

A cheap, simple way to control this pandemic exists

di Julian Peto

Four years ago, an international committee convened by the US National Academy of Medicine warned of the global threat of a new virus. It identified the pandemic potential of new coronaviruses and highlighted the relatively trivial costs of preventing them — especially compared to, say, spending on defence or financial stability.

Since then, Covid-19 has amply demonstrated the catastrophic effects of a virus with relatively low mortality rates. The next virus may be far more deadly. A method that achieved rapid and effective control of today's pandemic would also provide the framework for dealing with the next one. But how? As Covid-19 has shown, developing new vaccines and treatments takes time. As it has also shown, that leaves mass testing and contact tracing as the best way to control a pandemic and avoid the disastrous effects of lockdown.

The idea that weekly testing of whole populations can reduce transmission so that normal life can continue has been endorsed by leading epidemiologists and Nobel Prize-winning economist Paul Romer. Yet it has been largely ignored. In the UK, Matt Hancock, the health minister, has called Britain's long-term aim of making tests available to everyone a "moonshot". More dramatically in the US, the Centers for Disease Control and Prevention recently downgraded its guidelines so that only people with symptoms are tested.

This is despite the fact that a cheap, effective and non-patented technology for testing is available to be rolled out quickly, even in rural settings in the developing world. RT-LAMP (reverse transcriptase loop amplification), as it is called, does not require expensive equipment. Crucially, testing can be done using self-taken saliva samples. That simplicity is important as it makes the logistics of administering and monitoring regular testing feasible. It is also unlike the latest commercial rapid test, Abbott's BinaxNOW, which requires a nasal swab administered by a health professional and analysis within an hour. These are major obstacles to testing whole populations regularly.

Taking the UK as an example, local biotech companies could supply the needed RT-LAMP reagents for less than £1 per test. This ease of technology and low cost means that scaling up to the 10m daily tests needed to conduct weekly testing of the entire British population could be achieved quicker than via the various commercial systems currently being studied by the government.

To be clear, this is not a diagnostic test to determine the need for clinical treatment. Optimised RT-LAMP tests have a sensitivity of over 97 per cent, but even a single-step test has 85 to 90 per cent sensitivity — enough to control the epidemic. People who do test positive (about 1 in 2,000 are now

infectious in the UK) would quarantine with their households only after taking a high-tech test to remove false positives.

This approach to mass testing should be deployed as the northern hemisphere winter approaches, when many fear a second wave. All travellers from abroad should also be tested — a vast improvement on the UK's current ad hoc approach of country quarantines.

Just as significant, if testing arrangements are established now they could be reinstated rapidly to prevent future pandemics, which may well prove more lethal. There would be strong international and charitable support for the World Health Organization to organise that immediately. The technology is such that in developing countries, tests can be analysed in a pan of warm water using a thermometer to keep the temperature at about 63C. The colour change that indicates a positive result is visible by eye. It is that simple.

Arrangements for universal weekly testing should be set up now to deal better with this pandemic — and to prepare for the next one — while public concern is high and before it is too late, again.