Twitter Thread by Mark_Coughlan

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Mega thread on seismic few days of the pandemic in Ireland.

■The govt implemented level five.

■More info about the UK variant.

■And NPHET held one of the most important briefings in months on New Years Eve.

What's happened and where does it leave us now?

If you've understandably avoided news for the last week or more this should bring you up to date:

First:■Stay home unless you have to leave, no visitors bar support bubbles, exercise within 5km. Essential shops only to open.

Full info: https://t.co/yID5ccJltY

How did we get here? The current restrictions were introduced on Dec 30 by An Taoiseach.

Prior to that it was to be 'level 5 with adjustments'. Non-essential retail, gyms, tennis and golf clubs were to remain open, schools were to return on Jan 5.

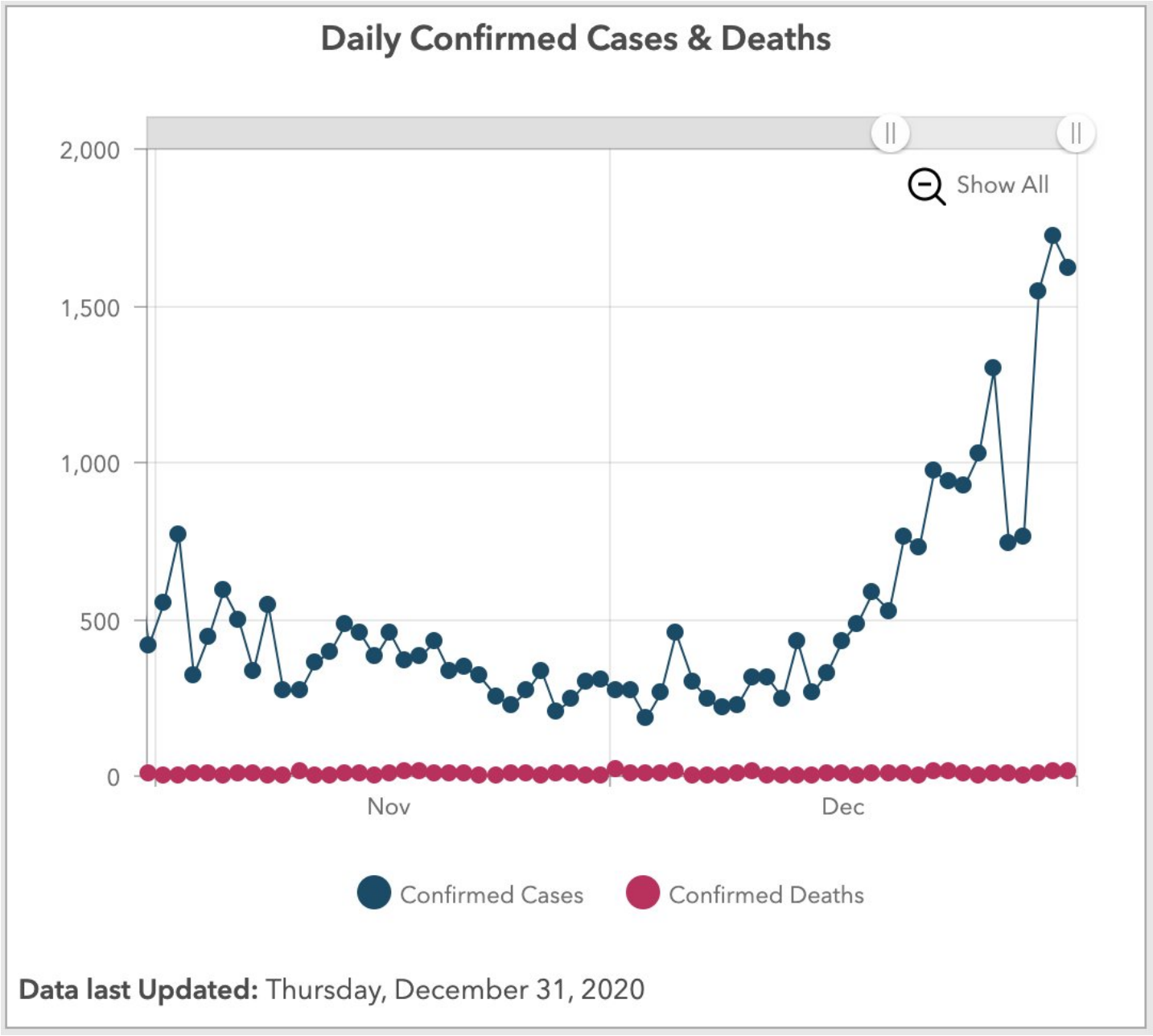
https://t.co/hqRKPcINQS

The 'level five with adjustments' plan was only introduced on Dec 23. It was supposed to be reviewed on January 12. Yet it was quickly overtaken, and superseded with stronger measures on December 30.

What happened that it was needed, and needed strengthening?

Background first: Cases flatlined into Dec around 300.

The hope was they'd fall further in the early weeks due to a lag effect from the previous level five of Oct-to-end-Nov, but they didn't. The baseline was about 300. In Oct, NPHET's aim was <100.



To understand the positions now, it's worth understanding the decisions then.

Govt & NPHET differed on specifics of level 3 for Dec.

NPHET wanted to allow some household visits, more for Xmas, hospitality closed.

Govt went with no visitors *until* Dec 18, hospitality open.

Both said some easing was warranted for December.

Both also accepted that the easing was likely to lead to an increase in cases into Christmas.

And both said they wanted to give people 'a meaningful Christmas'.

NPHET Nov 26:

> The NPHET therefore recommends that the hospitality sector remain closed (with the exception of take-away and delivery) over the eight-week period. This should not be seen as a reflection on the sector itself, which has made tremendous efforts in making premises as safe as possible for staff and customers, but rather it is a recognition that many of the key risk factors for COVID-19 transmission and clustering of cases are common characteristics of these settings. Of note, **if some element of hospitality is retained, the NPHET is of the view that the recommended easing of measures with regard to household mixing over the two-week festive period as set out above could not also take place.**

What they differed on was 'how', and how big an increase would be acceptable before changing course.

NPHET's view on Nov 26 was further 'intervention' would be needed once we hit 400 cases a day.

It modelled scenarios for different rates of R but on the "optimistic" basis that cases would continue to fall into early December to 100.

Even on that basis they projected, R of 1.4+ = 400 cases in January.

This gives us a basis for modelling possible scenarios if restrictive measures are eased from 1 December 2020. We note at the outset that if, at some future point, case numbers start to rise again, it will be **important to intervene early to bring transmission back under control**. We know from previous modelling work that it would be possible to suppress transmission with a 3-week intervention only if it begins as case numbers approach **400 cases per day**. We have modelled, therefore, a set of scenarios where, from 1 December 2020, R varies from 1.1-1.2 (what might be expected under Level 3 restrictions with hospitality closed and limited visits between households) and 1.4-1.6 (what might be expected with hospitality open or increased visits between households). The model is influenced

by the rapid decline in case numbers over the last four weeks, and assumes this will continue until early December 2020. This establishes an optimistically low starting point (less than 100 cases per day). Given these initial conditions, if R is maintained below 1.2, case numbers remain low, but for R of 1.4 or greater, we would **exceed 400 cases per day in January 2021. If we start with higher case numbers in early December, this threshold will be breached sooner.**

"If we start with a higher case number in early December, the threshold will be breached sooner."

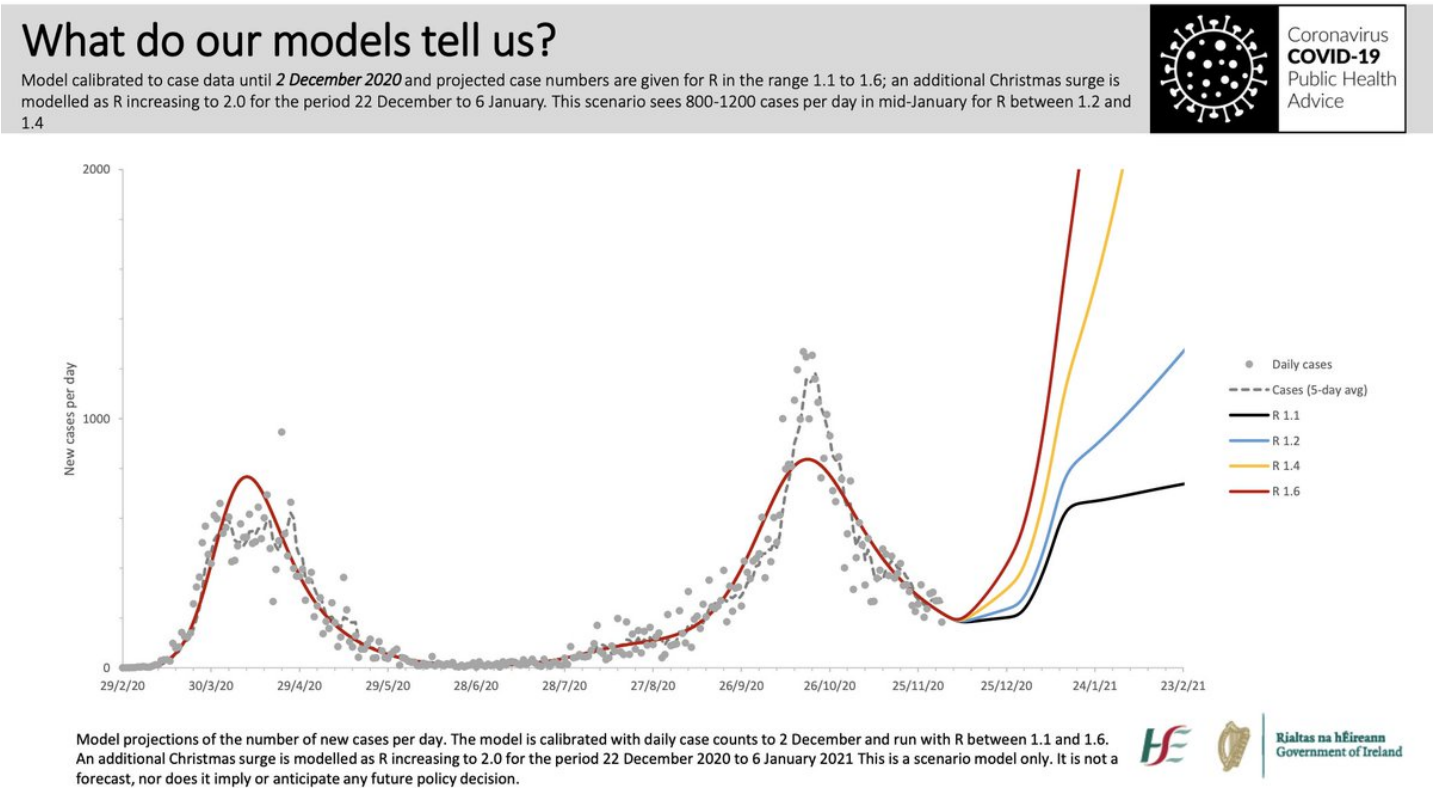
We did start with a higher case number, around 300.

On Dec 3 NPHET said it was concerned about this high baseline but...

Model projections of the likely future trajectory of the disease have worsened over the last week, as it has become clear that case counts are unlikely to fall below 200 cases per day. Current projections for a reproduction number held at 1.2 to 1.4 through the Christmas and New Year period suggest that there would be between 300 and 600 cases per day in the second week of January 2021. This is likely a conservative projection. It will be challenging to maintain R below 1.4, and it is possible that a major increase in close social contact, and especially a greater diversity of contacts, during Christmas and New Year would lead to much higher levels of viral transmission than have seen to date. This has been modelled by superimposing on the above scenarios a period from 22nd December to 6th January where R is increased to 2.0. This scenario projects 300-450 cases per day by New Year's Day and 800-1200 by the second week of January 2021.

...the worse case scenario displayed in the modelling that day, R 1.6, projected 1800+ cases a day some time in mid-late January.

We're around that now and it's only *just* about January.



Here's Professor Nolan warning on Dec 3 about the danger if we hit 1.4.

Unfortunately, we ended up way beyond 1.4, and even beyond 1.6, the worst case scenario displayed on that day. We hit 400 by about Dec 13th. https://t.co/qBomAG8fS7

> If the reproduction number rises to 2 over the Christmas period it would significantly accelerate the spread of Covid-19, Prof Philip Nolan has said.
>
> He said this would see between 800 and 1,200 cases a day by mid-January | Read more: https://t.co/FQAxvsK6bI pic.twitter.com/sifLWSTkS7
>
> — RT\xc9 News (@rtenews) December 3, 2020

Why is this context important?

Because govt *now* often refers to how things have gone far beyond even worst case scenarios of NPHET, and say this is evidence that the increased transmissibility of the UK variant must have driven the December increase.

An Taoiseach, Dec 23:



While NPHET *now* says the level of increased social movement through Dec is sufficient to provide a "full explanation for the patterns of transmission we are now seeing". Key difference.

(i.e. They didn't show R 1.8+ in their displays, but we got there.)
https://t.co/rQjVJtejkP

> Asked about the new strain of #Covid19 which is believed to be more transmissible, @CMOIreland says the pattern of socialisation and increased close contacts we have seen in recent weeks could fully explain our rising number of cases | https://t.co/pO7lVq2dTO pic.twitter.com/nCViUwUKBh
>
> — RT\xc9 News (@rtenews) December 31, 2020

Hard evidence of impact of the variant? Not great yet.

NPHET says it's analysed two batches of positive samples, one set of ~70 from the period Dec 18-20, and another of ~90 for more recent cases, in both about 10% of the cases were the UK variant.

See: https://t.co/rQjVJtejkP

> Asked about the new strain of #Covid19 which is believed to be more transmissible, @CMOIreland says the pattern of socialisation and increased close contacts we have seen in recent weeks could fully explain our rising number of cases | https://t.co/pO7lVq2dTO pic.twitter.com/nCViUwUKBh
>
> — RT\xc9 News (@rtenews) December 31, 2020

The Public Health England estimates which say the UK variant pushes up the R value up by between 0.4 and 0.7 are based on the variant being the *only* type in circulation.

Here from Public Health England, 'VOC' = The variant:
https://t.co/bSPq3YQq1E

model for each area. We also fitted a similar model but with a random effect model on the area, giving an estimated additive effect of 0.60 [95%CI:0.48 - 0.73]. Similar estimates of 0.56 [95%CrI:0.37-0.75] were obtained using a Bayesian regression model accounting for errors in VUI frequencies and Rt estimates. As an example, under the

fixed effect model, an area with an Rt of 0.8 without the new variant would have an Rt of 1.32 [95%CI:1.19-1.50] if only the VOC was present.

But it's certainly *possible*, as the Taoiseach believes, that the variant is more prevalent than the evidence currently available seems to indicate.

The latest info from the UK indicates a very rapid spread took place, but there were no copies of the variant in our Nov data.

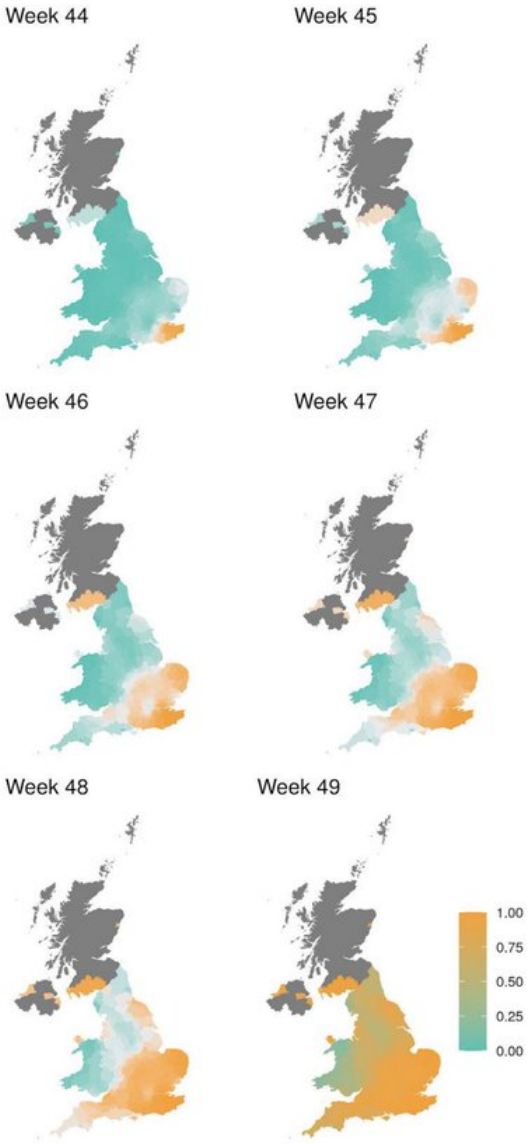


Figure S1 | Estimate of true positive rates for classification of B.1.1.7 infection given SGTF result (S-) as a function of time and UK region. The colour gradient shows the probability of sampling a B.1.1.7 sequence conditional on sampling any sequence with Δ69-70.

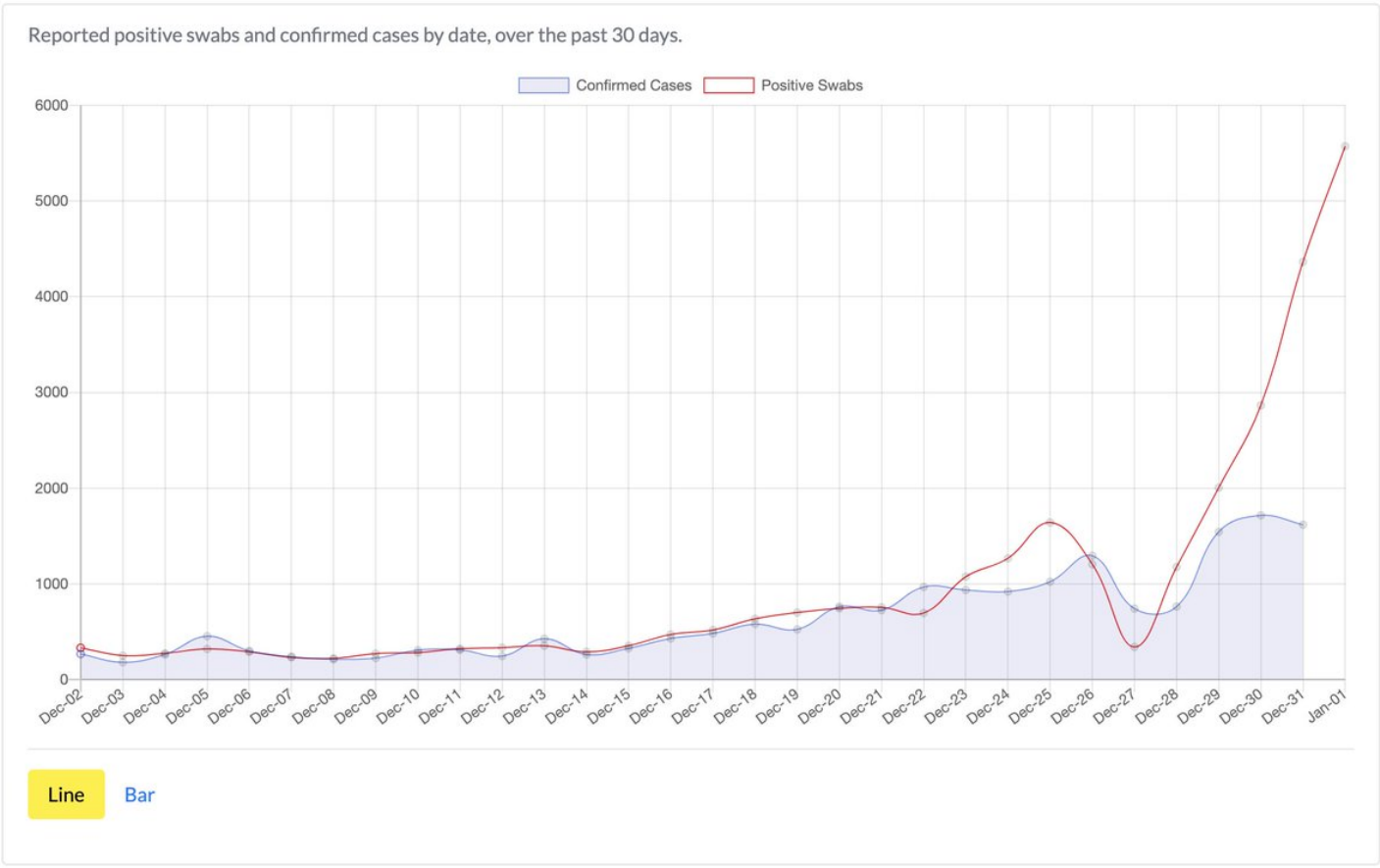
In November ~2% of positive swabs here were fully genome sequenced, and no copies were found of the UK variant.

NPHET has since done two further analyses of Dec swabs (from 19-20, and this week), both times finding 10% of cases were UK variant.

But these are small batches - less than 200 in total from Dec. So the data is very limited, but the interpretation of the impact of the variant differs between NPHET and government.

In a strange way, if the Taoiseach is right, it's kinda good news.

Because we've spike like this, and if we've spiked like this without the increased transmissibility of the variant, it's even more concerning than otherwise. This is where the '4000 cases' come in.



The red line is for swabs which were flagged as positive in the system, the blue line is the confirmed cases reported to NPHET (and by media) each day.

For months they've broadly aligned, since Dec 24 they haven't.

The gap is - in large part - the under-reported number.

Had to break this thread due to a Twitter video uploading issue. It continues here:

https://t.co/Wt4GpOG0Rt

> Thread contd: Gap was 4,000 yesterday. Now it's much bigger again.
>
> The system wasn't designed to handle the influx of testing, Prof Nolan said he's accounted for it in models.
>
> This means confirmed cases are not representative. It's worse than it looks, if looking at just cases. pic.twitter.com/L1rtFvbkPJ
>
> — Mark_Coughlan (@Mark_Coughlan) January 1, 2021