

Children's Task and Finish Group: update to 4th Nov 2020 paper on children, schools and transmission

17 December 2020

Background and purpose

This paper provides an updated view on evidence relating to children and schools from the Children's Task and Finish group in response to an action from SAGE 65¹. It is an update to the previous paper on Children, Schools and Transmission² and should be read in line with the purpose of that paper and the discussion at SAGE 65. This paper was presented at SAGE 73 on the 17th December 2020, and was approved prior to the emergence of data on the new variant (VOC 202012/01; variant B.1.1.7). Any changes in light of the new variant will be kept under review.

SAGE has advised previously that the opening and closing of schools is likely to have an impact on transmission and R, and that policymakers will need to consider the balance of risks and harms: including the potential direct health risks to children and staff from COVID-19 and the wider impact of school opening on community transmission; and the direct risks to student mental health, wellbeing, development, educational attainment and health outcomes from school closure.

New evidence and data considered as part of this update includes:

- The latest updates on prevalence from the ONS COVID-19 Infection Survey (CIS)
- Updated analysis from University of Manchester on children and household Transmission
- The first results (currently unweighted) from the COVID-19 Schools Infection Survey (SIS) covering:
 - Positive tests amongst teachers and pupils
 - Variation in practices
- DfE analysis of the impact of half term
- Warwick analysis of DfE data on COVID cases in pupils and teachers

Summary of continued, new or updated evidence

Role of children, young people and schools in transmission

These statements are new or have been updated with new data and analyses:

- Overall, accumulating evidence is consistent with increased transmission occurring amongst school children when schools are open, particularly in children of secondary school age (high confidence): multiple data sources show a reduction in transmission in children following schools closing for half term, and transmission rates increasing again following the post-half term return to school (medium confidence). It is difficult to quantify the size of this effect, and it remains

¹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/935102/sage-65-meeting-covid-19-s0863.pdf

² https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/935125/tfc-covid-19-children-transmission-s0860-041120.pdf

difficult to quantify the level of transmission taking place specifically within schools compared to other settings.

- ONS CIS data to 12 Dec 2020 show the rates of those testing positive for SARS-CoV-2 continue to be highest in secondary school age (11/12 to 15/16 years) children in England; REACT-1 data³ between 13th Nov – 3rd Dec also show the highest prevalence in children aged 13-17 years (high confidence). Recent ONS CIS data show a marked increase in the positivity rate in secondary school aged children in London, rising to over 4% over the fortnight to 12th December 2020. This increase coincided with the change from November restrictions to Tier 2 restrictions, but it is not possible to directly quantify where transmission was occurring from these data (e.g. schools vs other settings).
- SIS data may suggest a higher rate of secondary school pupils included in the survey testing positive than in primary schools, but the confidence intervals around these estimates overlap, and these results should not be generalised to the school population as a whole (low confidence). As those included in the SIS study are in school, these figures will reflect the levels of infection without clear symptoms only (as symptomatic individuals should not be attending).
- Multiple available data sources (DfE analysis⁴ of ONS Covid-19 Infection Survey and Pillar 2 data) suggest that secondary school-aged children became infected at a slower rate during half term than during the preceding term-time period (medium confidence). This pattern is consistent with there being an effect of schools being open on increasing the spread of the virus amongst children. There is not enough evidence to quantify the size of the effect of school closures, or indicate what the impact is (if any) on the wider community. Some of the pattern emerging from the Pillar 2 data could be explained by changes in testing behaviour (i.e. fewer uninfected children with mild Covid-like symptoms getting tested during half term). However, when considered alongside ONS CIS and SIS data, this indicates a role of schools being open in transmission in children.
- Education is a major part of children and young people's lives, and in comparison to wider national restrictions, the opening of schools is associated with increases in contact rates. Transmission to children and young people can occur in household, community and educational settings (high confidence). We cannot separate out the infection risk from behaviours and contacts within schools from the wider 'end to end' behaviours and contacts associated with school attendance but taking place outside the school. Currently, it is not possible to quantify the extent of transmission taking place specifically within schools from the SIS data.
- DfE analysis of contact tracing (CTAS) data shows that adults over the age of 65 are rarely reported as close contacts by infected children (low confidence). However, it is difficult to infer the true exposure patterns from this data: numbers of contacts may be dramatically under-reported, and many contacts do not have age data available.
- Analysis of DfE school attendance data (as above) indicates that reported cases in students increased across all tiers during the first two weeks of national restrictions in Nov, particularly in secondary schools. However, this was not reflected in a rise in cases in teachers in tier 3 regions. Post national restrictions, cases in students and teachers have increased slightly in tier 2 regions but not in tier 3 regions.

³ https://spiral.imperial.ac.uk/bitstream/10044/1/84879/2/REACT1_r7_FINAL_14.12.20.pdf

⁴ DfE, Dec 2020: Impact of Secondary Schools on the Second Wave; slides provided to SAGE 17/12/2020

- Children can transmit within households as well as in educational settings. Previous analysis of ONS data discussed at SAGE 65 indicated that children aged 12-16 were playing a higher role in introducing infection into households than those 17 or over (i.e. being the index case). An update of this analysis with data until 2nd Dec 2020 still supports this, however the increased likelihood has reduced (medium confidence). The difference remains less marked for those under 12 (medium confidence).
- As discussed in SAGE 65 there is some evidence from contact tracing studies that pre-school and primary aged children are less susceptible to infection than adults (low-medium confidence). The evidence is more mixed for secondary aged children and older children, who seem to have similar rates to adults. Analysis of ONS data on household transmission risk also indicates that children aged 16 or under are less susceptible to infection from others in their household than those 17 or over (medium confidence).
- No two schools are the same, with differences for example in class sizes, structures and ventilation, among other things. Differences in the school environment and the level of mitigations in place will influence the potential for transmission in schools. Mitigations such as ventilation, social distancing and handwashing (and others) are important in all school settings.
- Of 49 responses from headteachers in the SIS, all report that some preventive measures (e.g. increased cleaning of frequently touched surfaces) are in place; most indicate keeping windows open; and some measures (e.g. all pupils wearing face coverings in the classroom) are in place in under 10% of the primary or secondary schools responding. Further analysis of the link between different practices and infection levels needs to be undertaken.

Impacts on teachers and school staff

These statements have been updated with new data or analyses but continue to support the overall conclusions of SAGE 65:

- ONS CIS data from 2 Sept-16th Oct show no evidence of difference in the rates of teachers/education workers testing positive for SARS-CoV-2 compared to key workers and other professions (medium confidence). This is seen even when combining different categories of school staff in the analysis.
- The Schools Infection Survey (SIS) confirms that, even with testing, there are low levels of infection in schools. As staff included in the SIS study are in school, these figures will reflect the levels of infection without clear symptoms in teachers only (as symptomatic individuals should not be attending).
- Whilst the SIS data may suggest a higher rate of infection among secondary school staff included in the survey than in primary schools, the estimates have wide and overlapping confidence intervals, and the difference is not statistically significant. More broadly, caution should be taken when interpreting the SIS findings: the SIS data is unweighted, and so cannot be generalised to the school population as a whole.
- Analysis of DfE attendance data, which includes reports of those absent with confirmed COVID-19⁵ indicates that whilst the percentage of students with confirmed infection is greater in secondary school than primary school students, the percentage of teachers

⁵ Collected via e.g.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/926209/Questions_on_the_educational_setting_status_form_for_schools.pdf; see Annex B

with confirmed infection appears to be similar across primary/secondary schools (medium confidence).

Impacts on children and young people

These statements have not changed and continue to be supported by the evidence outlined previously (SAGE 65):

- There continues to be strong evidence that children and younger people (<18 years) are much less susceptible to severe clinical disease than older people (high confidence).
- There is clear evidence of the negative educational impact of missing school, particularly for younger children, as investments in children's learning tend to accumulate and consolidate over time (high confidence).
- There is evidence that the pandemic has negatively impacted the mental health of children and young people, and that school closures cause impairment to the physical and mental health of children. Evidence suggests that the mental health of adolescents is particularly affected (high confidence)

Further work

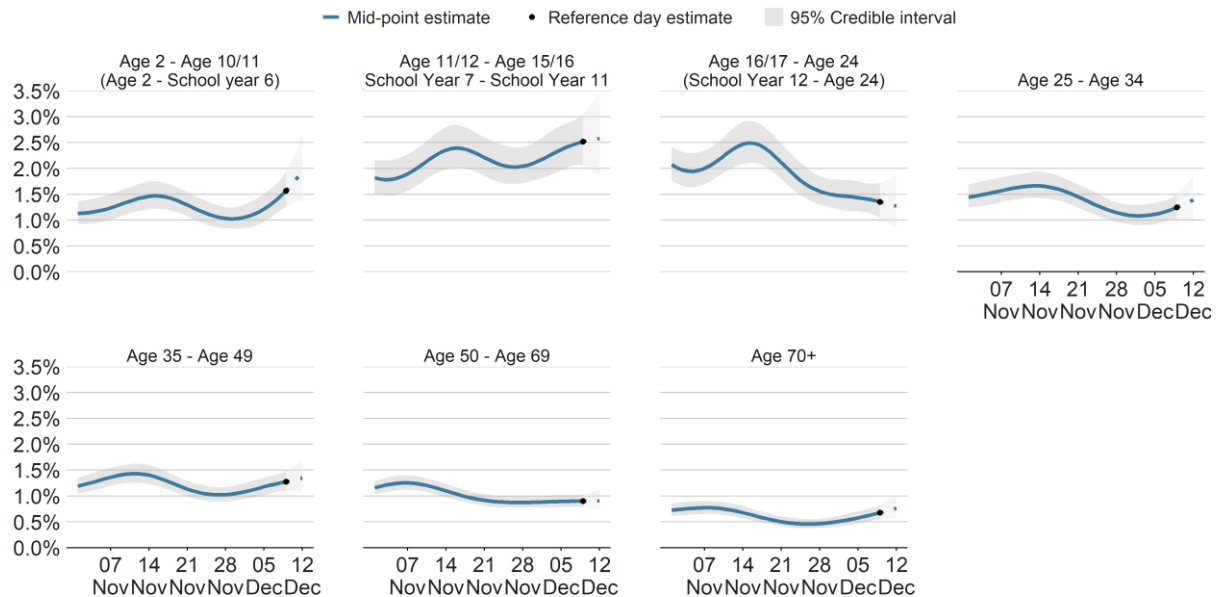
- Further analysis of the Schools Infection Survey will include follow-up testing within households of a positive case; further analysis of the headteachers questionnaire on the differences in practice in different schools. This analysis will aim to assess whether differences in practice lead to different levels of infection.
- The Uni. Of Manchester household analysis will be further refined to look more closely at the September to November period and to look at whether onward transmission in households from children is within younger age groups only or also into older household members.

Latest results from the ONS Covid-19 Infection Survey

Figure 1 below shows the latest results from the COVID-19 Infection Survey showing prevalence by age group. These show that rates continue to be highest amongst secondary school children with a particularly large rise in London in the latest week. The prevalence amongst secondary school age (11/12 to 15/16) children is now the highest of any age group. There is also evidence of a recent rise in those aged 2 to school year 6.

Percentage of people testing positive for COVID-19 by age over time

Modelled daily estimates

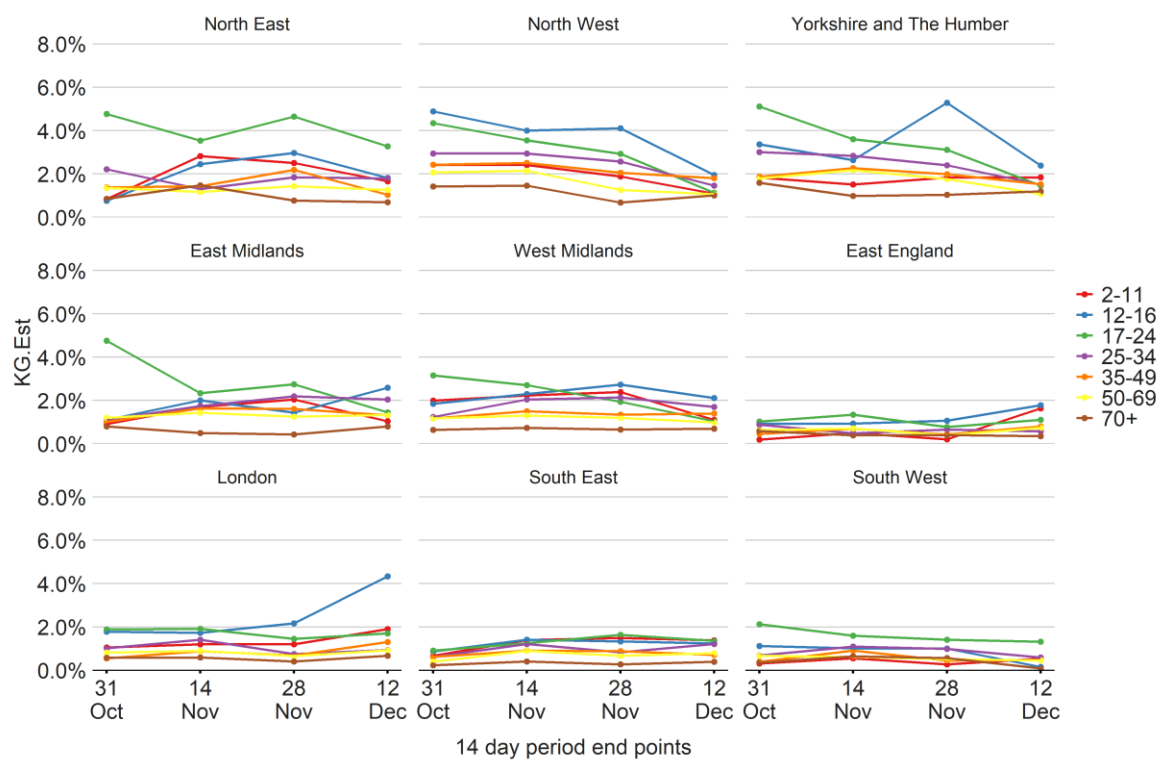


The area marked with the dashed line and light grey area has a lower level of certainty due to lab results still being processed for this period
Data from 01 November to 12 December 2020, reference region East Midlands.

Figure 1: ONS CIS - percentage of people testing positive for COVID-19 by age over time

Percentage of people testing positive by age and region

14-day weighted estimates



Data from 18 October to 12 December 2020

Figure 2: ONS CIS - percentage of people testing positive by age and region

ONS Analyses of teacher positivity

Previous analysis of data from 2 Sept – 16 Oct looking at teachers/education workers⁶ showed even when combining teacher groups⁷, there remained no evidence of differences in the rates of those testing positive compared to key workers and other professions.

Occupation data is collected from a multiple-choice sector question and a write in question describing the work which requires Standard Occupational Classification coding. ONS are continuing to undertake this coding to provide more insight into occupational risk.

Table 1: ONS analysis of percentage testing positive for COVID-19 in teachers/educational staff and other occupations

Occupation	Percentage testing positive	Upper 95% confidence interval	Lower 95% confidence interval	Number positive	Sample
Other professions	0.44	0.49	0.39	286	65047
Other key workers	0.4	0.53	0.29	47	11852
University lecturer	0.41	1.18	0.08	3	739
Education support staff	0.45	0.82	0.22	10	2227
All teachers	0.43	0.57	0.3	53	12201

⁶

<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/coronaviruscovid19infectionsurvey/pilot/6november2020#analysis-of-the-number-of-school-workers-key-workers-and-other-professions-in-england-who-had-covid-19>

⁷

<https://www.ons.gov.uk/news/statementsandletters/onsstatementaddressingquestionsaroundtheanalysisofthenumberofschoolworkerskeyworkersandotherprofessionsinenglandwhohadcovid19>

Updates of analysis on household transmission risk

Earlier analysis seen at SAGE 65 from University of Manchester showed secondary school children were more likely to be the index case, updating this information with recent data (below) provides evidence this is still the case, but the increased likelihood has reduced from about 8 times more likely to nearly 7 times more likely.

Preliminary data were discussed at SAGE 72 showing positivity rates by household composition and age. The conclusion of the TFC group was that this needed further work and that the Uni of Manchester Analysis should be extended to look at transmission from those under 17 to individuals younger/older than 25.

Probabilities of exposure, infection and transmission among young people

Comparison group: adults aged 17+

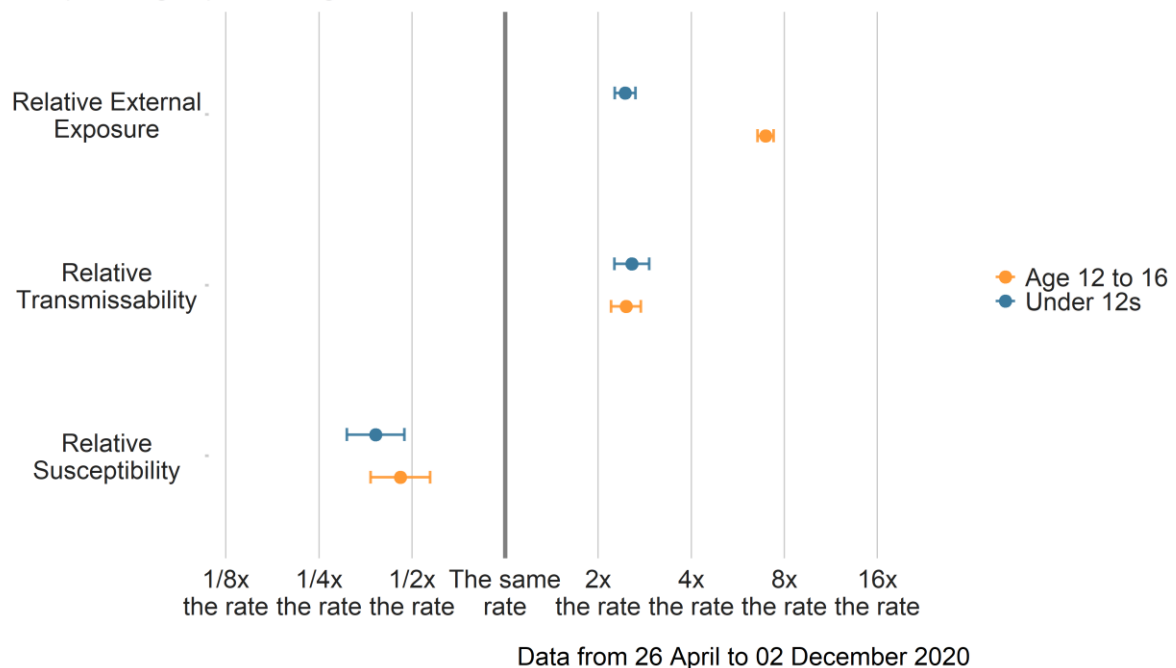


Figure 3: Updated ONS / University of Manchester household analysis - probabilities of exposure, infection and transmission among young people

- This is based on data up to the 2nd December 2020
- This analysis shows that children and young people are more likely to bring the virus into the household than those aged 17+. They are also less likely to catch the virus within the household. This is consistent with previous analysis of household transmission (14 October).
- **External exposure** shows how likely someone is to be the first case in their household. Young people (aged 2-16) are much more likely than those aged 17+ to be the first case in their household. In particular, those aged 12 to 16 are nearly 7 times as likely to be the first case in their household, compared to those 17+.
- **Transmissibility** shows how likely someone is to pass the virus on within the household, if they are the first positive case. The analysis shows that 2 – 16 year olds are more than twice as likely to pass on the virus within their household compared to people aged 17+.
- **Susceptibility** shows how likely someone is to catch the virus, if someone else in their household has brought it in. Children aged 16 or under are less likely to get the virus from someone within their household compared to people aged 17+.

School Infection Survey

Attached at Annex A are the provisional results from the Schools Infection Survey. The Survey tested pupils and staff in a sample of primary and secondary schools as well as collecting a range of other information.

The sampling nature of School Infection Survey compared to Covid-19 Infection Survey necessitates additional analysis on comparability. However, initial results show the findings are relatively consistent between the two surveys.

The main findings are:

- 105 Schools (63 secondary and 42 primary) in 14 local authorities (9 high risk and 4 low risk) took part in the first round of testing. Within these schools 11,194 participants (4,941 staff and 6,253 pupils) had enrolled by the test date.
- The estimated participant enrolment rate for round 1 of testing is 17% for pupils and 55% for staff. New methods of participant engagement are being put into place to increase the number of participants for round 2 of testing.
- 1.24% of pupils and 1.29% of staff tested positive for current infection
- For staff, the percentage testing positive for current infection in Secondary Schools is (1.47%; 1.08-1.97% 95% CI) and in Primary schools is (0.75%; 0.32-1.47%).
- For pupils, the percentage testing positive for current infection in Secondary schools is (1.48%; 1.10-1.98% 95% CI) and in Primary schools is (0.89%; 0.54-1.39%).
- The percentage testing positive for current infection is slightly higher in high-risk¹ areas than a low-risk¹ areas but the confidence intervals overlap so caution should be taken on over-interpretation. (High Risk: 1.47%; 1.10-1.93% 95% CI for pupils and 1.50%; 1.08-2.02% staff. Low risk: 0.79%; 0.43-1.32% pupils and 0.87%; 0.45-1.51% staff).
- 0 out of 363 staff in low-risk¹ primary schools were positive compared with 12 out of 1,109 staff in low-risk¹ secondary schools There is a similar trend in the high-risk¹ areas but again confidence intervals overlap so caution is advised. Further analysis will be conducted on the weighted results.
- No pupils or staff tested positive for current infection in low-risk primary schools.
- Of those tested for current infection in 105 schools, 47 schools had no participants testing positive, 29 had 1, and 29 had 2-5 participants testing positive. Showing that the current infections in schools are widespread at low levels.
- There is a wide range in practices between schools on measures adopted within school, but further analysis is needed of the links between variation in practices and number of positive cases.

Annex A: Initial results from the COVID-19 Schools Infection Survey

In partnership with London School of Hygiene and Tropical Medicine and Public Health England

Foreword from London School of Hygiene and Tropical Medicine

The collaborative 'COVID-19 Schools Infection Survey' aims to investigate the role of schools in COVID-19 transmission and explore how transmission within and from school settings can be minimised.

The study has 5 primary and 3 secondary objectives, listed below:

Primary objectives

- To estimate the incidence of COVID-19 seroconversion (antibody negative to antibody positive) among children and staff in a sample of primary and secondary schools, measured at termly intervals during the school year.
- To measure the prevalence of current COVID-19 infection among children and staff in these primary and secondary schools, measured at half-termly intervals during the school year.
- To monitor pupil and staff attendance rates in a sample of primary and secondary schools, and the proportion of and reasons for school full or partial closure.
- To assess the feasibility, acceptability and staff, pupil and parent experience of school implementation of COVID-19 control measures, and factors affecting this.
- To conduct detailed investigations of selected outbreaks occurring in schools, to determine the risk of transmission within and between classes and schools, and between pupils, staff and other household members.

Secondary objectives

- To pilot the detection and monitoring of COVID-19 in school wastewater.
- To investigate individual, school and community-level risk factors for higher prevalence of COVID-19 infection, antibodies and antibody seroconversion among school pupils and staff.
- To investigate the patterns of social contact between pupils and staff while in school.

Context

This briefing paper presents results from the first round of testing carried out between the 3rd November and 19th November 2020. Initial analysis from the Headteacher questionnaire has also been included in Annex 1.C. The analysis in this briefing paper will be published on 17th December 2020. The wider aims and objectives listed above will be reported on as more data becomes available over the course of the year.

Repeated surveys and testing every half term will be carried out in up to 50 primary schools and 100 secondary schools across 15 local education authorities. The study oversampled schools in 'high risk' areas of the country⁸, 10 local authorities were taken from this group and 5 from the remaining 'low risk' local authorities. More detail on the sampling methodology is given in Annex 2.A.

Important Points to Note

There are a number of caveats in this initial management information that readers need to be sighted upon. Specifically, the sample of schools is not representative of schools in general and wasn't designed as such. Additionally, the data in this briefing is unweighted, combining this with the clustered sample design and differential rates of enrolment mean that the data reported here cannot and **should not be generalised to the school population as a whole**. Weighting options for future analysis are being explored which will enable the schools to be weighted to provide findings that can be generalised to the Local Authority but not to England as a whole in future analysis.

Throughout the document there are additional limitations which have been highlighted, particularly comparisons with the Covid-19 Infection Survey (CIS) from the community. The CIS data includes information from randomly selected members of the population and who may or may not be exhibiting symptoms. There is a presumption those individuals who are selected for the **Schools Infection Survey will not be showing symptoms** else they would not be in attendance. Further work is planned to compare the Schools Infection Survey with findings for asymptomatic results from the Covid-19 Infection Survey.

Finally, the **timeliness** of the occupation data from the CIS relates to data collected during October, whereas the SIS is taken in November.

⁸ defined as local authorities in the top 20% when ranked by the rate of confirmed positive of COVID-19 infection /100,000 population from Pillar 2 testing in the week 2nd to 8th September. These do not necessarily align with previous or current Tier systems.

Main findings (unweighted)

- 105 Schools (63 secondary and 42 primary) in 14 local authorities (9 high risk and 4 low risk) took part in the first round of testing. Within these schools 11,194 participants (4,941 staff and 6,253 pupils) had enrolled by the test date.
- The estimated participant enrolment rate for round 1 of testing is 17% for pupils and 55% for staff. New methods of participant engagement are being put into place to increase the number of participants for round 2 of testing.
- 1.24% of pupils and 1.29% of staff tested positive for current infection.
- For staff, the percentage testing positive for current infection in Secondary Schools is (1.47%; 1.08-1.97% 95% CI) and in Primary schools is (0.75%; 0.32-1.47%).
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- The percentage testing positive for current infection is slightly higher in high-risk¹ areas than a low-risk¹ areas but the confidence intervals overlap so caution should be taken on over-interpretation. (High Risk: 1.47%; 1.10-1.93% 95% CI for pupils and 1.50%; 1.08-2.02% staff. Low risk: 0.79%; 0.43-1.32% pupils and 0.87%; 0.45-1.51% staff).
- 0 out of 363 staff in low-risk¹ primary schools were positive compared with 12 out of 1,109 staff in low-risk¹ secondary schools There is a similar trend in the high-risk¹ areas but again confidence intervals overlap so caution is advised. Further analysis will be conducted on the weighted results.
- No pupils or staff tested positive for current infection in low-risk primary schools.
- Of those tested for current infection in 105 schools, 47 schools had no participants testing positive, 29 had 1, and 29 had 2-5 participants testing positive. Showing that the current infections in schools are widely dispersed at low levels.

Additional preliminary analysis and interpretation

In response to a request from senior policy makers, we provide some preliminary further analysis, and comparison of some of the results from SIS with data from the CIS.

Method:

We compared unweighted data from SIS round 1 with publicly available data from the CIS in a similar time frame (mid-November 2020). This analysis is principally focused on the North-West region as 6 out of the 9 'high risk' local authorities in SIS are in the North West⁹. We compared (1) current infection rates (staff and students) and (2) antibody positivity (staff only, student data from SIS are not yet available). **Please note the earlier points raised about comparisons between SIS and CIS.**

1. Current infection rates

Aim:

To compare current infection rates found within students and staff participating in the SIS with current infection rates in the general population in similar locations and at a similar time. Of importance is to note that the school infection survey Round 1 data were collected only from participants who had enrolled in the survey *and were present in the school building on the day of testing*. The SIS is unweighted.

Results:

Table 1 and Figure 1 show that the proportion testing positive in the school's survey was lower in all age groups but for primary pupils the difference was smaller (1.9% CIS and 1.2% SIS), and the confidence intervals overlap. For secondary pupils there was a difference between the two surveys (4.6% testing positive in CIS and 1.7% in SIS). Staff infection rates were lower in the SIS sample than among adults aged 25-34 and 35-49 in the north west region.

Interpretation:

As would be expected, current infection rates among staff and students who were attending school on the day of testing appear lower than estimates for the general population in a largely overlapping source population at around the same time. As raised on page 2, we would not expect those with symptoms to be present in school. However, the SIS data suggest that despite current efforts to ensure that those with

⁹ The CIS data used for this analysis was for the North West only and has been compared with data collected from all the SIS high risk areas.

possible COVID-19 symptoms and/or recent contact with infected cases self-isolate at home, in the “high prevalence” local authority areas included in the SIS, there are numbers of staff and students attending school with evidence of current infection.

Limitations:

These results need to be interpreted with caution as the geographical area and distribution of the sample is not the same in both groups, and in particular for the staff sample, age and other characteristics of the populations may differ. The SIS data remain unweighted. A previous published analysis of the CIS¹⁰ compared the proportion testing positive for current infection between teachers and other key workers and found no evidence of differences in the positivity rate between primary and secondary school teachers, other key workers and other professions. However, these results are not comparable to the data from SIS, as the time period covered was a lot earlier in the school year when infection rates were much lower. Additionally, you would not expect for symptomatic pupils and staff to be present in school. See note on above on comparisons.

Table 1: Percent testing positive from current infection

North West (CIS) ¹¹	%	lower CI	upper CI	High risk areas (SIS) ¹²	%	lower CI	upper CI
age 2 - yr 6	1.9%	1.3%	2.7%	Primary	1.2%	0.7%	1.7%
yr 7 - yr 11	4.6%	3.4%	6.1%	Secondary	1.7%	1.1%	2.3%
age 25 - 34	2.6%	2.0%	3.3%				
age 35 - 49	2.4%	1.9%	2.9%	Staff	1.5%	1.0%	2.0%

Age groups don't align exactly between the two survey categories

CIS = 8th-21st Nov

Schools = 3rd Nov - 19th Nov

¹⁰

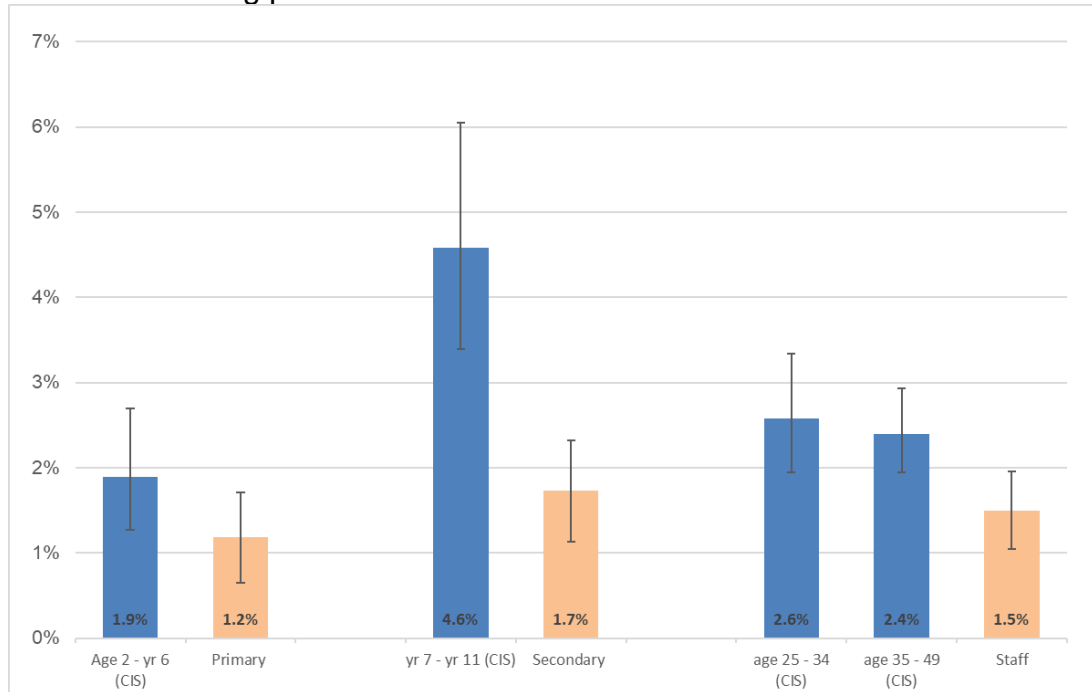
<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/coronaviruscovid19infectionsurveys/pilot/6november2020#analysis-of-the-number-of-school-workers-key-workers-and-other-professions-in-england-who-had-covid-19>

¹¹ CIS Source:

<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/coronaviruscovid19infectionsurveys/pilot/latest>

¹² SIS data unpublished – note confidence intervals are being refined so may change

Figure 1: Percent testing positive for current infection



Appendices

Note: Only enrolled participants present in schools on the day of testing are included in our data (i.e. this group is expected to be without symptoms according to current guidelines for self-isolation and not living in a household with a positive test).

Section 1.A: Positive test results for current infection

				95% confidence Interval	
	Number tested	Number testing positive	% testing positive	Upper	Lower
Primary school					
Pupils	2136	19	0.89%	1.39%	0.54%
Staff	1068	8	0.75%	1.47%	0.32%
Secondary school					
Pupils	3099	46	1.48%	1.98%	1.10%
Staff	3054	45	1.47%	1.97%	1.08%
Total					
Pupils	5235	65	1.24%	1.58%	0.96%
Staff	4122	53	1.29%	1.68%	0.96%

Notes: the following are not included in the above table

1. 198 Swab tests were void.
2. 1471 enrolled participants did not take part in testing.

Table 2. Percentage of positive tests for current infection by school, participant and risk type

					95% confidence interval	
	Prevalence area	Number tested	Number testing positive	% testing positive	Upper	Lower
Primary school						
Pupils	High	1613	19	1.18%	1.83%	0.71%
	Low	523	0	0.00%	0.70%	0.00%
Staff	High	705	8	1.13%	2.22%	0.49%
	Low	363	0	0.00%	1.01%	0.00%
Secondary school						
Pupils	High	1853	32	1.73%	2.43%	1.18%
	Low	1246	14	1.12%	1.90%	0.62%
Staff	High	2035	33	1.62%	2.27%	1.12%
	Low	1019	12	1.18%	2.05%	0.61%
Total						
Pupils	High	3466	51	1.47%	1.93%	1.10%
	Low	1769	14	0.79%	1.32%	0.43%
Staff	High	2740	41	1.50%	2.02%	1.08%
	Low	1382	12	0.87%	1.51%	0.45%

Source: Office for National Statistics – Initial results from the COVID-19 Schools Infection Survey

Notes: the following are not included in the above table

1. 198 Swab tests were void.
2. 1471 enrolled participants did not take part in testing

Table 3. Number of positive tests among those tested in a school by school type

Number of positive tests per school	School Type Count		School Type Percentage	
	Primary	Secondary	Primary	Secondary
0	27	20	64.29%	31.75%
1	8	21	19.05%	33.33%
2	4	8	9.52%	12.70%
3 to 5	3	14	7.14%	22.22%

Source: Office for National Statistics – Initial results from the COVID-19 Schools Infection Survey

Notes: the following are not included in the above table

1. 198 Swab tests were void.
2. 1471 enrolled participants did not take part in testing

Section 1.B. Infection control measures implemented in schools

Currently 49 headteachers have returned the extended questionnaire providing information on infection control measures implemented in their school. Figures 6 and 7 outline the most and least popular measures implemented in the schools that have answered so far (20 primary schools and 29 secondary).

Ventilation in schools:

- Having looked at the questionnaire responses submitted so far (20 primary schools and 29 secondary), the majority of schools have indicated that they keep their windows open all the time (over 80%).
- Primary schools are more likely to have 'scheduled more outdoor lessons and activities' compared to secondary schools (60% compared to 30%).

Table 6: Most and least implemented measures in primary schools

100 percent implementing the following measures:	10 percent or less implementing the following measures:
Staff stay at home if they or someone in their household has COVID-19 symptoms	Temperature checks for pupils at least once a week
Staff maintain 2m distance from other adults at school	Pupils wear face masks or face coverings in the classroom
Staff regularly wash (three or more times a day) or sanitise hands	Pupils wear face masks or face coverings in the corridors or communal areas
Pupils stay at home if they or someone in their household has COVID-19 symptoms	Not providing wraparound care
Pupils catch cough or sneezes with tissue or arm	Pupils maintain distance from other pupils in their group
Additional hand sanitisers in classroom	
Remove non-essential objects from classroom	
Increased cleaning of frequently touched surfaces	
Hand sanitisers at school entrance	
Staggering times pupils start and end the day	
Staggering breaktimes for different classes	
Stop large gathering of pupils e.g. assemblies	
Distancing among parents dropping off or picking up children	

Source: Office for National Statistics – Initial results from the COVID-19 Schools Infection Survey

Table 7: Most and least implemented measures in secondary schools

100 percent implementing the following measures:	10 percent or less implementing the following measures:
Staff wear face masks or face coverings in the corridors or communal areas	The same teachers work with a single class throughout the school week
Pupils wear face masks or face coverings in the corridors or communal areas	Temperature checks for pupils at least once a week
Pupils stay in the same group ('bubble') at all times during the school day	Pupils wear face masks or face coverings in the classroom
Pupils catch cough or sneezes with tissue or arm	Staff do not attend work (may work from home) if they live with someone who is clinically vulnerable
Increased cleaning of frequently touched surfaces	

Source: Office for National Statistics – Initial results from the COVID-19 Schools Infection Survey

Section 2.A: Methodology

The sample

Schools were identified by a stratified random sample of schools, with separate samples for primary and secondary schools. Local authorities where the risk of coronavirus (COVID-19) was higher were oversampled in order to maximise the opportunity to identify current transmission for more detailed investigation. The target population included primary and secondary schools in England. Participants included all pupils and staff attending school in person during the 2020/21 academic year.

Exclusions:

- Special schools, independent schools, pupil referral units and further education colleges.
- Schools taking part in other school-based COVID 19 studies
- Pupils in year 11 were deemed not eligible to participate to minimise disruption
- Secondary school pupils that were judged by school staff as not competent to provide informed consent were excluded.

Sample design

The sample was created in three levels.

Level 1: local authority area in England

Local authorities in England were grouped into two groups based on coronavirus (COVID-19) prevalence level. Group 1 LAs were those in the top 20% when ranked

by rate of confirmed positive of COVID-19 infection / 1000,000 population from Pillar 2 testing in the week 2nd to 8th September 2020. Group 2 LAs were those in the lower 80%. 10 LAs were randomly sampled from Group 1 and 5 LAs from Group 2.

Level 2: Schools

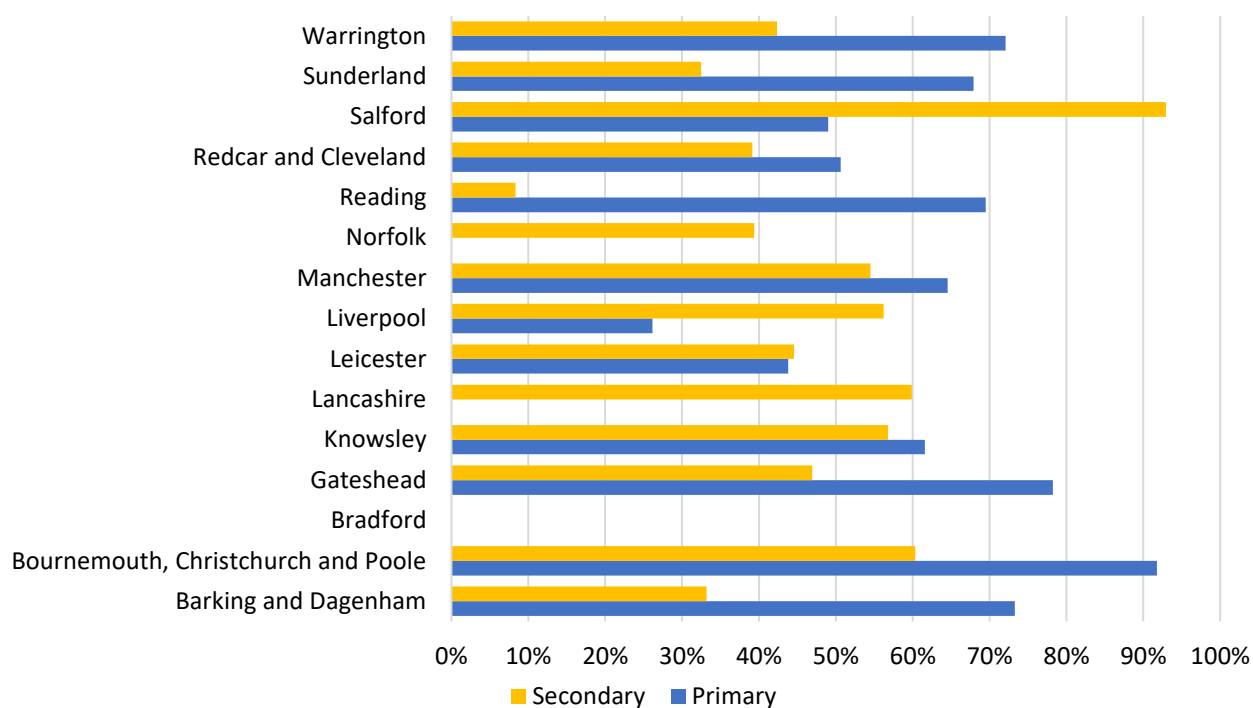
The aim was to have a clustered sample of schools with approximately 70% (70 secondary and 35 primary) schools in high risk areas and 30% (30 secondary and 15 primary) in low risk areas.

Level 3: Individuals – staff and pupils

Within all selected primary schools, enrolment was offered to all eligible pupils and staff. Within all secondary schools, enrolment was offered to all eligible pupils in the identified two consecutive year groups and all staff.

Section 2.B: Participants enrolled for Round 1 of testing¹³

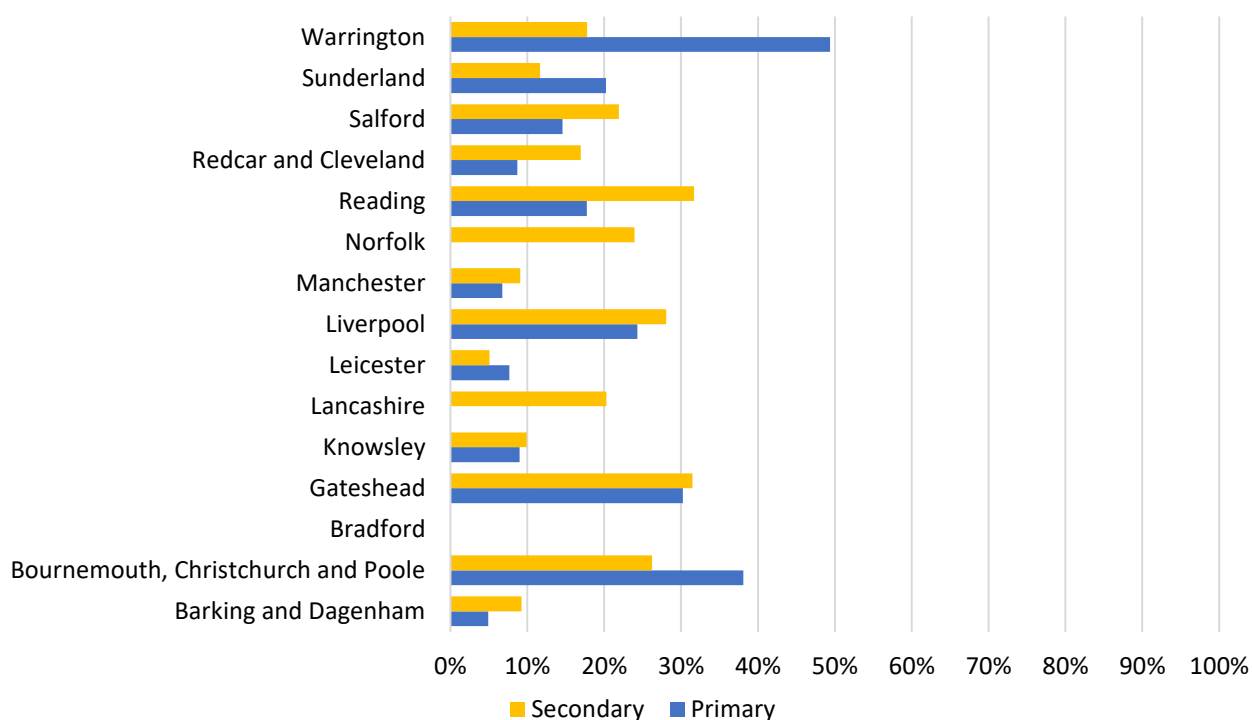
Figure 1. Percentage of eligible staff enrolled for Round 1 of testing



Source: Office for National Statistics – Initial results from the COVID-19 Schools Infection Survey

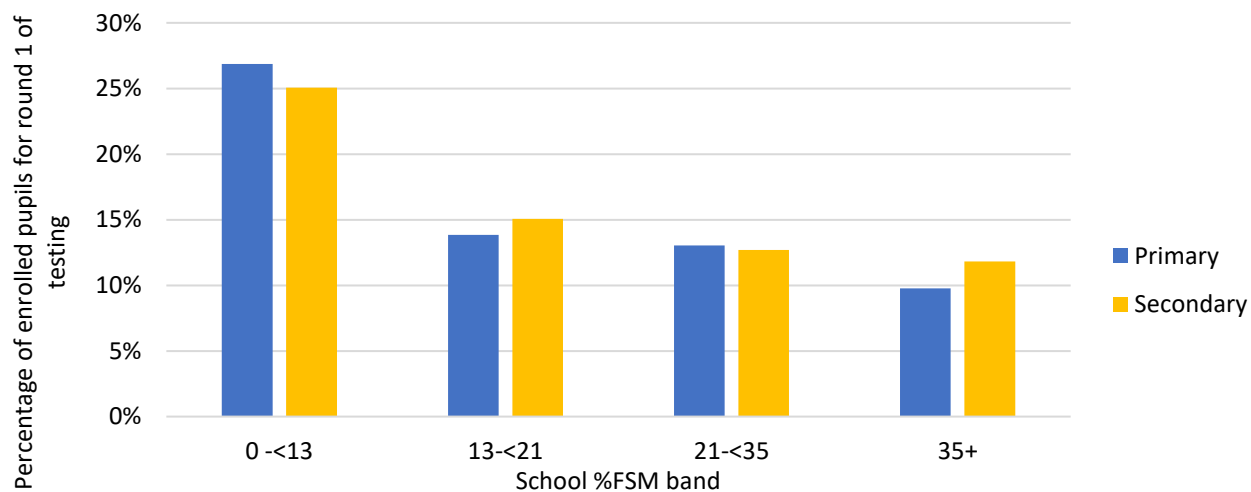
¹³ No schools were recruited in time for round 1 of testing from the Bradford Local Authority. In addition, no primary schools from Norfolk or Lancaster were recruited in time for round 1 of testing.

Figure 2. Percentage of eligible pupils enrolled for Round 1 of testing



Source: Office for National Statistics – Initial results from the COVID-19 Schools Infection Survey

Figure 3. Enrolled pupils for Round 1 of testing by school %FSM



Source: Office for National Statistics – Initial results from the COVID-19 Schools Infection Survey

Annex B: Report on COVID-19 in schools in England, September - December 2020

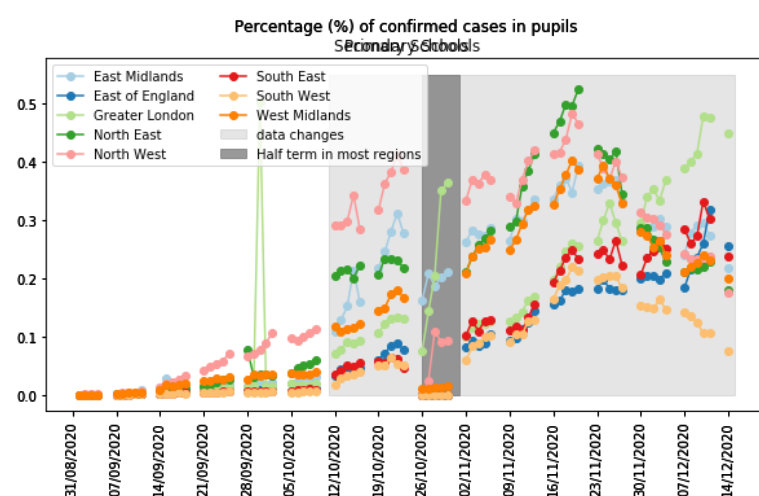
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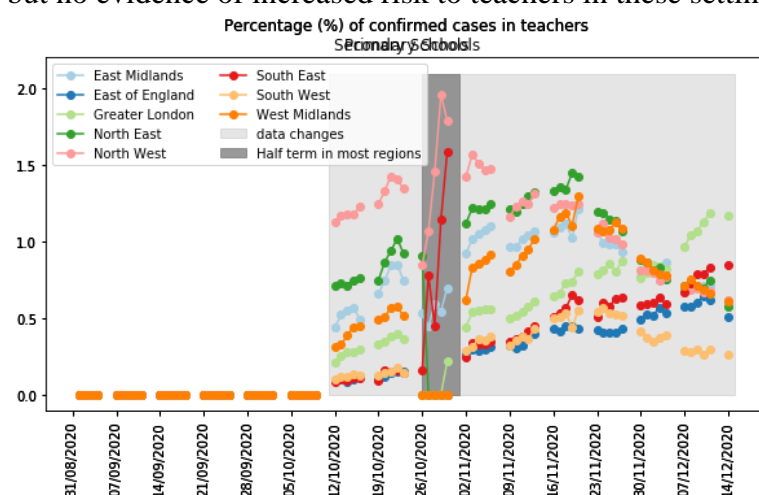
Executive Summary

Here we present a brief summary of our analysis of the Department for Education data on COVID-19 cases in pupils and teachers in schools in England from September to December 2020. Our main findings are:

- (i) The percentage of students with confirmed infection is greater in secondary school students than primary school students, but this is **not** reflected in cases in teachers, which appear to be of similar magnitudes between settings.
- (ii) The increase in cases in secondary school aged children in London and the East of England is **not** mirrored in the North West, the North East and the Midlands that are generally under higher levels of community restrictions.
- (iii) The percentage of students and teachers isolating has increased in the second week of December in London, the East of England and the South East, but has slightly decreased in other regions.
- (iv) When examining cases by prior tier status of the relevant local authority, cases in students increased across all tiers during the first two weeks of lockdown, particularly in secondary schools. However this was **not** reflected in a rise in cases in teachers in tier 3 regions. Post lockdown, cases in students and teachers have increased slightly in tier 2 regions but **not** in tier 3 regions.



other regions, particularly those in tier 3 such as the West Midlands and the North West, cases have continued to decrease indicating that a reduction of spread in the community has resulted in a reduction of cases in schools. We note that confirmed cases in teachers declined throughout November in regions under greater restrictions prior to lockdown (North West, North East, West Midlands), whilst there was a slight increase in lower tier control regions. We **do not** observe a marked difference between the percentage of confirmed cases in teachers in primary and secondary schools. Cases in teachers have risen in Greater London and the East of England in December, but at a lower rate than in students. This relationship is confirmed in figure 2, where we see a strong correlation between cases in pupils and teachers for all regions in both primary and secondary schools, with a larger number of cases in students in secondary schools but no evidence of increased risk to teachers in these settings.



In figure 1 we can see the total number of confirmed cases in pupils increases following the half term break in all regions. The percentage of confirmed cases is higher in secondary than primary school students. Cases were seen to reduce in all regions two weeks after the introduction of lockdown in November. In December, cases in secondary school students in Greater London have increased noticeably significantly, but in

Figure 1. Percentage by region of confirmed cases in (top left) pupils in primary schools, (top right) pupils in secondary schools, (bottom left) teachers in primary schools and (bottom right) teachers in secondary schools. For each figure, we display the number of cases by date and by region, from 1st September 2020 to 14th December 2020.

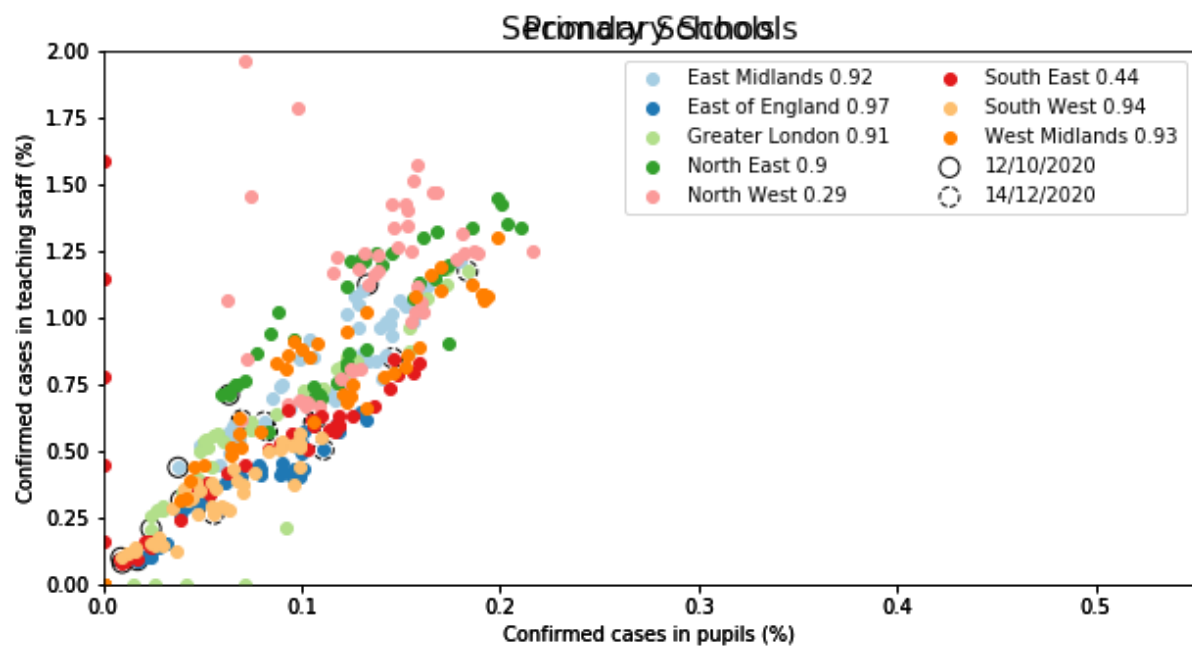


Figure 2. Confirmed cases in teaching staff (by percentage per region) against confirmed cases in pupils (by percentage per region) by day for all regions in England for primary schools (top panel) and secondary schools (bottom panel). The solid circle for each region indicates the earliest date in this data set (12th October) whilst the dashed circle indicates the latest date (14th November). Cases are shown for all schools (top), primary schools only (bottom left panel) and secondary schools only (bottom right panel). The correlation coefficient for each region is given in the legend

In figure 3 we observe an increase in the percentage of students self-isolating in the South East, the East of England and Greater London during the second week of December, whilst a decrease is observed in other regions. A marginal increase in the percentage of teachers isolating is observed across the same period. Finally, we examine the number of confirmed cases in schools dependent upon tier status of the relevant local authority (figure 4). We observe a marked difference between students and teachers by tier status. In primary schools, cases in students increased slightly in tiers 1 and 2 for the first two weeks of the national lockdown, though remained relatively static in tier 3. Cases then began to marginally reduce across all tiers. In secondary schools, confirmed cases in students increased across all tiers for the first two weeks of lockdown before decreasing. In tier 3 regions, cases have continued to decline whilst there has been a marginal increase in cases in tier 2 regions. We observe a different pattern of behaviour in teachers - confirmed cases in regions previously in tier 3 declined throughout the lockdown in **both** primary and secondary schools whilst there was a marginal increase in confirmed cases in tier 2 and tier 1 regions during this same period. Cases in teachers have increased slightly in tier 2 regions in the second week of December in both settings whilst they have continued to decline in tier 3 regions.

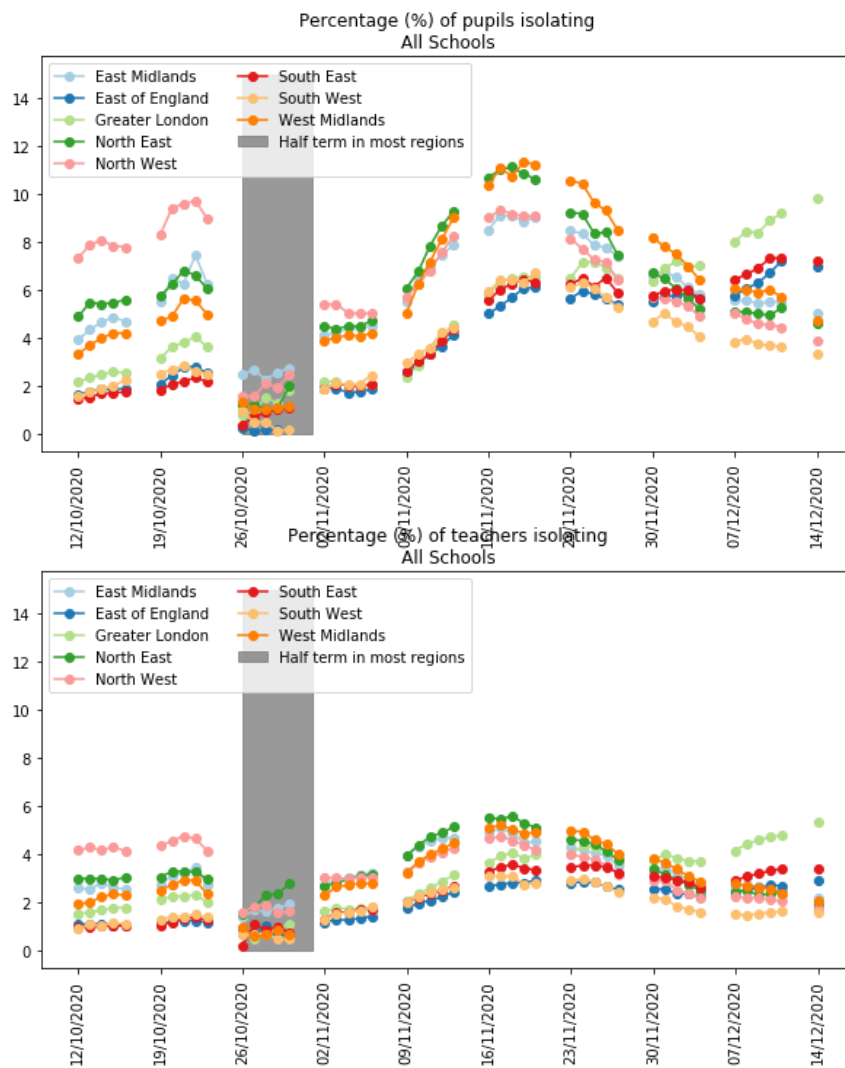


Figure 3. Percentage per region of pupils isolating (top panel) and teachers isolating (bottom panel) from 12th October 2020 to 14th December 2020.

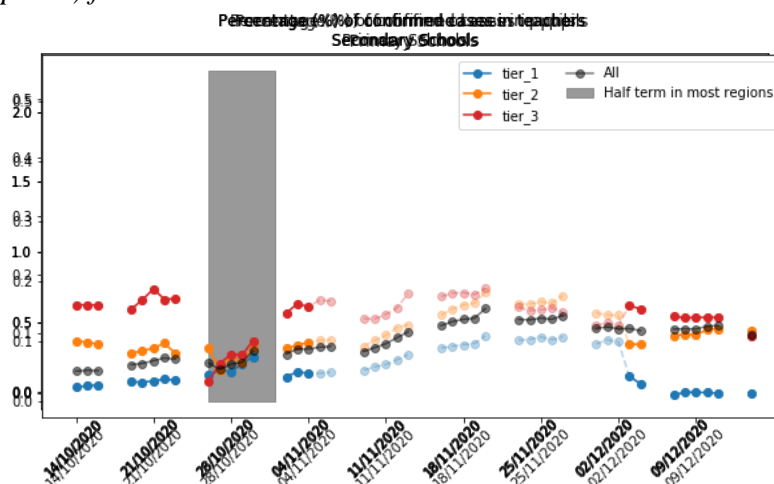


Figure 4. Percentage by tier of confirmed cases in (top left) pupils in primary schools, (top right) pupils in secondary schools, (bottom left) teachers in primary schools and (bottom right) teachers in secondary schools. For each figure, we display the number of cases by date and by tier, from 14th October 2020 to 14th December 2020. The

faded dots indicate the tier status prior to the national lockdown that was introduced on Thursday 5th November.

