**Summary of findings 2.** Summary of findings: measures making contacts safer

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| **Intervention subcategory: making contacts safer ‐ face masks** | | | |
| **Outcomes** | **Number of Studies (modelling studies)** | **Summary of Evidence** | **Certainty of Evidence (GRADE)** |
| **Outcome category: transmission‐related outcomes** | | | |
| Number or proportion of cases | 3 | Three studies look at masks among other measures implemented in the school setting, and reduction in the cases avoided due to the intervention, reporting on outcomes such as (cumulative) number of cases or attack rates. In the studies that allow for drawing conclusions with regard to the effect of masks, wearing masks reduced the number of cases. Studies found that full school reopening with high‐face‐mask adherence/a mandatory mask policy, significantly reduced the increase in community infections due to school reopening (3 times the number of infections), compared to scenarios with low mask adherence/no mandatory policy. This included a reduction from 81.7 times to 3.0 times the number of infections in the community and a reduction from 57% to 46% of those with symptomatic infections needing to be tested in the community under 30% effective coverage of masks. A further study found a reduction in the excess proportion of infections in the school setting at a moderate level of community transmission with mandatory masks among teachers and staff (1.73, 95% CI 2.32 to 6.29), as well as students (2.51, 95% CI 0.05 to 6.95), compared to reopening with no countermeasures (teachers and staff: 14.83, 95% CI 0.93 to 29.25), students: 14.18, 95% CI 1.63 to 26.77). Insight from individual studies shows factors which may impact upon the magnitude of effect, such as the initial level of COVID‐19 incidence, as well as the assumed compliance with wearing masks. | Very low |
| Reproduction Number | 1 | One study showed the positive effect of a mask policy on the reproduction number. The study showed that wearing masks in secondary schools in Switzerland led to an estimated reduction in the general population of R by 0.011 (95% CI 0.008 to 0.0127). However, there is no consideration of compliance in the model. | Very low |
| Number or proportion of deaths | 2 | Two studies examined impact of a mask policy on the number or proportion of deaths as an outcome, finding positive results. One study found a lower proportion of excess deaths experienced by students (0 (95% CI 0 to 0)) and school staff and teachers (0.44 (95% CI 0 to 0.44)) if schools reopened with mandatory mask wearing, compared to school reopening with no countermeasures (students: 0.01 (95% CI 0 to 0.01); school staff and teachers: 2.97 (95% CI 0 to 47.17)). These findings assumed moderate community transmission.  One study focused on the general population, finding that, under a scenario with high capacity and high face‐mask adherence, there would be a decrease in the ratio of the cumulative number of deaths in the overall population of 1.5 (95% CI 1.5 to 1.6). | Very low |
| **Outcome category: healthcare utilisation** | | | |
| Number or proportion of hospitalisations | 1 | One study looked at the impact of a mask policy on the number or proportion of hospitalisations and found positive results. The study demonstrated that mandatory mask wearing in schools when reopening would lead to reduced hospitalisations among students, staff, household members and community members compared to reopening with no measures in place. The study predicts that mandatory mask wearing in schools when reopening all schools would lead to reduced hospitalisations among students, staff, household members and community members. For teachers/staff, the excess rate of hospitalisations per 10,000 of the subpopulation would be reduced to 4.2 (95% CI ‐47.39 to 48.09) from 40.5 (95% CI ‐46.95 to 146.64). For students this decreases to 0.07 (95% CI 0.00 to 0.01) from 0.08 (95% CI 0.00 to 0.08). The size of this effect is moderated by level of community transmission, type of school and whether children are considered half or equally susceptible as adults. In general, higher transmission, high schools, and increased relative susceptibility of children lead to a higher number of cumulative infections across scenarios. | Very low |
| **Intervention subcategory: making contacts safer ‐ cleaning** | | | |
| **Outcomes** | **Number of Studies**  **(modelling studies)** | **Summary of Evidence** | **Certainty of Evidence** |
| **Outcome category: transmission‐related outcomes** | | | |
| Reproduction number | 1 | One study assessed the impact of an enhanced cleaning policy on the reproductive number and showed positive results. The study found that compared to eight‐hourly and four‐hourly surface cleaning and disinfection, hourly cleaning and disinfection alone could bring the fomite R below 1 in some office settings, particularly combined with reduced shedding, but would be inadequate in schools. This study did not take into account direct transmission through droplet spray, aerosols and hand‐to‐hand contact. | Very low |

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| **Intervention subcategory: making contacts safer ‐ handwashing** | | | |
| **Outcomes** | **Number of Studies**  **(modelling studies)** | **Summary of Evidence** | **Certainty of Evidence** |
| **Outcome category: transmission‐related outcomes** | | | |
| Reproduction number | 1 | One study assessed the impact of handwashing on the reproduction number and suggested no impact. While results are only presented in a graphical way, it predicted that handwashing (hourly with 100% effectiveness) compared to no handwashing did not make a difference with regards to the projected reproduction number from fomite transmission. | Very low |
| **Outcome category: other healthcare outcomes** | | | |
| Physical health | 1 observational/  experimental | One study found that 6.5% (2000 of 30,907; 95% CI 6.2 to 6.8) of children had hand eczema prior to school closures, 14.1% (4363 of 30,907; 95% CI 13.7 to 14.5) of students had hand eczema before reopening of schools on 15 April 2020. This prevalence increased to 50.5% (15,595 of 30,907; 95% CI 49.9 to 51.0) after the children returned to school and the strict hand hygiene regimen (handwashing for 45 to 60 seconds every 2 hours; after arrival, before and after meals, after toilet visits, after coughing or sneezing or whenever hands were visibly dirty) was implemented, which was a statistically significant increase of 36.3% (P < 0001). | Low |
| **Intervention subcategory: making contacts safer ‐ modification of activities** | | | |
| **Outcomes** | **Number of Studies**  **(modelling studies)** | **Summary of Evidence** | **Certainty of Evidence** |
| **Outcome category: transmission‐related outcomes** | | | |
| Reproduction number | 1 | One study assessed the impact of changing the length of the school day and found that keeping schools open with longer school hours (8 to 9 hours) each day would reduce R by 0.83 compared to a policy in which children go to school every other day for five hours. | Very low |
| **Intervention subcategory: making contacts safer ‐ ventilation** | | | |
| **Outcomes** | **Number of Studies**  **(modelling studies)** | **Summary of Evidence** | **Certainty of Evidence** |
| **Outcome category: transmission‐related outcomes** | | | |
| Concentration of aerosol particles containing RNA virus in the room and inhaled dose of RNA virus for a susceptible person | 1 | One study assessed the effect of four air purifiers equipped with HEPA filters in a high school classroom in Germany with an infected person in the room with regards to the inhaled dose of particles containing RNA virus. This dose is reduced by a factor of six. The density of people in the room can be considered an effect modifier. | Very low |
| **Intervention subcategory: making contacts safer ‐ combined measures to make contacts safer** | | | |
| **Outcomes** | **Number of Studies**  **(modelling studies)** | **Summary of Evidence** | **Certainty of Evidence** |
| **Outcome category: transmission‐related outcomes** | | | |
| Number or proportion of cases | 4 | All studies looked at the impact of combined measures to make contacts safer on the number or proportion of cases and found positive results overall. Those which reported on community level transmission found a reduction in total number of infections, although specific figures were not reported, and reduction in the number of cases from 59.7 million when schools reopened with no countermeasures to 2.3 million and 2.0 million in 40% partial online learning scenarios, with 'ideal social distancing' (assumed 50% reduction in contacts due to face masks, hygiene, and distancing measures). Those which reported on school level outcomes found that implementing a variety of infection control measures led to a reduction in the cumulative COVID‐19 infection rate among students, teachers, and staff over four‐fold, and a reduction in total number of infections, although specific figures were not reported. | Very low |
| Reproduction number | 2 | Two studies examined effective reproduction number as an outcome, with both studies finding a positive effect. Both studies presented results graphically, making it difficult to determine effect sizes. One study showed that all modelled scenarios with combined measures to make contacts safer would reduce the effective reproduction number to < 1, compared with full school reopening with full attendance and no measures in place. The other study compared high with low‐transmission settings in primary schools and suggested that the effective reproduction number is consistently lower in a low‐transmission setting. | Very low |
| Number or proportion of deaths | 2 | Two modelling studies assessed combined measures to make contacts safer on the number or proportion of deaths as an outcome, finding mixed results, one positive, and one unclear result. One study found that when fewer workplaces were open, all four 40% partial online learning scenarios, with alternating days or weeks of attendance were found to reduce deaths. Although a larger decrease to 25,474 and 27,874 was observed in scenarios where a 50% reduction in contacts due to mask wearing or reduced social distancing with minimal mask use was assumed within the model, compared to 230,451 deaths during full school reopening with no countermeasures. However, the other study estimated a 12.6% (95% CI 7.4% to 22.7%) increase in deaths among children and the general population as a result of schools reopening with countermeasures, compared to keeping schools closed. | Very low |
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| Shift in pandemic development | 1 | One study assessing combined measures to make contacts safer compared high with low‐transmission settings in primary schools. With results presented in a graphical way, they implied that the mean duration of the outbreak is shorter in low‐transmission than high‐transmission settings in all student to teacher ratios except for the 30:1 ratio. | Very low |
| **Outcome category: healthcare utilisation** | | | |
| Number or proportion of hospitalisations | 1 | One study looked at the impact of combined measures to make contacts safer on the number or proportion of hospitalisations, and found that when fewer workplaces were open, all partial online learning scenarios, with ideal social distancing (defined as a 50% reduction in contacts due to physical distancing, hygiene and masks), were found to avert between 543,977 and 1,708,197 hospitalisations. Moreover, for these scenarios, hospitalised cases during the peak four weeks ranged from 59,056 to 354,878, compared to a baseline scenario of 685,747 with schools reopening with full attendance and no measures in place. | Very low |
| **Outcome category: societal, economic and ecological outcomes** | | | |
| Number of days spent in school | 2 | Two studies examined the outcome of number of days spent in school. One study found that at very low community infection rates (10 reported infections per 100,000 population over the last seven days), most students can expect to attend nearly every day even in schools operating full‐time, as long as schools implement multiple interventions. It is not possible to determine effect size due to lack of reporting. The other study compared high with low transmission settings in primary schools. Except for a ratio of 30:1, the number of student days lost to closure was consistently higher in low transmission settings. The predicted number of student days lost was 76.0 ± 59.5 for a ratio of 8:1, 270.2 ± 195.6 for a ratio of 15:1 and 1157.7 ± 684.3 for a ratio of 30:1 in a low transmission setting while it was 111.2 ± 72.8; 389.9 ± 202.0 and 1093.9 ± 396.1 for a high transmission setting | Very low |

CI: confidence interval.