

External Quality Assurance for Point of Care Testing

Using Smartphone Technology to Facilitate Real-time Result Submission and Assessment

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RCPAQAP

The Royal College of Pathologists of Australasia
Quality Assurance Programs

Introduction

- RCPAQAP provides external quality assurance (EQA) for all disciplines in pathology
- QC vs EQA
 - Quality Control (QC) - material supplied with the kit to monitor performance on opening or on a daily basis
 - EQA - snapshot of testing performance compared to other participants testing the same material at the same point in time

During the Pandemic

- Mobile phones became more relied upon for communication
- Quick Response Codes (QR codes) were in high use, and we were subject to using these to register attendance everywhere
- In terms of testing - reliance on rapid testing, due to cost, ease of use and access was increasing
- There was a need for good EQA programs with rapid TAT

The idea!



Could we use Smartphone technology & QR codes to capture and assess EQA results.....?

Programs

- Rapid response to demand
- Initial program – small, SARS-CoV-2 antibodies
- Scale up program – larger, SARS-CoV-2 antigen



Unique QR code

- Each participant received a unique QR code in the survey instructions

Open camera and scan to begin:

Barcode valid for one result submission



DJP-WRY-QGD

SE/99999

Derek's laboratory

Derek Holzhauser:

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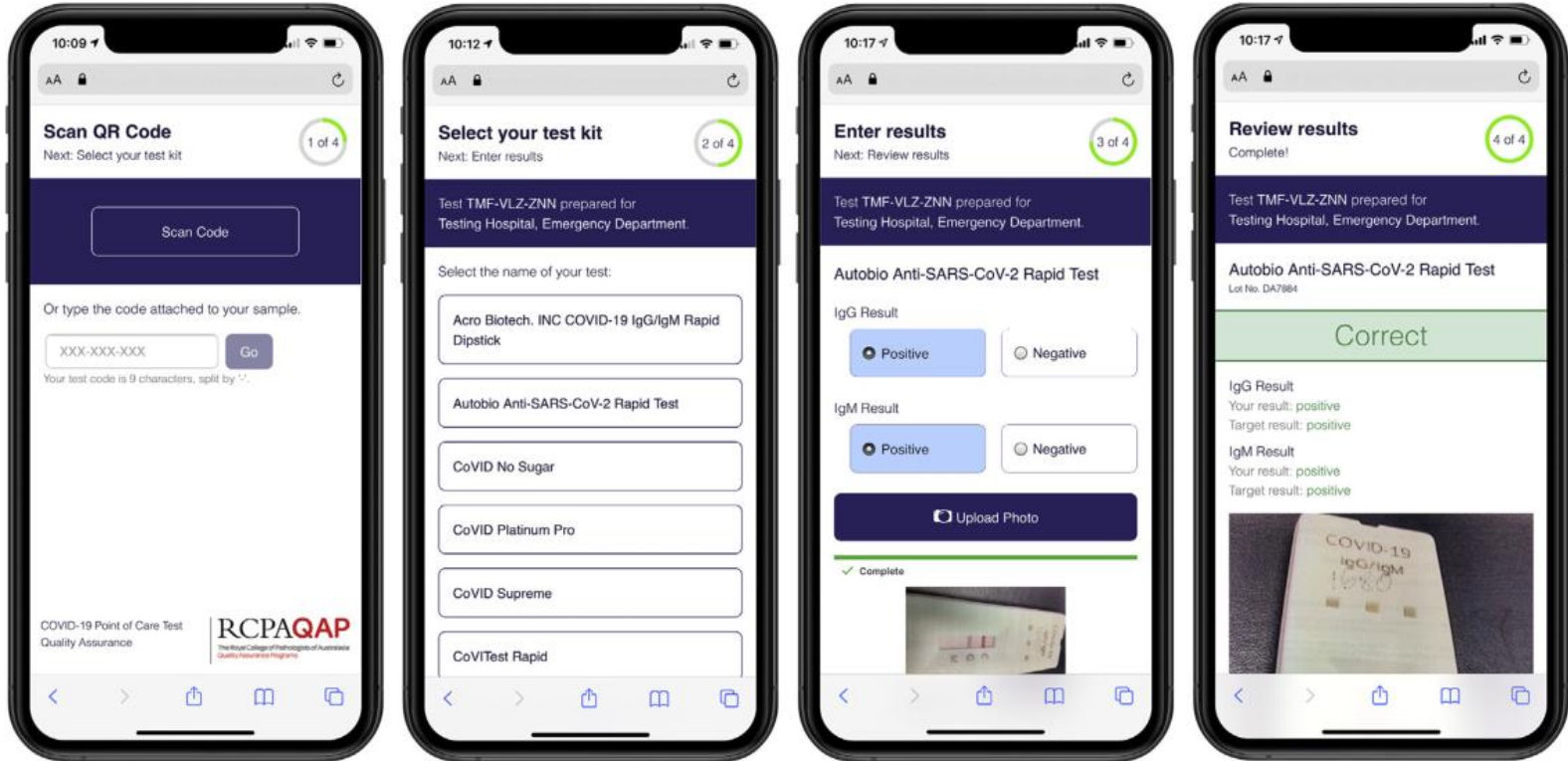
- One use only – can not be used again

Demonstration

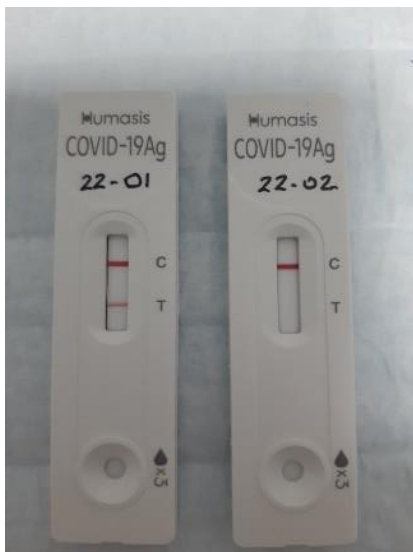
- My colleagues are handing out some cards with a QR code now
- Look on with your neighbour if you do not receive a card
- Scan your QR code now and go through and complete the steps
- Take a photo of something on your desk to complete the submission
- Think about how this would translate if you were doing the testing and reporting the EQA results in this way

Demo

Simplified 4-Step Result Entry



Reviewing & Validating Results



Participant Tests → NRL-WTL-CNF


NRL-WTL-CNF Submitted

Sample COVID Antigen

Enrolment SE/99999
Derek's laboratory

No phone

Dispatch #34
Generated Mar 23, 13:24



Last updated Apr 14, 13:48
Created Mar 23, 13:23

Correct

	COVID Antigen	Submission
Sample: 22-01	positive	positive
Sample: 22-02	negative	negative

Performed by Derek

Test Kit Humasis COVID-19 Ag
Lot No. COVGCF1033

Submitted Apr 14, 13:48



Reviewer

Deane Byers

Interpretation

Valid


Invalid

Review notes

[Send Review](#)

Final Report

- After validation
- Sent to registered email address



The Royal College of Pathologists of Australasia
Quality Assurance Programs

COVID-19 Quality Assurance Testing Certificate of Completion

This certifies that

RCPAQAP Test Organisation



201

Has completed

The Royal College of Pathologists of Australasia Quality Assurance Programs
COVID-19 Point of Care Test Quality Assurance


Sample: VWH-HTF-PWQ
Test Kit: Humasis COVID-19 Ag
Performed by
Deane Byers

Sample: 22-01	Sample: 22-02
Your result: positive	Your result: negative
Target result: positive	Target result: negative
CORRECT ##	



Tony Badrick
Chief Executive Officer

Certificate issued
April 01, 2022

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COVID-19 Quality Assurance Testing Result Report

RCPAQAP Test Organisation

201

Has submitted results to

The Royal College of Pathologists of Australasia Quality Assurance Programs
COVID-19 Point of Care Test Quality Assurance

Sample: RZY-TZV-TZY
Test Kit: Humasis COVID-19 Ag
Performed by
Peter Parker

Sample: 22-01	Sample: 22-02
Your result: negative	Your result: invalid
Target result: positive	Target result: negative
INCORRECT	

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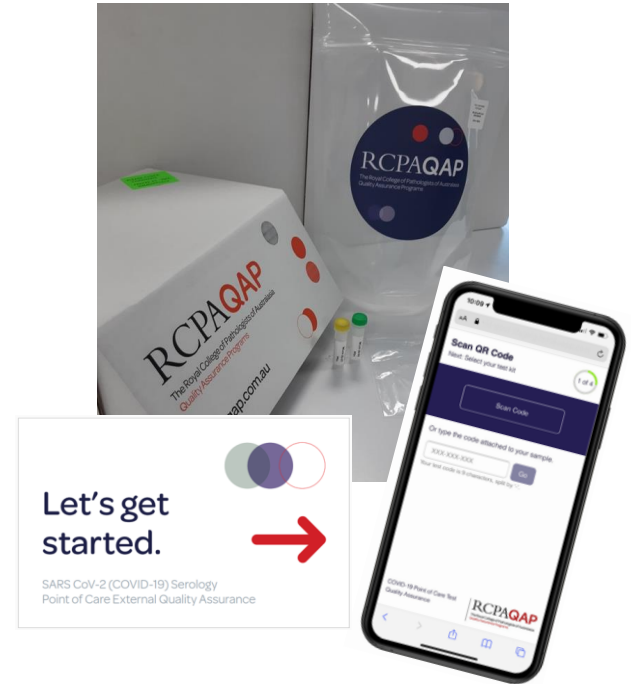
Background Administration

- Kit Results – number of samples and labels
- Test Kits – assays appearing in ‘name of your test’
- Samples – expected result for each sample

- Separate sections for status updates; pending, dispatched, submitted and reviewed are also part of the back-end admin

Programs

- Initial program –SARS-CoV-2 antibodies
 - tested the reliability of early antibody assays
- Scale up program – SARS-CoV-2 antigen
 - showed very good concordance



Issues

- Did not load photo
- Weaker banding patterns than expected
- Incorrect labelling of the cartridges
- Used kit that was not on the list
- Overall
 - instructions were EASY to follow
 - technology was EASY to use

Conclusion



Could we use Smartphone technology &
QR codes to capture and assess EQA
results.....?

YES

Conclusion

- Developed and deployed rapidly and effectively
- Enabled immediate assessment of EQA results
- Facilitated additional support in validation review
- Some real influence on testing
- Future applications

Acknowledgements

- The RCPAQAP team;
 - Dr Louise Wienholt (now NSWHealth)
 - Derek Holzhauser
 - Daniel Fone
 - Michelle Keays
 - Megan Cooke
 - MID team (Peter Santosa)
 - Logistics team (Wayne Randle, Mary-Ann Angel)
- International agent AcuTest, Malaysia



Reference: Badrick, T; Wienholt, L; Fone, D; Holzhauser, D, The challenge of producing an EQA for the COVID-19 pandemic, Practical Laboratory Medicine. 2020;22:e00179

Questions, Comments ?

Thank you for listening

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