Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.
Smartwatches may Underdetect Pulse in the Presence of Premature Ventricular Complexes

J. Kovoor 1,4, A. Thiagalingam 2

1 University of Adelaide, Adelaide, Australia
2 Department of Cardiology, Westmead Hospital, Sydney, Australia

Background: Recent trials have brought the potential role of smartwatches in pulse rate and arrhythmia monitoring to public attention, potentially leading to the misconception that the technology provides information of diagnostic quality. While some can record single-lead electrograms, most owned by the general public utilise photoplethysmography (PPG) to measure pulse rates. In the presence of arrhythmias causing reduced left ventricular output, PPG may under-detect pulse; analogous to an apical–radial deficit.

Case: A 50-year-old male with a background of paroxysmal atrial fibrillation used the pulse rate measurement function of his personal smartwatch to monitor for episodes of acute arrhythmia and presented to the emergency department at 4am after anxiety associated with a reading of 33-43 bpm. Alarmed, ED staff documented that the patient could require a pacemaker. However, a 12-lead ECG showed premature ventricular complexes (PVCs) that had not registered as pulses for the smartwatch, subsequently leading to impaired left ventricular function of his personal smartwatch to monitor for episodes of premature ventricular complexes (PVCs) that had not registered as pulses for the smartwatch.

Discussion/Conclusion: Through haemodynamic compromise of diastolic filling, PVCs transiently decrease stroke volume and cardiac output, under-perfusing the microvasculature and creating a clinically appreciable pulse deficit that may not be detected by smartwatches using PPG.

As smartwatches gain more attention and patients begin providing readings from these devices alongside their clinical history, it is increasingly important that clinicians are aware of the technology’s limitations and are cautious when called to make decisions from the associated data.

https://doi.org/10.1016/j.hlc.2021.06.437

Systematic Review of Clinician Created Video in Patient Education

T. Bettler 1,2,*, C. Chow 1,2, S. Kim 1, D. McIntyre 1,2, R. Kulkarni 1,2, A. Thiagalingam 1,2

1 Cardiology Department Westmead Hospital, Westmead, NSW, Australia
2 Westmead Applied Research Centre (WARC), University of Sydney, Westmead, NSW, Australia

Background: Digital media is an emerging tool that clinicians can use to empower patients and increase their engagement with disease management. In particular, the use of clinician created video is emerging as a valuable adjuvant in patient education.

Aims: Assess the impact of clinician created video on patient knowledge, markers of patient outcomes and explore themes to inform future creation in cardiology-based content.

Methods: This review was conducted following the PRISMA statement for systematic reviews. A search of the PubMed and Cochrane databases were conducted using the terms ‘video’, ‘patient’ and ‘education’. Randomised, controlled studies that delivered clinician-created video as an adjuvant to standard verbal education were included. A date-restriction was set between 2015 and 2021.

Results: The search identified 111 studies, and 35 were included. Most were small (largest study n = 821), and single centre. Patients were blinded in only a single study. Clinician-created video significantly improved patient knowledge (Z = 7.22, p < 0.00001), decreased periprocedural anxiety (Z = 2.60, p = 0.009), and increased satisfaction with care (Z = 4.64, p < 0.0001). Interaction with cardiovascular clinical outcomes were identified including increased knowledge of cardiac conditions, reduction in anxiety prior to invasive cardiac procedures, and improved symptom control and recovery following myocardial infarction.

Conclusions: Clinician-created video content improves knowledge, anxiety, satisfaction and may have a significant impact on cardiovascular clinical outcomes. Though given the small number of studies in any one field, larger studies are needed to determine their efficacy at scale within cardiology-based medicine.

https://doi.org/10.1016/j.hlc.2021.06.438
choosing TP over VC were older (p<0.001), more likely to be female (p=0.005), non-English-speaking (p=0.041), living in metropolitan Melbourne (p<0.0001), undertaking a first appointment (p=0.002) and seeing particular cardiologists (p<0.001). VC patients were more likely to have early review (p=0.015), and this was likely to be TP (p< 0.0001). TP patients were more likely to follow up in person (p< 0.0001).

Conclusion: During COVID-19, we increased consultation volumes without adverse patient outcomes. We identified factors influencing choice of telemedicine modality which did not translate into differences in mortality or ED presentations. Telemedicine is a growing platform with an important role of facilitating access to healthcare for diverse patient groups.

https://doi.org/10.1016/j.hlc.2021.06.439

437 Telephone Consultations for Cardiac Outpatients During COVID-19—A Review of Acceptability and Impact
S. Weerasooriya, R. Stewart, R. Thomas*
Townsville University Hospital, Townsville, Qld, Australia

Background: Cardiovascular disease is the leading cause of mortality and disease burden in Australia, with higher mortality rates in regional, rural, and remote areas, and amongst First Nations’ peoples. A postulated reason for higher mortality rates in non-metropolitan areas is lack of accessibility. Whilst Telemedicine is not a new modality, there is minimum literature on its routine use for appropriately triaged patients with cardiac conditions. The aim of the project was to determine if Telephone consultations are an acceptable means of conducting outpatient Cardiac Clinic appointments, so that alternative modalities can be considered as a means of addressing clinic waitlists and optimising timely care delivery.

Method: Descriptive analysis was conducted of survey and routinely collected administrative data for patients participating in Cardiac Outpatient Teleconsultations from April to July 2020, during COVID-imposed service delivery restrictions.

Results: Survey results comprised 94 (2%) respondents of 4,617 eligible participants of the group sampled having comparable demographics to clinic attendees overall. Approximately one third of respondents were new patients. Overall, there was an overwhelmingly positive response to telephone consultations, particularly amongst younger and employed patients, and those located remotely. Elderly patients expressed a preference for face-to-face consultations. The increase in teleconsultations produced a net waitlist reduction.

Conclusions: The use of teleconsultations, although necessitated by COVID restrictions, was received positively by patients, and highlighted additional advantages over face-to-face consultations particularly with regards to convenience and saving money and time. Teleconsultations contributed to a reduction in waitlists by allowing for ongoing and convenient review of appropriately triaged patients therefore enhancing overall accessibility to cardiac services.

https://doi.org/10.1016/j.hlc.2021.06.440

438 The Cost-effectiveness of TeleClinical Care: A Telemonitoring and Educational Smartphone App-based Model of Care
P. Indraratna1,2,*, U. Biswas3, J. McVeigh1, D. Vickers1, E. Watkins1, J. Yu1,2, G. Schreier4, S. Jan5, N. Lovell3, S. Ooi1,2

1 Department of Cardiology, Prince of Wales Hospital, Randwick, NSW, Australia
2 Prince of Wales Clinical School, University of New South Wales, Sydney, NSW, Australia
3 Graduate School of Biomedical Engineering, Sydney, NSW, Australia
4 Austrian Institute of Technology, Center for Health and Bioresources, Graz, Austria
5 The George Institute for Global Health, Newtown, NSW, Australia

Background: TeleClinical Care (TCC), a smartphone app-based model of care, allows for telemonitoring of patients’ blood pressure, heart rate and weight after an admission for either acute coronary syndrome or heart failure. An RCT (n=164) demonstrated a reduction in readmissions at 6 months. There is a paucity of data on staffing and operating costs of similar interventions.

Methods: Running costs were collected, and a figure of cost per readmission saved calculated. Time spent per patient was calculated from estimations of recruitment time, alert monitoring, and patient contact. A 12-month cost-effectiveness model was subsequently developed which included costs of technical support and operations, nursing, equipment, and medical consultations generated.

Results: The total cost of the TCC trial was $84,726. The cost per readmission saved was $6,197. Per-patient, the net cost saving was AUD $549 for a 6-month participation, or if projected to 12 months, $1,098. In a 12-month model, each patient would require a total of 6.5 hours of attention from the monitoring team, thus generating a per-patient nursing cost of $322. For a nurse working 40 hours weekly, it is estimated that he/she could monitor up to 322 patients. According to this model, when the number of enrolled patients is equal or greater to 244, the costs saved will outweigh all incurred costs.

Conclusions: It is estimated that a single nurse could monitor over 300 patients in the TCC program simultaneously. At this point, the costs saved by avoiding hospitalisation would outweigh the total costs incurred by the program.

https://doi.org/10.1016/j.hlc.2021.06.441