

Statement on the reporting of results from Home-Swab-Test Kits, issued on 4th May 2020

Royal Statistical Society Covid-19 Task Force

During the Falklands War, a journalist famously reported on a sortie of UK warplanes: “I counted them out; and I counted them all back in”.

On Friday 1 May, the Health Secretary’s target of 100,000 swab-tests was exceeded by the issue of some 40,000 home-swab-test kits (counting out) and by counting-in the results from over 80,000 other swab-tests.

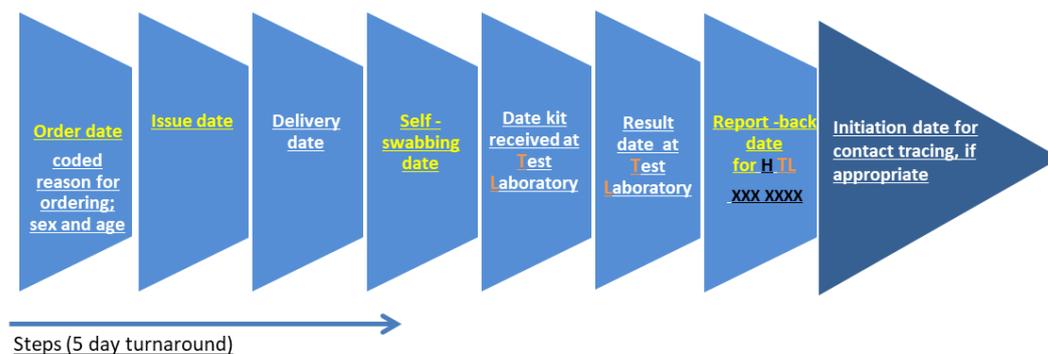
The RSS COVID-19 Taskforce recognises the complexity of carrying out such numbers of tests, and would like to offer constructive suggestions to improve the statistical reliability and transparency of the process.

First, we welcome the UK’s vastly increased swab-test capacity. Of course, the specificity and sensitivity of home-swab-test-kits should be precisely estimated, just as was the case for antibody tests.¹

Second, we emphasise that counting out home-test kits is not the same as test results being reported-back. On May 1st neither the counting-out nor counting-in was by swab-date, which is the timeline for how the pandemic is evolving.

Third, an efficient tracking scheme for the performance of UK’s home-test kit operation is necessary. Tracking starts with the booking-date for a barcoded home-test kit together with a record of the reason for ordering a home-test kit.² Thereafter, a series of dates needs to be logged (including swab-date and receipt-date at the test-laboratory) down to the report-back date when the testee is given his/her swab-test-result; see **Tracking Scheme**

HOME TEST KIT TRACKING SCHEME: Barcode H TL xxx xxxx



1. Home-swab-test kit booking-number or barcode*: H TL xxx xxxx
2. Order-date for home-test kit
3. Coded-reason for ordering home-test kit
4. Sex and birth-year of intended recipient
5. Issue-date for ordered home-test kit
6. Order-delivery-date to intended recipient
7. Self-swabbing-date by the intended recipient (assuming s/he was neither hospitalized nor recovered between order-date and delivery-date)
8. Receipt-date at test-laboratory (TL) of returned home-swab-test
9. Result-date within-laboratory (TL) from the returned home-swab-test
10. Report-back-date when result from home-swab-test kit H TL xxx xxxx is reported-back to testee
11. Contact-tracing instigation-date; or not-applicable.

H denotes home-test;
TL denotes the code for the test laboratory to which the kit will be returned for analysis;
 xxx xxxx denotes serial number or barcode.

¹ Royal Statistical Society Covid-19 Task Force. Statement on Covid-19 antibody testing. 14 April 2020. See <https://rss.org.uk/RSS/media/Policy-and-campaigns/Policy/Statement-Antibody-testing-14-04-2020.pdf>

²https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/882654/Self_referral_port_al_user_guide_v1.6.pdf.

Military-style or similarly-efficient logistics are required for all of the steps to be completed within 7 days, if the report-back-date is to be sufficiently timely for the testee to act to protect public health; and for contract-tracing to be instigated, if applicable: such as when lock-down eases.

Fourth, not all deliveries of home-test-kits will be appropriately made. Not all recipients will use their delivered kit. Some will forget to return their swab-tests. Some returned-kits will not arrive at test-laboratory. Some swabs that do arrive will be inadequate for testing.

Fifth, the RSS COVID-19 Taskforce considers it important that, as part of the easing of lock-down, there should be regular, rigorous public reporting on the performance of the UK's home-swab-test operation. For an outline of how this could work, see **Reporting (below, page 2)**.

In summary, deploying home swab tests on a large scale and timely manner is a cornerstone for controlling the Covid-19 epidemic. We hope to have clarified some of the challenges faced when counting and reporting time stamped test results.

Reporting: For example, the No10 press conference on 8 May 2020 might present an analysis of the waiting-times between issue-date of 1 May 2020 for around 40,000 home-test kits to i) receipt-date of at test laboratory, including number of swabs returned for analysis by 4 May, and ii) result-date within-laboratory by 6 May.

For each stratum of home-testing, defined by coded-reason for testing, sex or age-group, analysis should include the stratum's proportion of home-test kits issued on 1 May that had a test-result within 2 days of the swab-date and b) the stratum's COVID-19-positive test-rate, see **Table**.

Table: Tracking the results home-test-swab kits issued on 1 May 2020

Issue-date of 1 May 2020 for home-kits	Tracking of home-test-swab kits and results by sex and age-group				
	All persons	Children < 12 years at last birthday	Children aged 12-17 years at last birthday	Adult males (18+ years)	Adult females (18+ years)
Number of home-test kits issued					
Number of home-test kits returned on/before 4 May 2020					
Swab-date for the above returned kits					
1 May					
2 May					
3 May					
4 May					
<i>Laboratory-test-result within 2 days of swab-date (eg on 1-3 May for swabs taken on 1 May; 4-6 May for swabs taken on 4 May) for the above returned kits by swab-date: reported as [number positive; number negative; number inadequate for testing; number with delayed result]</i>					
1-3 May					
2-4 May					
3-5 May					
4-6 May					