Covid-19: Data pack for schools

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Note

In presenting these data it is important to note that the data flows regarding Covid-19 are inevitably imperfect however regular improvements are being made allowing us to provide a more accurate picture. From the 2nd July, the way in which central govenment reported positive COVID-19 cases changed. Numbers of lab-confirmed positive cases now includes testing in all settings (Pillar 1 and Pillar 2, previous reporting covered Pillar 1 only); furthermore, the data now counts a person who tests positive only once rather than multiple test results therefore providing a more accurate number of positive cases. Further developments are being made in terms of breakdowns sub-District level which will provide us with more meaningful data over the coming weeks. Much of the data that are more solid (such as deaths data) are very useful in looking at the past, but may be less so in planning for the future. However the data systems and the integration between national and local systems are improving all the time, and as these get better the information we are able to present will also improve.

R value and growth rate
The Reproduction Ratio (R) is one way of describing the spread of Covid-19. It is an estimate of the average number of people infected by every positive case. In broad terms, if R>1 the epidemic is growing; if R<1 it is declining. The policy goal is therefore to keep R below 1.

It is important to note that R is not something that can be measured directly. It is a modelled estimate based on a range of other data, and there are many models for how to calculate it. As such multiple figures for R can be calculated, and they are presented as an average estimate with confidence intervals indicating 95% statistical probability that the true figure lies within the range of the confidence intervals. As the population gets smaller, and as the number of positive tests goes down, these confidence intervals get wider. Because of this it is not advisable to rely on R values at lower than Regional level. Any calculation of R for Cumbria, and even more so for the District level, would be so uncertain that it would broadly be meaningless as a point estimate.

The growth rate is an estimate of the change of number of infections per day, reflecting how quickly the number of infections are changing each day. If the growth rate is greater than zero (+positive) the disease will grow; if it is less than zero (- negative) the disease will shrink. The size of the growth rate indicates the speed of change – a growth rate of +5% will grow faster than a growth rate of +1; conversely, a growth rate of -4% will shrink faster than a growth rate of -1%. The growth rate provides information on the size and speed of change while the R value simply provides information on the direction of change.

On Friday 10 July, the Government published official R estimates and Growth Rates at regional level. These estimates are as follows (note that these are NHS Regions, so North Cumbria falls within the North East and Yorkshire region):

Region	R	Growth Rate % per day
England	0.8-1.0	-4 to -1
East of England*	0.7-1.0	-4 to +1
London*	0.7-1.0	-5 to +1
Midlands	0.7-0.9	-6 to 2
North East and Yorkshire*	0.7-1.0	-5 to -1
North West	0.7-1.0	-5 to -1
South East*	0.8-1.0	-4 to 0
South West*	0.7-1.1	-6 to +1

The values are shown as a range, the most likely true values are somewhere towards the middle of this range.

*[*Low case numbers and/ or a high degree of variability in transmission across the region means these estimates are insufficiently robust to inform policy decisions.]*

Weekly rate of COVID-19 cases per 100,000 tested
While R is a valuable indicator it should not be taken in isolation. A second source of data (and one used in the calculation of R) is the rate of postive tests. The latest available data (published 9th July July) in week 28 (reporting week 27 data between 29 – 05 July 2020) are illustrated in the map below. The weekly rate of postive cases in Cumbria has increased in week 27 compared to the previous week.
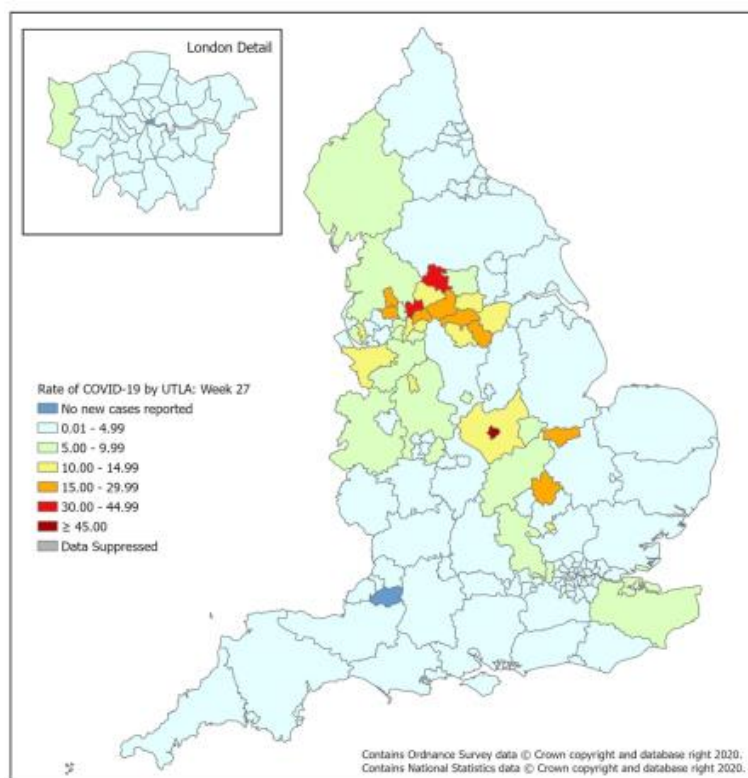
Please note that these data are not the same as the total rate of positive cases per 100,000 population as given by District on the national dashboard: https://coronavirus.data.gov.uk/#category=utlas&map=rate. Those data are the cumulative infection rates within the population over the course of the epidemic as a whole, whereas the data above are the rates of positive tests out of all the tests taken during a single week and are a valuable indicator of the more recent rate of transmission.

These data are also now available at Middle Super Output Area (MSOA) level, as in the Cumbria and Lancashire map below, which shows the rate of new cases per 100,000 population during week 27. Note that at this level the number of cases in each area is low so random variation is entirely to be expected. Darker shaded areas will have had a number of cases while the palest coloured areas will have had no new cases that week.

In addition to the map below, an interactive map which provides an indication of the number of cases by MSOA is now available here:
https://www.arcgis.com/apps/webappviewer/index.html?id=47574f7a6e454dc6a42c5f6912ed7076
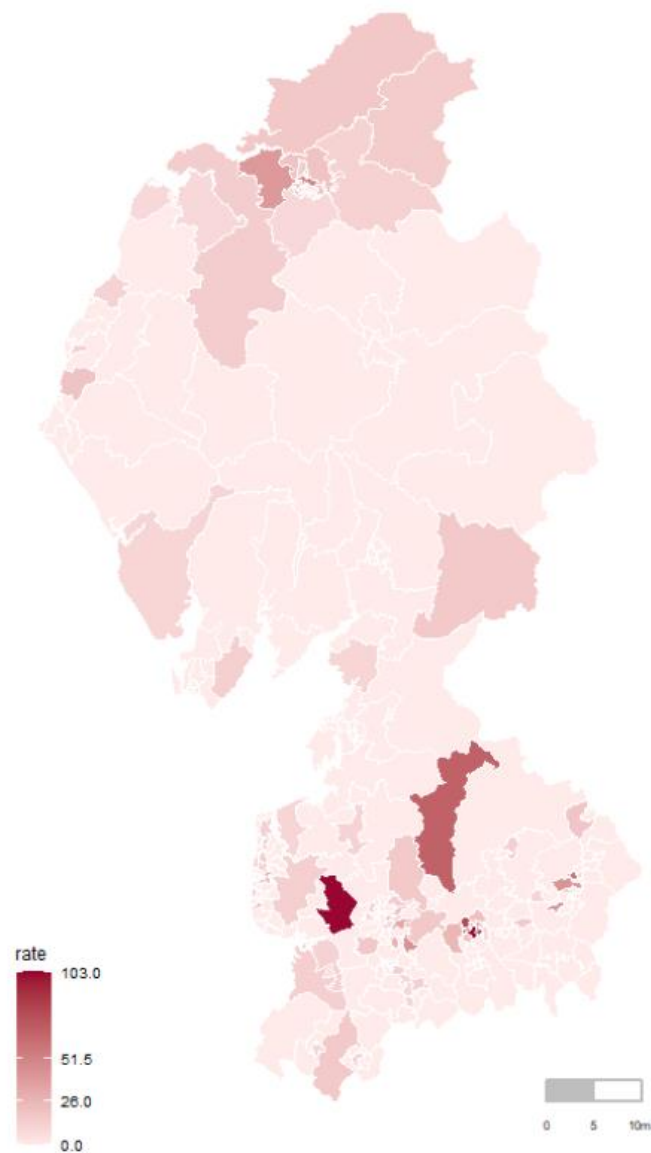
Through the new local Test and Trace and outbreak control system, the Public Health Team is reviewing these data routinely in order to identify and respond to things that appear to be genuine outbreaks rather than random fluctuations in the very small numbers of cases now being recorded.

Test and Trace data

At present the national Test and Trace data are only being produced at Cumbria level and the only data available are the total number of people going through the system and the total number of contacts identified. Consequently there is little in those data at the moment that would be valuable for schools. It is intended that these data will start to be released at much more local level in the near future.
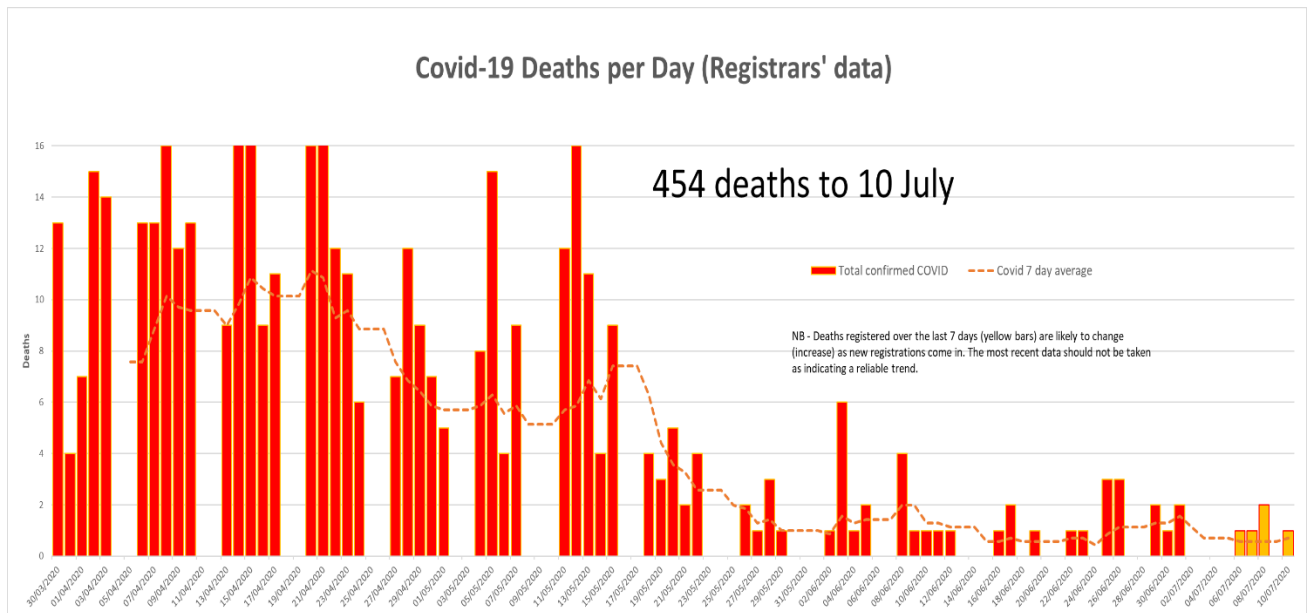
A total of 46 schools (including nurseries) in Cumbria have connected with the local test and trace system since 1 June to 12 July due to concerns about possible Covid-19 in their school community, this links to 67 individual cases (Index Case) and a further 12 potential contacts (Contacts Case). Advice and support has been given, and testing has been arranged as required in some cases. As yet there have been no situations where incidents (one possible or confirmed case) have escalated into outbreaks (two or more connected cases).

District	Number of schools on system	Index Case	Contacts Case
Allerdale	7	12	
Barrow-in-Furness	6	9	12
Carlisle	10	14	
Copeland	4	4	
Eden	3	4	
South Lakeland	16	24	
Cumbria	46	67	12

[An Index Case (individual) is the first reported positive diagnosis; a Contact Case is those people the Index Case has come into contact with. N.B previous reports reported the total number of index cases and contact cases].

Mortality data

Data on the number of deaths by definition are quite backwards-looking, as it can take several weeks between contracting the infection and a person dying from it. So mortality data can give a very valuable picture of the progress of the epidemic overall, but may not be so useful in informing schools' decision making. However the following graph sets out the overall mortality picture on the basis of the reporting of deaths to local Registrars. These data include deaths registered up to 10th July 2020 (454 deaths).

Covid-19 Deaths per Day (Registrars' data)

454 deaths to 10 July

■ Total confirmed COVID - - - Covid 7 day average

NB - Deaths registered over the last 7 days (yellow bars) are likely to change (increase) as new registrations come in. The most recent data should not be taken as indicating a reliable trend.

The Office for National Statistics publishes mortality data at District level, allowing calculation of mortality rates at that level. These are shown on the graph below. Note that these are crude rates; because Covid-19 so disproportionately impacts on older people, areas with an older population would be expected to have a higher mortality rate. Age standardised death rates account for this but these are only occasionally published and at upper-tier local authority level.

Deaths registered up to 26th June (Week 26) where COVID-19 was mentioned on the death certificate
Rate (per 100,000 population)

	Rate (per 100,000)
Allerdale	68.5
Barrow-in-Furness	113.3
Carlisle	115.9
Copeland	90.9
Eden	77.0
South Lakeland	142.7
Cumbria	104.4