

Daily data from COVID app predicts local incidence and prevalence of virus

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Published today in *The Lancet Public Health*, a study by researchers at King's College London research team detail the modelling behind the ZOE COVID Symptom Study App.

They found that self-reported [data](#) from over 2.8 million volunteer users of the app living in England, including more than 120 million daily

assessments logged by those users, can be used to provide accurate estimates of COVID-19 prevalence and incidence, and timely identification of regional infection hotspots.

Joint first author Dr. Mark Graham from King's College London said: "The data accurately predicted many of the hotspots that were significantly affected by the [second wave](#), including detecting Leicester in June which then became the first region to be placed under local lockdown. In mid-July they detected many regions around Manchester, which was also placed under local restrictions in late July. The data will also likely prove valuable for detecting regional hotspots if we experience a third wave after lockdown is eased.

"The reduced reliance on PCR tests means this could be a cost-effective, complementary and rapid way for governments to monitor the spread of COVID-19 and identify potential areas of concern. Detection of hotspots should encourage additional testing capacity to be focused on these regions, to ensure as many new cases are captured as possible and onwards transmission chains broken."

The study's joint first author Thomas Varsavsky from King's College London said: "We also found that regions where more tests are being carried out have better agreement with our predictions of incidence. We hope that this can inform [policy makers](#) about which areas would benefit from additional testing, thus detecting hotspots earlier."

Researchers found that one advantage of the app is the data is released every day, while ONS is released weekly and REACT every few weeks—this means that the app team might be able to pick up changes in incidence or prevalence earliest with their data.

"Our results show that a mobile-based approach detects similar incidence and prevalence to the more traditional but less cost effective

ONS/REACT-1 approaches, which is encouraging," Dr. Graham said. "To make better public health decisions, the ZOE COVID Symptom Study data should be seen as a complementary data source to ONS and REACT. Like all the surveys, our sample is not fully representative of the population, and while the team seek to address this with our modelling, the results need to be interpreted with this in mind."

Professor Sebastien Ourselin, lead senior author from King's College London said: "Using the data from the ZOE COVID Symptom Study App as an adjunct to other sources of information means that we can equip communities with the most up to date and reliable information with which the best actions can be taken to tackle the pandemic. Earlier identification of hotspots, more information on prevalence and incidents builds a stronger defence in conjunction with the latest data being released."

Provided by King's College London

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