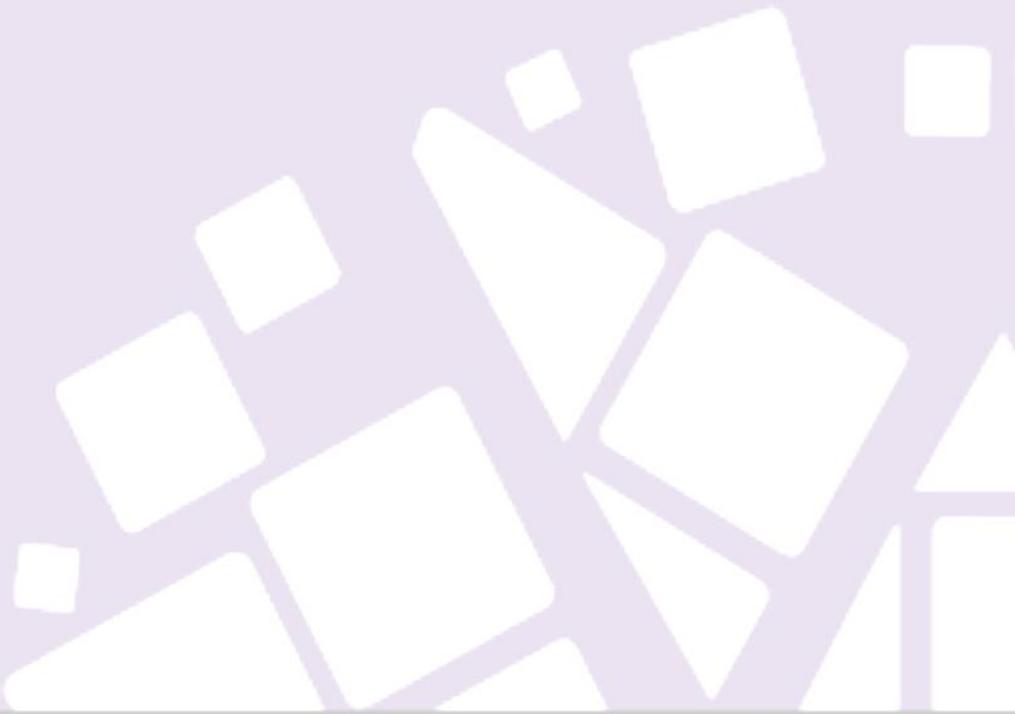


“Does the continuous monitoring of vital signs decrease the time to which a high temperature is detected and antibiotic treatment is started in patients undergoing chemotherapy at home?”



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Overview

- Aims
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Aims

- To see if using the vital sign monitoring app (Securafone Health[®]) in patients undergoing chemotherapy at home through the company Chemo@home is feasible and reliable
- We will do this by using the continuous vital sign monitor in conjunction with the conventional four times a day oral thermometer measurement

Background

- The treatment of patients with blood cancers who are undergoing chemotherapy is shifting in direction, with current indications suggesting the future of cancer care lies in the administration of therapy in the patient's own home instead of hospital when possible
 - freeing up bed space
 - improving the quality of life of the patient

Background cont...

- Being treated at home means patients take a greater responsibility for monitoring their own health
- After chemotherapy when the white cell count is low (neutropenia, neutrophil count $< 1 \times 10^9/L$) a high temperature may be life threatening
- Monitoring body temperature and seeking medical advise when the temperature is high (above $38.3^{\circ}C$) is very important

Background cont...

- Australian guidelines recommend that intravenous antibiotics should be started within one hour of detecting a temperature above 38.3°C in neutropenic patients
- If patients do not seek timely medical assistance, life saving antibiotic therapy is delayed
- Continuous monitoring of temperature may
 - detect changes in vital signs in between scheduled measurements
 - prevent patient non-compliance

Securafone Health®

- A non invasive, continuous remote vital sign monitoring device
- Uses a patch comprised of multiple sensors
- The patch sticks onto the chest through the adhesive backing
- Vital signs monitored include
 - heart rate, respiration rate, skin temperature and body movement/positioning.
- Gathers and transmit data to a “smart device” (e.g. iPhone)
- Information is then analyzed in a “cloud”, where the information is encrypted and securely stored
- Health care professionals will be immediately notified when “safe” parameters have been exceeded
- This early detection of a high temperature has the potential to improve the care and outcomes of patients undergoing chemotherapy by reducing the time taken to receive life saving antibiotic therapy.



SECURAFONE



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Significance

- In a similar study which tested the use of a non-invasive continuous measurement of skin temperature in stem cell transplant patients
 - continuous skin temperature measurement resulted in the earlier detection of fever
 - antibiotics were started 2.5 hours earlier than when relying on conventional measurement
- If this pilot is successful the app may reduce the time taken to detect a high temperature in patients when they are in the neutropenic phase after chemotherapy
 - therefore decrease the possibility of a serious adverse event as lifesaving antibiotic therapy can be administered in a more timely manner

Method

- Participating patients will have their temperature measured simultaneously by two different instruments during the expected time of neutropenia after chemotherapy (usually days 8-14 of the treatment cycle)
 - The first device will be a medical app (Securafone Health[®]) which has the capability to **continuously** measure patient's vital signs and automatically send the information to a smart phone or tablet through wireless technology
 - The second device is the traditionally used oral thermometer, which is to be used by the patient and/or nurse to manually measure and record the temperature **four times per day**

Method cont...

- Throughout the study period any measurements which are outside the following parameters will be relayed either by the device automatically (Device 1) or the patient manually (Device 2) to the health service team for action
 - Securafone Health® monitor skin temperature above 38.3°C (use the oral thermometer to confirm the measurement)
 - When the oral thermometer registers a temperature of 38.3°C or above, patients will be referred to a hospital facility for a septic screen and antibiotic therapy
- Participants will be given a subject information sheet and will be required to read and sign a consent form

Summary

- The use of new technology has the ability to improve the monitoring and treatment of patients
- The time after chemotherapy when blood counts are low is a crucial time in patients having treatment for blood cancers
- Changing the way patients are monitored during this time has the potential to reduce complications and improve outcomes

Acknowledgments

- The Leukaemia Foundation for the Swan Valley Community New Investigators Grant for Western Australian Researchers
- St John of God Learning and Research Center
 - Nik Zeps, Group Research Coordinator
- Co-Investigators
 - Julie Wilkes, Lorna Rogers and Dr Ben Carnley