Department of Health & Social Care

From the Lord Bethell
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7 April 2021

Dear Fiona,

Thank you for your correspondence of 12 October on behalf of your constituent, Professor Anthony A Fryer, about COVID-19.

I understand Professor Fryer's concerns. As scientific studies have shown, COVID-19 is an incredibly dangerous virus, especially to the elderly and at-risk groups. The UK Government does not manipulate scientific data and we are committed to the open sharing of the scientific advice that guides our response to COVID-19 where possible.

Due to the exceptional nature and impact of the pandemic, the approach to releasing evidence from the Scientific Advisory Group for Emergencies (SAGE) has changed significantly from previous emergencies, where papers and minutes were released only at the resolution of the situation. In recognition of the need for the public to see the current scientific advice, we have already released many of the documents discussed at SAGE and its sub-committees since the outbreak began. More are being released on a weekly basis and can be found at www.gov.uk by searching for 'Scientific Advisory Group for Emergencies COVID-19 response'.

With regard to the recording of COVID-19 deaths, all the deaths data shown on coronavirus.data.gov.uk are for people who have died within 28 days of a positive test result that has been confirmed by a Public Health England (PHE) or NHS laboratory. They also include, for England, deaths of people who have had a positive test result confirmed through testing done by commercial partners.

The data does not include deaths of people who had COVID-19 but had not been tested, people who tested positive only via a non-NHS or PHE laboratory, or people who had tested negative and subsequently caught the virus and died. It is true that people who have tested positive for COVID-19 could, in a few cases, have died from something else.

However, this does not mean that the threat posed by COVID-19 has been exaggerated. The Office for National Statistics (ONS) publishes weekly figures listing deaths from all causes. These figures show that since March 2020 there have, tragically, been tens of thousands more deaths than we would expect on average. This strongly corroborates the data on coronavirus.data.gov.uk.

Furthermore, within the same dataset, ONS reports on deaths where COVID-19 is mentioned on the death certificate by the physician recording the death. Those details show a very large proportion of the additional deaths involved COVID-19.

Professor Fryer may wish to view the ONS data for himself and can find it by visiting ons.gov.uk and using the search term 'coronavirus'.

We know that inaccurate information online about the reverse transcription polymerase chain reaction (RT-PCR) test and its use is prevalent. Social media users have been sharing this quote, attributed to the inventor of the PCR test: *PCR tests cannot detect free infectious viruses at all*. This was investigated by Reuters and confirmed to be misleading. The conclusion was that it appears to not be a direct quote from the inventor, Kary Mullis, has lost its context and does not mean COVID-19 testing is fraudulent.

We are also aware that when the PCR test detects viral material it does not indicate that the virus is fully intact and infectious. The isolation of infectious virus from positive individuals requires virus culture process, which can only be conducted in laboratories with specialist containment facilities and are time-consuming and complex.

Public Health England has stated that *molecular diagnostic tests, such as real-time PCR, are the gold standard methods for identifying individuals with an active viral infection, such as SARS-CoV-2, in their respiratory tract. These tests are rapid and produce results in real-time*.

A typical RT-PCR assay (the investigative procedure) will have a maximum of 40 thermal cycles. The lower the cycle threshold (Ct) value, the higher the quantity of viral genetic material in the sample. Ct values obtained in this way are semi-quantitative, meaning they do not measure the precise quantity of the virus, but are able to distinguish between high and low viral load.

There are many different assays in use across the UK. Ct values cannot be directly compared between assays of different types due to variation in sensitivity, chemistry of reagents, gene targets, cycle parameters, analytical interpretive methods, sample preparation and extraction techniques. Furthermore, in the Office for National Statistics' COVID-19 Infection Survey there has only been one sample that has been positive with a Ct value above 37.

The tests are very specific and the risk of false positives, where the tests are reacting to other viruses, is extremely low. Like any diagnostic test, there is a possibility of a false negative or false positive result, but this is very small. Independent, confirmatory testing of positive samples indicates a test specificity that exceeds 99.3 per cent, meaning the false positive rate is less than 1 per cent. Additional guidance has been provided to laboratories to reduce the rate even further. This guidance can be found at www.gov.uk by searching for 'assurance of SARS-CoV-2 RNA positive results during periods of low prevalence'.

I hope this reply is helpful.

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