Twitter Thread by Kai Kupferschmidt

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We're in a new year and we have also entered a new phase of this pandemic. So I thought I'd start off the new year with a quick catch-up thread on the UK variant B.1.1.7 and where we are at in this pandemic.

The variant caught scientists' attention in early December based on a surge in cases around Kent and sequencing data showing it carried a host of mutations. (I wrote about this and how a quirk in the PCR is helping track it here: https://t.co/HupLMpgHPt).

CAVEAT: The pace at which we have learnt about this new variant is astonishing. But it's important to realize that a lot of crucial lab experiments take longer. Most data now is looking at noisy epidemiological data and making inferences based on that.

Having said that: The picture is becoming clearer.
Good news first: There still is no evidence that the variant causes more severe disease or that it can reinfect people more easily or circumvent vaccine-induced immunity. Still, we need to stay vigilant.

The bad news: The evidence has only become stronger that B.1.1.7 is more transmissible and potentially a lot more transmissible than previously circulating #sarscov2. That has potentially massive consequences for the course of this pandemic.

Evidence comes from this preliminary report from @_nickdavies and others from @LSHTM for instance, showing the variant increasing in frequency across the UK. https://t.co/W8FzqvXYdZ

@_nickdavies @LSHTM "The continued rapid spread of VOC 202012/01 in England to high frequencies (50% or greater in all NHS regions as of 29 December 2020) makes it less likely that the spread of this variant is due to a founder effect or an otherwise selectively neutral effect."

@_nickdavies @LSHTM Recent report by Imperial College makes the same point:
"While rapid growth of the variant was first observed in the South East, similar growth patterns are observed later in London, East of England, and now more generally across England."
https://t.co/QcyT8CmEb3

@_nickdavies @LSHTM Additional data from Denmark (which like UK is doing a lot of sequencing), suggests they are observing a similar pattern of the new variant spreading fast locally.
https://t.co/HMTNQLXa7R

> 86 cases of B.1.1.7 identified in Denmark since November (11% of all cases sequenced in the period). Last 4 weeks we have sequenced 1500-2000 genomes pr. week broadly representing DK. The percentage of B.1.1.7 has been 0.2, 0.5, 0.9, and 2.3 (week 52). https://t.co/NtZklQOVPs
>
> — Mads Albertsen (@MadsAlbertsen85) January 2, 2021

@_nickdavies @LSHTM While the evidence is convincing that B.1.1.7 is spreading faster there are still a lot of question marks about how much faster. Given the data it's hard to disentangle the effect of the variant spreading faster and changes in behaviour etc.

@_nickdavies @LSHTM Imperial report estimates what the variant adds to the R of #SARSCoV2 in a number of different ways. As you can see, best estimates range from 0.36 to 0.68. That would mean, on average, every person infected with B.1.1.7 infects an extra 0.36 to 0.68 persons compared to earlier

Table 2. Estimated additive change of reproduction numbers of VOC compared with other variants for different regression models, spatial resolutions, and data used to estimate the prevalence of the VOC. Analysis uses R_t estimates from weeks 44-50 and data on the proportion of the VOC one week earlier, to take account of the generation time of SARS-CoV-2.

Model	Spatial Resolution	Data for Variants	Estimated effect [95% CI]
Fixed	STP	Genomic	0.48 [0.31, 0.85]
Random	STP	Genomic	0.67 [0.52, 1.11]
Bayes	STP	Genomic	0.68 [0.44, 0.93]
Fixed	LTLA	TPR-adjusted SGTF	0.42 [0.33, 0.58]
Random	LTLA	TPR-adjusted SGTF	0.52 [0.45, 0.69]
Fixed	STP	TPR-adjusted SGTF	0.36 [0.11, 0.58]
Random	STP	TPR-adjusted SGTF	0.47 [0.25, 0.70]
Bayes	STP	TPR-adjusted SGTF	0.48 [0.31, 0.63]

@_nickdavies @LSHTM Even if the truth turns out to be close to the lower estimates or please, please, please, below that, it is still a big effect. And remember: This is exponential growth, so the effect over time becomes massive.
I don't think it has really sunk in, how serious this is.

@_nickdavies @LSHTM What does this mean for the pandemic?
Many countries have managed to reduce infections to low numbers by layering a lot of public health interventions on top of each other: teleworking, physical distancing, masks, no large gatherings, some kinds of shutdown etc.

@_nickdavies @LSHTM The idea was that if you do these things well enough, you get the effective reproduction number Rt below 1, so every infected person on average infects less than one other person. That means the virus does not spread and there is some wiggle room to keep schools open for instance

@_nickdavies @LSHTM That wiggle room has just become substantially smaller. If estimates are roughly right, keeping schools open is probably not possible.
Or, if you think of it in terms of the Swiss cheese model, we can afford fewer, smaller holes in the cheese.
https://t.co/FhC5Tw7qwq

> A new version with colour & division inspiration from @uq_news and strict mouse design oversight by @kat_arden (ver3.0).
> It reorganises slices into personal & shared responsibilities (think of this in terms of all the slices rather than any single layer being most important) pic.twitter.com/nNwLWZTWOL
>
> — \u026a\u1d00\u0274 \u1d0d. \u1d0d\u1d00\u1d04\u1d0b\u1d00\u028f, \u1d18\u029c\u1d05 \U0001f9a0\U0001f927\U0001f9ec\U0001f97c\U0001f99f\U0001f9fb (@MackayIM) October 24, 2020

@_nickdavies @LSHTM We have entered a new phase of this pandemic. On the one hand vaccinations have started, on the other hand this new variant is spreading faster, potentially causing a lot more sickness and death in a short time. Also: more people will need to be immunised to reach herd immunity.

@_nickdavies @LSHTM It’s not what anyone wants to hear, but the coming months may well be the hardest of this pandemic. If you’ve been thinking of vaccines as the light at the end of the tunnel: Yes, that light is there, as bright as ever. But the tunnel just got a bit darker and a little bit longer

@_nickdavies @LSHTM One addition: This is not the time to throw up your hands in despair and give up. Quite the opposite. We know what we need to do. We just need to do it better. This is the time to draw on whatever strength we have left and redouble our efforts to stem the spread of this virus.

@_nickdavies @LSHTM People love to say how this or that measure is "just postponing” things. Well, with vaccinations underway, “just postponing” things is exactly what we need to do. The variant is probably in many, many countries, but it is still early days and slowing it down will save lives.