Department of Health & Social Care

Greg Clark MP

Chair, Science and Technology Committee

House of Commons

SW1A 0AA

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Dear Chair,

Thank you for providing Mark Hewlett, Steve McManus and myself the opportunity to appear before the committee. We were pleased to share our progress and to set out our key areas of focus as detailed in the NHS Test and Trace December business plan.

We strongly share your view that our work on estimating the impact of testing, tracing and self-isolation is important for public confidence in the Government's response to COVID-19. We would have liked to have published this work earlier. However, it was right to ensure that the explanation and full technical description of the analysis was finalised before publication, and that we were able to publish the model code as well. We are now happy to be able to share this publication – I refer you to annexes 1 and 2 attached to this letter.

I would also like to take this opportunity to clarify the comments I made at the hearing by briefly summarising the modelling approach, its key assumptions and caveats, and findings. As I set out in the hearing, I was unable to provide the full details of the modelling given the technical annex had not yet been finalised.

As described in the NHS Test and Trace Business Plan, our modelling was based on the combination of testing, tracing and self-isolation (on symptom onset or following contact by NHS Test and Trace) in an October-like prevalence environment and compared to a scenario with only social distancing restrictions and no self-isolation. The model estimates that the combination of testing, tracing and self-isolation in October 2020 resulted in an R reduction of 18-33%, compared to a scenario with only social distancing restrictions and no self-isolation. The impact of contact tracing alone reduced the R number by 2-5% (with testing and self-isolation accounting for the remaining 16-28%). An 18-33% reduction corresponds to a reduction in the R number of 0.3-0.6, given the official estimate in October 2020 was around 1.2

If NHS Test and Trace were to meet the operational targets it set in the Business Plan, and circumstances otherwise were similar to October 2020, the model estimates that transmission would reduce by 33-42%. Here, the impact of contact tracing alone would contribute a 7-10% reduction

in the R number. In October, a 33-42% impact on transmission would have meant an R reduction of 0.5-0.8

However, changes to prevalence, national restrictions and the emergence of new variants mean the real world has changed significantly compared to the 'October like environment' the model simulates. Any future modelling will need to consider these changes, the impact of vaccine rollout, and the increases in asymptomatic testing that NHS Test and Trace has delivered since October.

It is important to note that this model considers the combined impact of testing, tracing and self-isolation. As I explained at the Committee, the work of NHS Test and Trace focused not only testing and tracing but supporting people to isolate through providing them with advice, guidance and support. Reducing the R number should therefore be attributed to a combination of the work we are doing within NHS Test and Trace as well as the efforts of the public when they self-isolate upon experiencing Covid-19 symptoms. As the explainer to the technical annex sets out, it is very difficult to construct or substantiate a counterfactual where individuals isolate on symptom onset without testing and tracing. We therefore report the estimated total impact of test, trace and isolate, and the component due to contact tracing alone – the two aspects for which we can have reasonable confidence. I recognise that this may not have been made explicit at the hearing.

This counterfactual is hard to construct as it depends on many behavioural factors that are not well understood. How far an individual and their household might self-isolate without a test could vary according to symptom severity and duration, the number of times they experienced COVID-like symptoms, their employer's willingness to let them self-isolate without proof of a positive test, or their ability to access financial support. Especially where people have mild symptoms it is reasonable to expect that a test could have a significant impact on behaviour, but it is very difficult to quantify that change.

Moreover, we do not know how many people could or would tell their close contacts that they think they might have caught COVID-19 without having been able to take a test or without support from contact tracing. How many of their contacts would then be able to self-isolate or choose to do so, and to what degree, will also need to be estimated.

Around one third of COVID infections present no symptoms and so individuals can spread the virus unknowingly without a test. Although not covered in this model, expanded asymptomatic testing using lateral flow devices will help us break those chains of transmission. Peak infectiousness can take place before onset of symptoms and LFDs test for levels of infectiousness, making them an important additional public health tool.

External experts, including from academia and members of The Alan Turing Institute, reviewed the modelling approach as the Business Plan was being developed and regarded the core assumptions and structure as appropriate given our constraints. We have developed the model further based on their feedback, as documented in the Technical Annex.

In your letter you also refer to the publication of the September business case. To clarify, business cases, including the September incremental business case, are internal documents. Whilst we took the decision to share this internal document with the National Audit Office, it is not standard in government to publish internal business cases.

I hope this letter and the attached detailed annexes on the R number modelling provide concrete assurances and sufficiently address your queries, thus not warranting another committee hearing.

Yours sincerely,

Baroness Harding

<u>Annex 1</u>

The Rùm Model Technical Annex

<u>Annex 2</u>

The Rùm Model Technical Annex - Explainer