



Briefing: LAMP assays for SARS-CoV-2

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The roll out of a saliva-based direct LAMP (loop-mediated isothermal amplification) technology for SARS-CoV-2 to support asymptomatic NHS staff testing has started. (More information about the technology is available in [Recent progress in RT-LAMP enabled COVID-19 detection](#) by Thompson et al.)

The sensitivity of this COVID-19 rapid test (75–85%) is less than the standard rapid RT-PCR tests (approximately 98%). It will not be used for diagnosis in patients, but as a screening tool to reduce the risk of asymptomatic but infected staff coming into contact with patients. Hence, this will be a 'risk reduction' measure, rather than a 'risk removal' one. Testing does not remove the need for other infection control measures, i.e. PPE and social distancing. Staff with very low viral loads will not be picked up; therefore, in very sensitive areas, such as haematology oncology wards, more sensitive rapid testing for SARS-CoV-2 may be more appropriate, depending on local factors.

As outlined in the review by Thompson et al., LAMP assays vary in their protocols, genes detected, sensitivities and read-out methodologies. However, a common feature of the LAMP process is the speed of the analysis, as the confirmation of results for a typical RT-LAMP procedure is significantly faster than that of RT-PCR. LAMP assays have been studied in several pilot sites. Key challenges for introducing LAMP remain and include IT integration, space to site the kit (including possibly in university laboratories), workforce to run the systems, guidelines and quality controls. Furthermore, clear communication will be vital and follow-up information must be available.

There is still much work to be done to deliver this technology, but the LAMP process is very promising, and it may have further use in population screening. From a disease epidemiological viewpoint, the use of LAMP assays for COVID-19 testing in social care and wider population settings could be enhanced when combined with antigen testing.

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