

MASK-WEARING IN SCHOOL-AGED CHILDREN

Rapid evidence overview 29/10/2021

DISCLAIMER: This document was prepared in order to provide some background information for the Interministerial Committee meeting of 30/10/2021. Due to the extremely short deadline, no systematic literature review was attempted. In contrast, the document rather aims to provide a broad overview of which evidence is (and is not) available. This document does not recommend for or against the use of masks in children. Recommendations on possible mask use in children are policy decisions that should take into account several societal and epidemiological factors.

Mask-wearing is a relatively non-invasive measure aiming to limit the spread of and exposure to viruses. Its effectiveness against SARS-CoV-2 in adults has been demonstrated by both modelling studies (1–3), lab-based experiments (4,5) and a large, real-world randomized controlled trial in Bangladesh (6). However, as was previously shown for other viruses, effectiveness of mask-wearing might be lower in children, due to poor fit, variable acceptance and reduced compliance in younger age groups (7).

INTERNATIONAL RECOMMENDATIONS

Since the evidence on mask-wearing for school-aged children during the COVID-19 outbreak is limited, different recommendations currently exist and opinions vary. The [WHO](#) recommendations remained unchanged since 01/12/2021. They do neither recommend nor advise against masks for children from 6 to 11 years old, but advise to weigh up different potential harms and benefits. Factors to take into account include “intensity of SARS-CoV-2 transmission, child’s capacity to comply with the appropriate use of masks and availability of appropriate adult supervision, local social and cultural environment, and specific settings such as households with elderly relatives, or schools”. [ECDC](#) does not recommend the use of masks in schools for children under 12 years old (no update – 08/09/21). Finally, the [CDC](#) promotes the use of mask from 2 years old onwards (no update – 19/04/21). Hence, while there is no coherent worldwide recommendation, the implementation of masks in schools for children under 12 years old remains an important source of debate.

International Organization	Recommendation on masks in schools
WHO	Weigh risk/harms for children 6-11y
ECDC	Not for children <12y
CDC	Recommend from 3y

OBSERVATIONAL EVIDENCE FOR BENEFITS OF MASK USE

To date, the evidence on effects of masks on COVID-19 transmission in children remains limited. A study from Georgia (US) has observed, during the months of November and December 2020, that **masking of teachers and staff was associated with a clear risk reduction (RR 0.63 [0.47-0.85]), whilst for masking of students their might be a risk reduction, but it was not statistically significant at the 0.05-level (RR 0.79 [0.50-1.08])** (8) Interestingly, a more recent study in Maricopa and Pima Counties, in Arizona, observed the association between different masks policies and school-associated outbreaks in K-12 public schools (5 to 17 years old) from July 15 to August 31, 2021. The schools were classified by their masks policies;

“early mask requirement” (since the beginning of academic year), “late mask requirement” (any time after school had started) , and “no mask requirement” (no mask at all). A school outbreak was defined as two confirmed cases during a period of 14 days, at least 7 days after the school has started. **The odds of having an outbreak were 3,5 times higher in schools without mask policies compared to those with an early mask policy implementation** (adjusted OR = 3,5; 95% CI = 1,8-6,9) (9). While these results seem to promote the use of masks, caution need to be taken when interpreting them, as the confidence interval is quite wide. Importantly, the study involved children from elementary school to higher education and hence does not distinguish the effect of mask in children under 12 years old specifically. **Of note, masking is one among other non-pharmaceutical measures that, altogether, play an important role in the limitation of the spread of the virus.** Indeed, many reports have demonstrated that implementing layered prevention (use of multiple strategies such as suspension of extra-curricular activities, improved ventilation, masking, physical distancing, smaller class sizes, symptoms screening,...) reduces virus transmission (10–12).

OBSERVATIONAL EVIDENCE FOR HARMS OF MASK USE

A recent French study explored the perception of masks in schools by pediatricians, parents and children (through surveys answered by the parents). Children for whom a survey was completed were aged between 6 years old and 12 years old. Most pediatricians agreed with the mandatory aspect of mask-wearing from 6 years old and it is worth noticing that **more than half of the children seemed to easily accept such measures, with good compliance.** However, 82.4% of children reported symptoms possibly related to mask wearing. The most frequently reported symptom was a headache (reported by >50% of participants). It is important to note that the study did not include a control group. Pre-pandemic studies have indeed found 37-51% of children from 7y and older to report headaches (13).

Another study, conducted in the United States, observed the compliance of young children (3 to 8 years old) with mask-wearing. They noted that these **children may be able to easily wear masks during a considerable period of the day** (14). Compliance increases with age and smaller class sizes (14). Moreover, it has been observed that the use of mask does not lead to any serious short-term effects on children’s physical health (14,15).

Other studies highlighted the **different developmental/emotional impacts that such measure could bring.** Indeed, 45% of parents in the French study reported that their children experienced discomfort while speaking (13). This lead the authors to conclude that mask-wearing might limit the ability to understand/hear the others and remove different visual cues that are necessary to communicate, three paramount tools for children who are developing speaking and reading skills (13,14). Indeed, Gori et al. demonstrated in a trial presenting pictures of masked and unmasked people, that the mask may limit the ability of the children to properly understand emotions. The effect was particularly pronounced for children under 5 years old (16). On the other hand, two other studies with a similar design did not find large differences in comprehension of emotions by children from 7 to 13 years when the face was partially covered (17,18). Finally, it has been observed that mask-wearing may impact the behavior of the child, leading to mood disorders and sleep disturbances (half of the children under-study) (13).

CONCLUSION

Therefore, although the effectiveness of masks has been well-proven towards reducing the virus transmission in adults, only very few studies observed its use in specific environment such as in primary schools. For these children, a few considerations need to be taken into account. First, while good compliance can be achieved from a young age, children are still reporting some symptoms and discomfort possibly related to mask-use. Second, some evidence demonstrated a potential negative impact of mask-wearing on expression/interactions skills as well as on behavior changes than can hinder the appropriate child's development. Therefore, it may be prudent to limit mask-use to older age groups. Finally, it is also important to mention that, in order to be most effective, the mask should be well-fitted to the face of the student (5). Hence, appropriate masks, with adequate sizing should be offered to young children if such measure wants to be efficient.

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