



The research commercialisation office of the University of Oxford, previously called **Isis Innovation**, has been renamed **Oxford University Innovation**

All documents and other materials will be updated accordingly.
In the meantime the remaining content of this Isis Innovation document is still valid.

URLs beginning www.isis-innovation.com/... are automatically redirected to our new domain, www.innovation.ox.ac.uk/...

Phone numbers and email addresses for individual members of staff are unchanged

Email : enquiries@innovation.ox.ac.uk

Oxehealth – Disruptive innovation in medical technology

Webcams will lead to new ways of monitoring the health of individuals in the home, especially in the context of telemedicine for the ageing population.

There has been an explosion of wearable technology in the last five years. Wearable devices such as Fitbit have so far been mostly targeted at the wellness consumer market, they have not yet made any impact as medical devices



for tracking changes in the physiology of an individual by measuring their vital signs (physical activity, pulse rate, breathing rate, oxygen levels and blood pressure). Yet with changing demographics in the developed world (the year-on-year increase in the proportion of people above the age of 65), this is a much more important segment of the market for medical devices in the long term.

Building on work in Professor Tarassenko's research lab in the Oxford Institute of Biomedical Engineering, Oxehealth have been developing an alternative, disruptive technology for monitoring vital signs using webcams. This does not require any electrodes or sensors to be attached to the individual. Clinical validation data has been obtained from studies in which webcams were positioned more than a

metre away from the patient, in the Oxford Kidney Unit (during dialysis) and in the Neonatal Intensive Care unit. It is not enough for commercial exploitation, however, to have a disruptive technology which makes it possible to derive physiological data unobtrusively: there have to be applications with markets of sufficient size to drive the adoption of the novel technology.

In the short term, Oxehealth are concentrating on baby monitoring in the home and on the monitoring of at-risk individuals in secure room environments. In the longer-term, the focus will be on telemedicine (two-way video to evaluate, diagnose and treat patients remotely). Telemedicine, a fast-growing technology to help relieve the burden on primary care physicians, has received substantial investment in the US in the last two years. We believe that it will be transformed by the addition of non-contact vital sign monitoring.



Prof Lionel Tarassenko CBE FEng FMedSci
Head of Department of Engineering Science,
University of Oxford
Founder Director, Oxehealth
lionel.tarassenko@eng.ox.ac.uk

