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**From:** Whitty, Chris [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0B3EE62E0CA04E978730B14F9B416A1E-WHITTY, CHR]  
**Sent:** 02/02/2020 21:34:06  
**To:** Jeremy Farrar [J.Farrar@[redacted] PD]  
**CC:** Patrick Vallance [P.Vallance1@[redacted] PD]  
**Subject:** RE: Travel. Official sensitive

Yes. Tho testing asymptomatics has little value as the test is very insensitive in them according to [redacted] who developed it.

But we will need to do a complete pivot once transmission become widespread, if it does, from a prevention response based on active case finding and isolation (current) to a treatment response. Plenty for SAGE to consider.

C

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**From:** Jeremy Farrar <J.Farrar@[redacted] PD>  
**Sent:** 02 February 2020 21:25  
**To:** Whitty, Chris <Chris.Whitty@[redacted] PD>  
**Cc:** Patrick Vallance <P.Vallance1@[redacted] PD>  
**Subject:** Re: Travel. Official sensitive

The boundary between “Asymptomatic” and “mild” even “moderate” is a vague one.

I suspect from the various reports published and from Wuhan clinicians that the infectious period is indeed broader than we see in others (flu SARS MERS). For public health consideration I assume UK would be planning to test and trace contacts for a phase of the (presumed) epidemic - but there will come a point when that phase ends and the focus shifts to broader public health measures and clinical care of those with moderate-severe clinical syndrome and testing would be focused on that group.

Continuing to test and contact trace all, after the first phase makes little sense unless by then there is a over the counter test!

On 2 Feb 2020, at 21:18, Whitty, Chris <[Chris.Whitty@\[redacted\] PD](mailto:Chris.Whitty@[redacted] PD)> wrote:

Yes, and [redacted] Name the first author a good friend of mine.

But there are reports that the index case was in fact symptomatic. Which is tricky, because listening to the USA coronavirus taskforce today they put a huge amount of weight on this short report for their quite far-reaching decisions.

My view is that even if there is some asymptomatic transmission (and no biological reason it is impossible) it would be surprising if symptomatic were not more infectious and v symptomatic a lot more infectious. I am doubtful the R from asymptomatic alone (ie if symptomatic patients were all removed from the system) would be above 1. That needs to be tested, but the operational implications of identifying every asymptomatic case are profound. An important question for SAGE.

Chris

It sounds as if unless John disagrees this is a reasonable first pass.

Neil's points on a likely upper estimate of the impact of even concerted action being a few weeks is important for policymakers to understand in any decisions.

Chris

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**From:** Ferguson, Neil M <[neil.ferguson@](mailto:neil.ferguson@) PD >  
**Sent:** 02 February 2020 12:08  
**To:** Whitty, Chris <[Chris.Whitty@](mailto:Chris.Whitty@) PD >; Vallance, Patrick (GO-Science) <[P.Vallance1@](mailto:P.Vallance1@) PD >;  
PD >; [john.edmunds@](mailto:john.edmunds@) PD  
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**Subject:** RE: Travel. Official sensitive

I agree in general with 1 to 4. A couple of points:

- First, it is quite likely (but not certain) that there have been a number of undetected importations into the UK. Certainly into the EU. Detection rates are not going to be anywhere near 100%. This doesn't mean we shouldn't take the optimistic view that it is still worth trying to prevent more importations, but it does change the assessment of the likely impact of any new measures and therefore the cost-benefit balance of those measures.
- In general, the more intense and concerted the action, the greater the reduction in imports. If the EU stopped all travel to and from China and the UK followed suit, that would undoubtedly have a larger impact than the UK going it alone. A G7-only move would likely be intermediate in effectiveness between us doing it alone and the whole EU adopting such a measure.
- Our latest (and more reliable) estimates of epidemic doubling time in Hubei are between 3.5 and 6 days, depending on the data used. Central estimate of 5 days. (As an aside growth rates in cases in the rest of China are unreliable – they are generally only testing people with a link to Hubei, so many provinces are likely missing local transmission).
- Assuming an underlying 5 day doubling time nationally in China, a 50% reduction in travel will – under the assumption local transmission hasn't already started – delay arrival here by 5 days. A 75% reduction by 10 days, 87.5% by 15 days. The EU stopping all travel to & from China might possibly delay things by up to 3 weeks maximum.
- Harder to assess what a UK-only measure might do (would require a much more detailed analysis). What's happened in the last week or so in China and the UK has likely reduced travel by 50-75% though.

Best,

Neil

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**From:** Whitty, Chris <[Chris.Whitty@](mailto:Chris.Whitty@) PD >  
**Sent:** 02 February 2020 11:13  
**To:** Vallance, Patrick (GO-Science) <[P.Vallance1@](mailto:P.Vallance1@) PD >; Ferguson, Neil M <[neil.ferguson@](mailto:neil.ferguson@) PD >; [john.edmunds@](mailto:john.edmunds@) PD  
**Cc:** Van Tam, Jonathan <[Jonathan.VanTam@](mailto:Jonathan.VanTam@) PD >; Harries, Jenny <[Jenny.Harries@](mailto:Jenny.Harries@) PD >;  
PD >; [@dfid.gov.uk](mailto:@dfid.gov.uk)>; PD >; [@homeoffice.gov.uk](mailto:@homeoffice.gov.uk)>  
**Subject:** Travel. Official sensitive

Dear Patrick, Neil, John

The points below will need proper discussion in SAGE on Tues, but given actions by other countries I am almost certainly going to have to give a provisional view before SAGE meets.

All of these issues have multiple angles, medical, social, political, economic, humanitarian, but I want to be able to give as good an answer as I can **narrowly on the epidemiology** as that is an essential part of the equation. We all know the data are far from complete, we cannot do proper models which give accurate estimates of risk based on the current data. So given the potential need for extreme speed we need to give a best estimate based on basic epidemiological principles. I will put my current view, and it would be good to get your view if you agree, broadly agree but want to nuance or disagree. There are two aims: to stop transmission to the UK, or to slow it.

1. Currently the travel advice to China is against all travel to Hebei and all but essential travel to China. My current view is that in the absence of other interventions raising this to 'all travel to China' from the UK would make little difference to slowing transmission, and none to stopping it.
2. Stopping all direct flights to China from the UK, assuming all other flights (including other countries to China) continue. I think this would make little difference to transmission, and very limited to slowing because of multiple alternative routes.
3. Stopping all travellers from China to the UK for 14 days and following a pattern as the USA (which has very different travel patterns etc) has done. My view is this might slow but not by much, and would not stop assuming the UK alone did this.
4. If all the G7 / trade partners put a ban on flights, or travel from China, that would have a much greater likelihood of slowing (but not stopping) importation. How much the slowing would be is difficult to estimate but would be unlikely to be a prolonged period.

Can you let me know if you disagree or want to nuance? This is a holding position pending further data.

Am cc'ing PD and PD

Chris

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