

Medical Device Technologies for Managing Disease and Wellness

Nigel Lovell, Ph.D.

Graduate School of Biomedical Engineering
University of New South Wales
UNSW Sydney NSW 2052 Australia

Abstract

As a response to the increasing burden of chronic disease and the ageing population on health care expenditure, one of the most critical grand challenges facing society is on the design and delivery of appropriate technologies for promoting self-care and for supporting ageing-in-place.

A number of medical device technologies aimed at relieving the burden of disease and improving quality of life will be explored. Some of these devices, developed at the Graduate School of Biomedical Engineering, University of New South Wales over the past two decades include telehealth monitoring and decision support systems for chronic disease management; and wearable ambulatory technologies based around triaxial accelerometry for estimating risks of falling and for automatically detecting falls.

Trialing and deployment of these and similar technological approaches will be discussed in conjunction with some perspectives on the barriers to adoption of such systems, the need for appropriate health service delivery models and the anticipated health and economic outcomes of these technologies.

The presentation will also provide a glimpse into the future of personalised health where patient-specific computational models of anatomy and pathophysiology will be married with implantable bionics and wearable telehealth technologies for holistic care.