

External Quality Assurance for Point of Care Testing – Using Smartphone technology to facilitate Real-time Result Submission and Assessment

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Background: The Royal College of Pathologists of Australasia Quality Assurance Programs (RCPAQAP) are world leaders in providing external quality assurance (EQA) for pathology laboratories. At the height of the COVID-19 pandemic, many countries relied on rapid antigen testing due to cost, ease of use, and access. In collaboration with our international agent, the RCPAQAP initiated the use of smartphone technology to deliver an EQA for the real-time reporting and assessment of results for SARS-CoV-2 antigen testing.

Methods: Two simulated respiratory samples and tailored survey instructions were supplied to each participant, including a unique QR code. A custom secure web application was developed and used to capture and assess the results. All participants used the same testing assay and were encouraged to test the samples on receipt. Following testing, participants used the QR code and a smartphone to submit their results, kit lot information, name of testing technician, and a photograph of the testing cartridges.

Results: Submitted results were analysed automatically, and assessment results were delivered to the participants' smartphone in real-time. At a later stage, a senior scientist at RCPAQAP reviewed the photo of the testing cartridge for the control line and test line intensity, labelling, and final interpretation to validate the submission. The result was then marked valid or invalid. A certificate of completion (valid results) or result report (invalid results) was then issued summarising the target result, results submitted, and assessment. A reviewer note could also be added to clarify any issues noted with the results or interpretation.

Conclusion: In collaboration with our international agent, this survey was deployed rapidly and effectively. The use of smartphone technology enabled immediate EQA assessment of results and allowed detailed assessment of the entire testing procedure.

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