

Institution: City University London
Unit of Assessment: 3 Allied Health Professions, Dentistry, Nursing and Pharmacy
Title of case study: The Whole Systems Demonstrator Study (WSD) – an evaluation of tele-assistive devices in health and social care systems, to guide the roll-out of telecare and telehealth systems in the UK Health and Social Care services
<p>1. Summary of the impact</p> <p>The Whole System Demonstrator (WSD) research programme is a project funded by Policy Research Programme Department of Health and led by academic staff at City University London which investigates how technology can help people manage their health and safety while maintaining their independence. The WSD evaluation provides scientific evidence that has influenced and continues to influence public policy debate in the UK and internationally. It has shaped UK Department of Health policy and strategies regarding deployment of tele-assistive devices to meet the growing health and social care demands in a changing population. And it is helping to shape manufacturers' design of services with the user in mind and how health and social care providers offer tele-assistive services.</p>
<p>2. Underpinning research</p> <p>Quality evidence for making a clear policy decision regarding the deployment of telehealth and telecare to mitigate the effects of an ageing population on health and social care services was lacking at the time the research began. Obtaining such evidence is a high priority for the UK Government and the need led to the funding by the Department of Health (DH) of an independent evaluation. The WSD evaluation programme began in 2008. It was a multi-themed, mixed-methods research project, involving around 25 researchers from six institutions. The research themes, which addressed policy customer needs, centred on: (i) service utilisation; (ii) clinical effectiveness; (iii) cost-effectiveness; (iv) patient and professional experience; and (v) service delivery and organisation.</p> <p>The WSD programme is the largest randomised control trial of telehealth and telecare in the world and involves 6,191 patients and 238 GP practices across three UK sites (Cornwall, Kent and Newham) and data from NHS and social care sources (see DH report 'Whole Systems Demonstrator Programme – Headline Findings Telehealth listed in section 5). Telehealth was defined as the remote exchange of data between a patient and health care professional (e.g., for blood glucose or blood pressure). Telecare was defined as the remote, automatic and passive monitoring of changes in an individual's condition or lifestyle (e.g., movement and fall sensors).</p> <p>As Principal Investigator, Professor Newman co-ordinated the work and his team of six researchers were involved in all themes. Professor Newman's team began the project in 2008 at University College London, where he was Director of the Unit of Behavioural Medicine. He and the team moved to City University London in September 2010. At City, Professor Newman continued to lead his research group and the WSD programme to complete the study data collection, to analyse the data, to document and disseminate the findings and to provide advice and consultation to policy-makers, service providers, service users and other researchers.</p> <p>Members of the City team included: Drs Hirani (Senior Lecturer, 2010 to date), Cartwright (Lecturer, 2010 to date), Rixon and Davies (Research Fellows, 2010 to date), Silva (Research Associate, 2010 to 2011) and Beynon (Research Associate; 2010 to date). Other teams were based at: (i) University of Manchester, (ii) Imperial College London, (iii) London School of Economics and Political Science, (iv) The Nuffield Trust and (v) University of Oxford.</p> <p>The WSD evaluation examined questions such as: Does the introduction of telehealth or telecare result in reduction of service utilisation and costs of care? Does it result in improvements in quality of life, well-being and self-care? What are the economic consequences of introducing telehealth and telecare? What is the experience of service users, carers and health and social care professionals to the introduction of telehealth and telecare? What organisational factors facilitate or</p>

impede the sustainable adoption and integration of telehealth and telecare?

This work is supplemented by the team examining (i) the impact of telehealth devices on the psycho-social functioning of informal carers of individuals that receive tele-assistive devices; (ii) the role of mobile technology devices in managing diabetes; and (iii) the long-term impact of tele-assistive devices; and conducting (iv) consultations and collaborations with health and social care teams through the Whole Systems Demonstrator Action Network.

3. References to the research

Peer-reviewed publications

Publications from the WSD evaluation in high impact, internationally recognised journals include:

1. Bower P., Cartwright M., Hirani S.P., Barlow J., Hendy J., Knapp M., Henderson C., Rogers A., Sanders C., Bardsley M., Steventon A., Fitzpatrick R., Doll H. & Newman S. (2011). A comprehensive evaluation of the impact of telemonitoring in patients with long-term conditions and social care needs: protocol for the whole systems demonstrator cluster randomised trial. *BMC Health Services Research*, 2011(11), 184 [10.1186/1472-6963-11-184](https://doi.org/10.1186/1472-6963-11-184)
2. Steventon A., Bardsley M., Billings J., Dixon J., Hirani S.P., Cartwright M., Rixon L., Doll H., Knapp M., Rogers A., Fitzpatrick R., Hendy J. & Newman S.P. (2012). Effect of telehealth on use of secondary care and mortality: findings from the Whole System Demonstrator cluster randomised trial, *BMJ*, 2012(344) e3874 [10.1136/bmj.e3874](https://doi.org/10.1136/bmj.e3874)
3. Henderson C., Knapp M., Hirani S.P., Cartwright M., Rixon L., Beynon M., Rogers A., Hendy J., Bardsley M. & Newman S.P. (2013). Cost effectiveness of telehealth for patients with long term conditions (Whole Systems Demonstrator telehealth questionnaire study): nested economic evaluation in a pragmatic, cluster randomised controlled trial, *BMJ* 2013(346) f1035 [10.1136/bmj.f1035](https://doi.org/10.1136/bmj.f1035)
4. Cartwright M., Hirani S.P., Rixon L., Beynon M., Doll H., Bardsley M., Steventon A., Knapp M., Henderson C., Rogers A., Bower P., Sanders C., Fitzpatrick R., Barlow J. & Newman S.P. (2013). Effect of telehealth on quality of life and psychological outcomes over 12 months (Whole Systems Demonstrator telehealth questionnaire study): nested study of patient reported outcomes in a pragmatic, cluster randomised controlled trial, *BMJ* 2013(346) f653 [10.1136/bmj.f653](https://doi.org/10.1136/bmj.f653)
5. Sanders C., Rogers A., Bowen R., Bower P., Hirani S.P., Cartwright M., Fitzpatrick R., Knapp M., Barlow J., Bardsley M. & Newman SP (2012). Exploring barriers to participation and adoption of telehealth and telecare within the Whole System Demonstrator trial: a qualitative study, *BMC Health Services Research*, 2012(12) 220 [10.1186/1472-6963-12-220](https://doi.org/10.1186/1472-6963-12-220)
6. Steventon A., Bardsley M., Billings J., Dixon J., Doll H., Beynon M., Hirani S., Cartwright M., Rixon L., Knapp M., Henderson C., Rogers A., Hendy J., Fitzpatrick R. & Newman S, (2013). Effect of telecare on use of health and social care services: findings from the Whole Systems Demonstrator cluster randomised trial, *Age and Ageing*, 42(4) 501-508 [10.1093/ageing/aft008](https://doi.org/10.1093/ageing/aft008)

Research funding

The work has been supported by grants from the DH to Professor Newman totalling £4.4M:

- 2012 - 2013: NIHR & DH Costs, Cost effectiveness and Quality of Life in Telecare and Telehealth. £271,274
- 2009 - 2011: Department of Health Collaborative project on telehealth and telecare with the WSD Action Network and the King's Fund. £238,481
- 2009 - 2011: Department of Health Long Term Impact of Telecare and Telehealth on recipients and carers. £319,161
- 2010 - 2011: NIHR - Department of Health: Extension A comprehensive evaluation of the implementation and impact of Telecare and Telehealth across health and social care - Whole System Demonstrator (WSD) project. £1,336,862
- 2009 - 2012: Department of Health Studentship to assess mobile phone technology to assist

people with diabetes. £60,000

- 2008 - 2012: Department of Health A comprehensive evaluation of the implementation and impact of Telecare and Telehealth across health and social care - the Whole System Demonstrator (WSD) project. £2,171,157

4. Details of the impact

The WSD research was of sufficient size, breadth and quality to produce evidence in the area previously impeded by lack of high quality research. This evidence was adequate to inform policy and practice regarding the introduction of tele-assistive devices into general health and social care services. The evidence has been influential within the DH which has in turn influenced Government and local health and social care authorities' policy decisions to implement tele-assistive devices. Their impact on service providers, consumers, service users and informal carers is now being evidenced within the population, following the dissemination of research findings. The DH continues to turn to the WSD team to investigate further evidence needs and the research has shaped decision-making on who receives telehealth and telecare and how service provision should be formulated.

Findings of the WSD programme are currently being acted upon by the DH and health and social care organisations. These include:

- Briefings to MPs and DH executives that influence national health and social care strategies policy
- Consultations with NHS trusts and Social Service organisations
- Collaborations and consultations with tele-assistive device research groups and equipment suppliers
- Consultations with the Royal Colleges
- Consultation with European leaders and policy-makers

The above include:

- John Dalli - European Commissioner for Health and Consumer Policy
- Tsvetomir Svilenov - Head of Good Governance and Capacity Building, Centre for Parliamentary Studies, Brussels
- Prime Minister David Cameron's Office
- The Office of the Secretary of State for Health (Andrew Lansley MP while in post)
- The Minister of State for Care Services (Paul Burstow MP while in post)
- The Telehealth All Party Parliamentary Group - Mark Garnier MP (Chairman)
- MPs and Peers: John Pugh MP, Laurence Robertson MP, Robert Pettigrew (Office of Brian Binley MP), Baroness Masham of Ilton, Lord Boswell of Aynho, Lord Walton of Detchant
- Equipment suppliers: Nick Armistead (Bosch), John Cruickshank (2020 Health), Malcolm Luker (Philips), Hadleigh Stollar (NHS Direct), Helena Jordan (Pfizer), Dr Alison Sundset (Philips)
- Overseas governments: Danish Department of Health, Dutch and New Zealand Governments.
- WSD results have led to UK Prime Minister David Cameron's recent announcement of plans to 'roll out' advanced telehealth and telecare solutions to the homes of three million people over the next five years, with the aim of improving lives and putting the UK at the forefront of global healthcare.
 - "Look at our approach to telehealth – getting new technology into patients' homes so they can be monitored remotely."*
 - "We've trialled it, it's been a huge success and now we're on a drive to roll this out nationwide. The aim – to improve three million lives over the next five years. This is going to make an extraordinary difference to people."*
- The Minister of State for Care Services, Paul Burstow MP (while in post), has discussed the cost benefits and main barriers to telehealth, the results of some of the WSD pilot schemes and how to get patients and clinicians on board with telecare.

- Conference presentations and press briefings (including keynote addresses by Professor Newman at the Technology Strategy Association and The King's Fund) that have influenced further activity and key policy-makers and service providers.

Impact indicators

- Research findings have led to the executive decisions for full scale roll out of telehealth and telecare services at a local level amongst participating sites (including staff roles).
- Department of Health policy decisions to roll out Telehealth (e.g., the '3 Million Lives' initiative) schemes nationally. The DH 3ML campaign, launched in December 2011, makes telehealth available for three million people nationwide, aiming to improve care for patients and deliver that care in a more efficient way.
- WSD success has led to GPs' contract changes to include payments for remote monitoring devices (via new directed enhanced services (DES) to provide remote monitoring for patients with long-term conditions).
- Advisory roles for the investigators within the telecare and telehealth industries and service sectors, research funding committees and professional bodies (e.g., via the Whole Systems Demonstrator Action Network (WSDAN)).
- Adoption of WSD developed patient reported outcome measures in other tele-assistive device trials (e.g., renewing life project - www.renewinghealth.eu/).
- Delivery of highly skilled people: career development of a number of health service researchers who have acquired specialist knowledge of telecare and telehealth deployment strategies.
- Patient testimonies of the impact that telecare or telehealth systems have had on their self-care and health status.
- The planned roll out of training for Health Care Professionals in Telehealth.

5. Sources to corroborate the impact

Public statement by Ministers re WSD findings impacting upon their policy decisions:

- Prime Minister – David Cameron's announcement:- www.3millionlives.co.uk/ and www.independent.co.uk/news/uk/politics/cameron-plans-early-access-to-new-drugs-for-patients-6272620.html.
- Minister of State for Care Services, Paul Burstow MP discussions: www.kingsfund.org.uk/multimedia/burstow_telehealth12.html.

Headline reports from DH Website:

- Whole system demonstrator programme: Headline findings – 5th December 2011 - www.dh.gov.uk/health/2011/12/wsd-headline-findings.
- **Telehealth trial shows early success** - www.dh.gov.uk/health/2011/12/telehealth-trial-early-findings.
- http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_100946 - (see quotes at end of document p21-22).

Policy initiatives:

The WSD study results have led directly to initiatives to the implementation of assistive technology regionally and nationally. The 3ML campaign (http://3millionlives.co.uk/about-telehealth-and-telecare#the_wsd_headline_findings_for_telehealth) and implementation in the London Borough of Newham are a result of the WSD.

Patient reports and WSD findings:

- Service user and carer satisfaction is demonstrated in the Department of Health report '*Whole Systems Demonstrator Programme – Headline Findings – December 2011*', at:

www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_131689.pdf.