

Appendix: quantitative criteria for moving between Tiers

This appendix is an illustration of the kind of guidance (and criteria) for local health authorities and Metro mayors for moving between tiers. Operationally, it is based upon **collections of (lower tier) local authorities that are served by one or more NHS Trusts**. This enables the incidence of infection to be informed by **both confirmed cases and COVID-related deaths**.

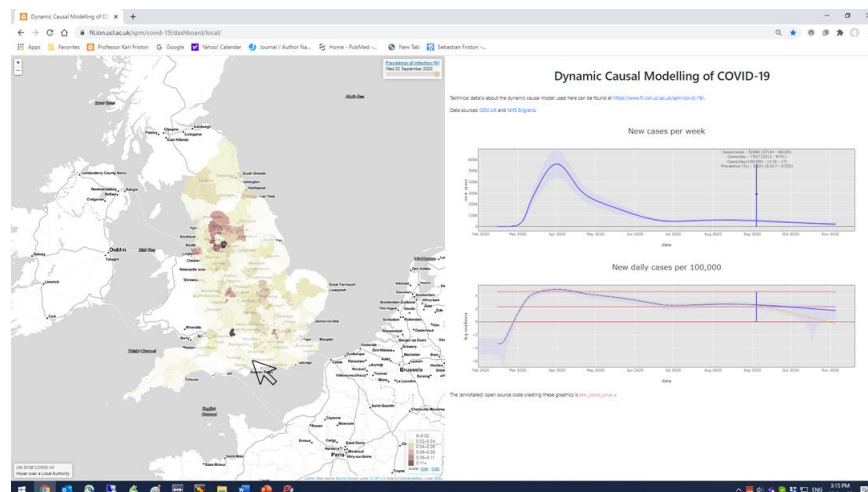
It is based upon the metrics that matter, i.e., the **incidence of infection** – as opposed to (SPI-M) *post hoc* estimates of the **reproduction ratio** (the R number) that is generally inaccurate and lags behind the curve by about two weeks.

Crucially, the true incidence of new cases can only be **estimated** on the basis of confirmed (PCR or lateral flow test) cases. However, because we are currently detecting about an eighth to a quarter of the number of new cases with testing, this means a threshold of 50 new cases per hundred thousand **per day** is roughly equivalent to 50 confirmed cases per hundred thousand **per week**. In what follows, the two can be regarded as interchangeable.

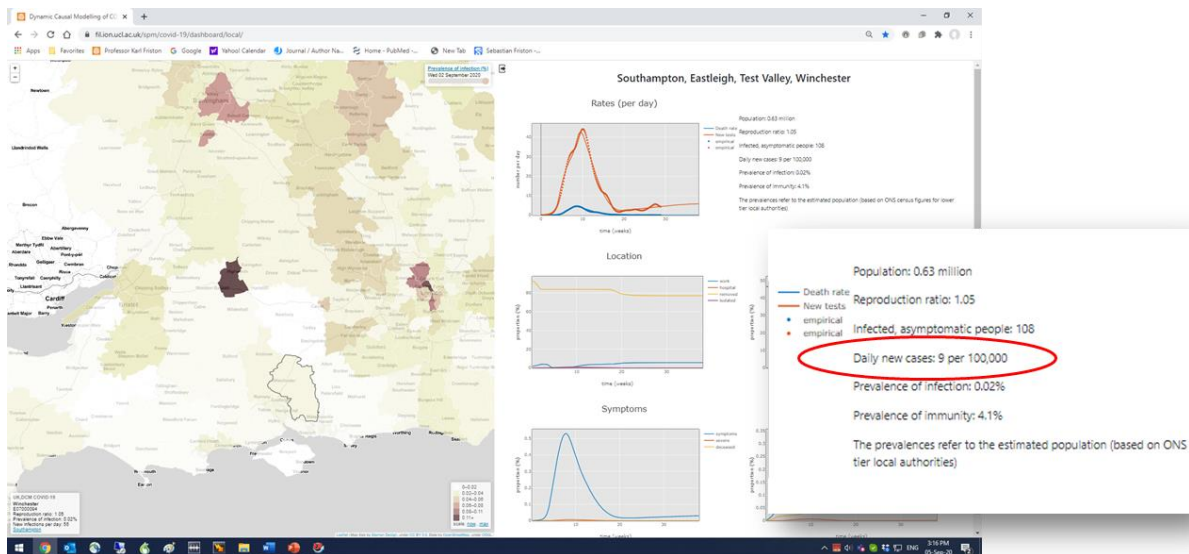
Guidance for local authorities.

What follows is a practical, two-step guide to identify the special measures that could be adopted when the incidence of new coronavirus cases increases in your local authority. It is based upon the consensus that the risk of community transmission increases with the local incidence of new cases and can be mitigated with a ladder of additional measures – as one moves from one tier the next.

Step one: identify the incidence of new cases in your area. Go to the following [website](#), find your local authority on the map – say for example ‘Winchester’ – and click:

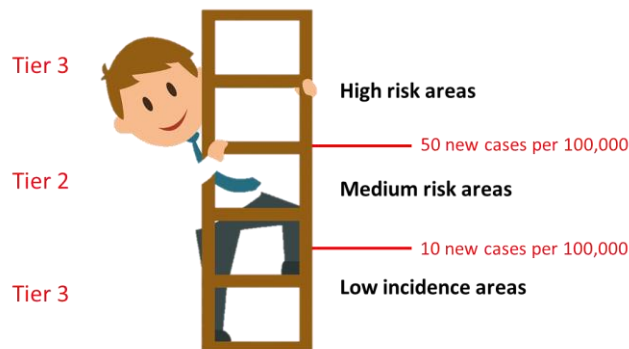


A graphical analysis of new cases and deaths in your local authority will appear in the right-hand panel. The incidence is listed as daily new cases per 100,000 on the upper right, as shown below



In this example there are 9 new cases per hundred thousand per day in the local authorities covering Winchester.

Step two: identify the special measures appropriate for this incidence using the following infographic:



Notes: the incidence of new cases is an estimate based on daily reports of new positive tests and deaths due to COVID-19. To assimilate these two kinds of data; incidence is estimated for each set of local authorities that are served by one or more NHS Trusts. This is because reports of new cases are at the level of local authorities, while fatality rates are reported at the level of NHS Trusts.

For people who are interested in how the incidence of new infections is estimated, the following [website](#) provides lectures, scientific papers, and reports – and links to the software used. These estimates use a form of (dynamic causal) modelling that is distinct from the conventional (e.g., SEIR) epidemiological models of unmitigated outcomes, usually employed by the SPI-M.