EDITORIALS

Editorials are usually commissioned. We are, however, happy to consider and peer review unsolicited editorials
See http://resources.bmj.com/bmj/authors/types-of-article/editorials for more details

bmj.com News: NHS boards see telehealth only as a means of saving money, warns expert (*BMJ* 2012;345:e4633)

Telehealth for long term conditions

Latest evidence doesn't warrant full scale roll-out but more careful exploration

Josip Car director josip.car@imperial.ac.uk
Kit Huckvale PhD student in mHealth, Global eHealth Unit, Department of Primary Care and Public Health, Imperial College London, London W6 8RP, UK
Hermie Hermens professor of telemedicine, Telemedicine Group, Faculty of Electrical Engineering, Mathematics and Computer Science, University of Twente, Netherlands

Almost 50 years of innovation in telehealth have seen great progress in tackling a wide range of conditions using a variety of technologies and covering a wide range of outcomes. Although this work shows great promise, it also creates challenges for interpretation. The uncertainties in defining terms like "telehealth" reflect broader difficulties in interpreting the complex interplay of technology, service designs, clinical input, and patient involvement. New studies can challenge existing findings as much as they corroborate them. For example, two recent large scale trials of telehealth for heart failure found no benefit,[1 2] whereas previous meta-analyses suggested reductions in mortality.[3-5] To this we can now add the initial findings of one of the largest telehealth and telecare studies ever conducted: the UK Whole System Demonstrator trial summarised in this issue (p 16).[6]

Telehealth does not just "work" or "not work." Particular interventions may be successful, but this depends on many factors, including the specific contributions of the type of technology and of the context, such as the willingness and ability of clinical staff to change their care processes; the disease stage and severity of disease in the patients involved, their social backgrounds, and their needs and expectations; the predictive power of any monitoring data that are collected; and, indeed, the endpoints that are used to specify success.[4 7] The research agenda established by systematic reviews of telehealth consistently argues for study designs that can generate insights into the active components within the black box of telehealth interventions.[8 9] Although factors that might be important for successful telehealth can be described (box), we need more clarity on how to interpret the relative contributions of these elements.

The highlight of the initial findings is reduced mortality in patients offered telehealth—an absolute reduction of 3.7% (4.6% *v* 8.3%; odds ratio 0.54, 0.39 to 0.75), or about 60 lives over a 12 month period.[6] This welcome finding needs a plausible explanation, especially because numbers of admissions were essentially unaltered in the intervention group, and existing evidence on the impact of telehealth on mortality is either mixed or lacking.[1 2 7 10]

GABRIEL SZABO/GUZELIAN

Remote doctoring is not clearly effective or worthwhile

Key considerations for telehealth interventions

Interventions should:

- Enable a disease management strategy for a specific group of patients
- Be able to enhance quality of life and clinical outcomes
- Promote convenience for patients and clinicians
- Support meaningful clinical care, using tools such as decision support
- If possible allow patients to use their own smart phones or computers for monitoring
- Be easy to use for patients and clinicians
- Be accessible to those with disabilities, limited dexterity, and those who do not speak English
- Be integrated into clinical computer systems
- Be backed up by training, monitoring, and technical support for participants
- Be designed to be gradually integrated into standard pathways for care. Interventions should replace, rather than add to, existing ways of working

The demonstrator trial combines three conditions—diabetes, chronic obstructive pulmonary disease (COPD), and heart failure—and was powered on a pooled analysis of effect. However, this strategy deserves further thought. For example, in England, the number of annual hospital admissions where diabetes is recorded as the primary diagnosis is about half that of admissions for COPD, despite diabetes being more than twice as prevalent. Telehealth related changes for patients with COPD might, therefore, have a greater effect on pooled estimates of hospital activity, particularly when the relative excess of patients with COPD in the demonstrator study group (compared with population prevalence) is taken into account. Furthermore, only a third of those invited to participate did so. Is telehealth particularly attractive for patients with COPD, and if so, why? There will also be questions, particularly if the pooled economic analysis (due to be published soon) is unfavourable, about whether targeting particular groups, perhaps by disease severity, might have been advantageous.

Does the demonstrator trial provide convincing evidence for commissioning a national roll-out of telehealth? Probably not, although we recommend caution until the full data are released. Does it provide justification for the UK Department of Health's plan to bring telehealth and telecare to three million people with long term conditions and complex care needs not to proceed?[11] Equally not: the evidence base is essentially unchanged and uncertainties remain. The difficulty of interpreting complex studies with nuanced findings, like the demonstrator trial, does not make decision making easy, but neither does it mean that the research is unnecessary.

Some unanswered questions will need new trials, but others can be dealt with by other routes. For example, the wealth of data generated by telemonitoring combined with data from electronic health records provides an important opportunity for large scale observational analyses, and that could include the 3millionlives plan.[12] Policy makers, commissioners, and guideline developers should help ensure that the research agenda focuses on areas where telehealth shows most promise.

Competing interests: None declared.
Provenance and peer review: Commissioned; not externally peer reviewed.
References are in the version on bmj.com.
Cite this as: *BMJ* 2012;344:e4201

RESEARCH, p 16
FEATURE, p 20