Innovative technology provides a unique opportunity to revolutionise outcomes from cardiac arrest. The chain
of survival provides a useful framework for considering how technology can be integrated in to saving lives.
Timely and accurate cardiac arrest recognition is one example where technology could create a step change to
treatment pathways. Approximatly one third to a half of cardiac arrests are unwitnessed at present. Valuable
seconds, minute or in some cases hours can pass before someone is found, reducing or losing completely the
window for early intervention. People with an unwitnessed arrest have delayed initiation of cardiopulmonary
resuscitation, delayed defibrillation and slower ambulance response all of which contribute to the dismal
outcomes observed in unwitnessed cardiac arrest. In August 2024 Google launched the first commercially
available cardiac arrest detector linked with its smart watch. Combining ECG, plethysmography and
accelerometer data with a powerful artificial intelligence algorithm enables accurate identification of cardiac
arrest. The watch alerts the user to check for response - if none is received the watch contacts the emergency
medical services and provides geo-location information. This truly innovative development now requires
testing in realword settings to clearly define its potential.
Further innovative developments to enhance cardiac arrest recognition will be explored in this talk. This
includes the use of sound analysis to detect agonal breathing, analysis of CCTV images to identify collapse
and the use of smartphone technology to send information from the scene of an emergency to the dispatch
centre. Integrating artificial intelligence systems in to the dispatch system may enable the integration of
multiple sources of information to improve cardiac arrest recognition.
The final section of this talk will explore innovations in AED technology ranging from their delivery by novel
drone systems through to minaturised, personal AEDs.