



Public Health
England

Protecting and improving the nation's health

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By email

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Our ref: 04/11/hf/1845

1 December 2020

Dear Chris Jones,

Re: Cycle threshold values of positive PCR tests for Covid-19

Thank you for your emails dated 4 and 12 November 2020. In accordance with Section 1(1)(a) of the Freedom of Information Act 2000 (the Act), I can confirm that Public Health England (PHE) does not hold the information you have specified. I have answered your questions in turn.

Request

I have a number of questions related to using the PCR test to diagnose Covid-19:

1) Can you tell me the distribution of cycle thresholds used to provide a positive PCR test? In other words, what percentage of positive tests came at what cycle threshold value?

PHE can confirm it does not hold information in the way suggested by your request.

Under Section 16 of the Act, public authorities have a duty to provide advice and assistance. The interpretation of the cycle threshold will vary depending on the assay used. For more information, please see the publication below:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/926410/Understanding_Cycle_Threshold_Ct_in_SARS-CoV-2_RT-PCR_.pdf

2) Have you undertaken any viral culture to cross reference with cycle threshold values? If so, what are the results? Additionally, if you have any information about the proportion of culturable samples by cycle threshold can you please provide those.

PHE has not undertaken this work.

3) Can you please the approximate false positive and false negative rates for your PCR test? Does this vary with cycle threshold?

PHE does not hold the information. In June 2020 the Scientific Advisory Group for Emergencies published a briefing paper on the impact of false positives and false

negatives in the United Kingdom's COVID-19 reverse transcription polymerase chain reaction (RT-PCR) testing programme.

The briefing paper states that the United Kingdom operational false positive rate is unknown, and an attempt has been made to estimate the likely false-positive rate of national COVID-19 testing programmes by examining data from published external quality assessments (EQAs) for RT-PCR assays for other ribonucleic acid viruses carried out between 2004-2019. Results of 43 EQAs were examined, giving a median false positive rate of 2.3%. The paper can be accessed here:

<https://www.gov.uk/government/publications/gos-impact-of-false-positives-and-negatives-3-june-2020>

If you have any queries regarding the information that has been supplied to you, please refer your query to us in writing in the first instance. If you remain dissatisfied and would like to request an internal review, then please contact us at the address above or by emailing foi@phe.gov.uk.

Please note that you have the right to an independent review by the Information Commissioner's Office if a complaint cannot be resolved through the PHE complaints procedure. The Information Commissioner's Office can be contacted by writing to Information Commissioner's Office, Wycliffe House, Water Lane, Wilmslow, Cheshire, SK9 5AF.

Yours sincerely,
FOI Team