.childrenscommissioner.gov.uk/report/childhood-in-the-time-of-covid/>

Deadline for submission of papers is 6pm the evening before the SAGE meeting, unless other arrangements have been made with the secretariat

sage@ Irrelevant & Sensitive

- If infection rates are not being driven by school interactions, they are likely to be driven by activities and contacts made outside school.
- Evidence suggests that mixing outside of the home during school closures continues to occur, even despite health recommendations to remain indoors and isolated from others<sup>5</sup>.
- Some studies note more activities and contacts among older children - those aged 16-18 years had significantly more contacts than other grades during school closures, particularly late in the week.
- Many studies have explored what types of activities children engage in outside the home during school closure and it is likely that the type of activity is important in determining the likelihood of infection spreading.
- Evidence-based, co-designed communication could be used to provide additional clarity about the risks of mixing between school bubbles, and the benefits of decreased mixing (e.g. enabling schools to stay open; decreasing the risk of infection). Similar messaging could be designed to reinforce the importance of adhering to isolation guidance.

3. What are the key questions to be considered at SAGE?

Does SAGE agree with the conclusions, indicated strength of evidence and confidence levels above?

Are there implications of this evidence for NPIs and epidemiological modelling, that may need to be considered?

4. Are there any proposed next steps?

To be discussed/confirmed at SAGE

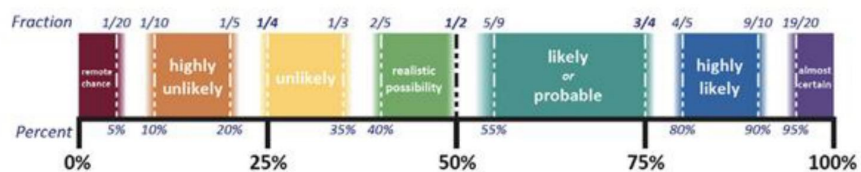
---

<sup>5</sup> The impact of unplanned school closure on children's social contact: Rapid evidence review - Rubin et al, 2020

Deadline for submission of papers is 6pm the evening before the SAGE meeting, unless other arrangements have been made with the secretariat

sage@ Irrelevant & Sensitive

**PHIA probability yardstick – to be used when expressing likelihood or confidence**



Deadline for submission of papers is 6pm the evening before the SAGE meeting, unless other arrangements have been made with the secretariat

sage@ Irrelevant & Sensitive