

# User experiences of a remote monitoring program during COVID-19



Andrea Torres-Robles, PhD<sup>a</sup>; Karen Allison<sup>b</sup>, MPH; Simon Poon<sup>c</sup>, BSc, PhD, MPH; Miranda Shaw<sup>d</sup>, MHA; Owen Hutchings<sup>d</sup>, MBBS; Warwick Britton<sup>b</sup>, MBBS, PhD; Andrew Wilson<sup>a</sup>, MBBS, PhD; Melissa Baysari<sup>e</sup>, PhD

<sup>a</sup> Menzies Centre for Health Policy and Economics, University of Sydney, Sydney, Australia, <sup>b</sup> Sydney Local Health District, Camperdown, Australia, <sup>c</sup> School of Computer Science, University of Sydney, Sydney, Australia, <sup>d</sup> Royal Prince Alfred Virtual Hospital, Sydney Local Health District, Camperdown, Australia, <sup>e</sup> Faculty of Medicine and Health, University of Sydney, Sydney, Australia

## Background

Virtual care gained traction during COVID-19 as it allows patients to be remotely monitored and reduces the risk of infection for patients and healthcare professionals<sup>1</sup>. RPA Virtual Hospital (**rpavirtual**) launched in February 2020 and was the first service in NSW to introduce remote monitoring and follow-up for stable COVID-19 patients in quarantine or isolating at home<sup>2,3</sup>. Patients received a pulse oximeter (PO) to monitor their oxygen saturation levels, critical to identifying signs of health deterioration. Although preliminary patient experience data have been collected, user perceptions of the intervention had not been fully explored.



## Objective

Explore the utilisation, performance and acceptability of the PO for COVID-19 remote monitoring for patients and clinicians.

## Results

Twenty-one patients and fifteen clinicians completed the interview. Results are reported on Figure 2.

## Methods

Semi-structured interviews were conducted with 1) patients  $\geq 18$ , monitored by **rpavirtual** with PO, and 2) **rpavirtual** clinicians who monitored those patients. Interviews were coded using the Theoretical Framework of Acceptability<sup>4</sup>

### Affective Attitude (AA):

User's attitude towards the pulse oximeter and how they feel about using it for remote monitoring

### Burden (B):

The perceived amount of effort required to use the pulse oximeter

*Acceptability and usability of the pulse oximeter use in remote monitoring*

### Intervention Coherence (IC):

The extent to which the participant understands the pulse oximeter and how it works

### Self-efficacy (SE):

The participant's confidence that they can perform the behaviour(s) required to participate in the remote patient monitoring with the pulse oximeter

Figure 1. Constructs adapted from the Theoretical Framework of Acceptability

## Affective Attitude

- Allowed monitoring at home
- Helped to detect early deterioration

- User dependent
- Anxiety due to inaccurate readings

## Burden

- Ease of use (e.g., to put on, to turn on, to charge)

- Factors negatively impacting accurate use (e.g., patient age)

## Intervention Coherence

- Good understanding of device purpose.

## Self-Efficacy

- Sufficient training about the use of the PO
- Good knowledge about the PO (e.g. troubleshooting)
- Previous experience using the PO

Figure 2. Summary of positive (green boxes) and negative (orange boxes) patients' and clinicians' perceptions about the use of the pulse oximeter in remote monitoring

## Conclusions

The use of the PO for COVID-19 remote monitoring was described as easy and highly acceptable to patients and clinicians alike. Additional education may be necessary for some patient cohorts.

### Acknowledgments:

This research was funded by the Medical Research Future Fund: MRFF – Coronavirus Research Response - 2020 Rapid Response Digital Health Infrastructure Grant, and the Office of Health and Medical Research (OHMR) - research funding enhancement grant to Sydney LHD.

The authors would like to thank all the **rpavirtual** clinicians and patients who participated in this study.

### References

1. Hollander JE, Carr BG. Virtually Perfect? Telemedicine for Covid-19. *New England Journal of Medicine*. 2020;382(18):1679-81.
2. Raffan F, Anderson T, Sinclair T, Shaw M, Amanatidis S, Thapa R, et al. The Virtual Care Experience of Patients Diagnosed With COVID-19. *J Patient Exp*. 2021;8:23743735211008310.
3. Hutchings OR, Dearing C, Jagers D, Shaw MJ, Raffan F, Jones A, et al. Virtual Health Care for Community Management of Patients With COVID-19 in Australia: Observational Cohort Study. *J Med Internet Res*. 2021;23(3):e21064.
4. Sekhon M, Cartwright M, Francis JJ. Acceptability of healthcare interventions: an overview of reviews and development of a theoretical framework. *BMC Health Services Research*. 2017;17(1):88.

