Lincolnshire Knowledge and Resource Service

This search summary contains the results of a literature search undertaken by the Lincolnshire Knowledge and Resource Service librarians in;

**May 2012.**

All of the literature searches we complete are tailored to the specific needs of the individual requester.

If you would like this search re-run with a different focus, or updated to accommodate papers published since the search was completed, please let us know.

We hope that you find the information useful. If you would like the full text of any of the abstracts listed, please let us know.

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Commissioning Telehealth at a Local Level
16th May 2012
By Jan Badcock

Commissioning and Telehealth

The Context

**The Operating Framework**
for the NHS in England 2012/13
2.22 Telehealth and telecare offer opportunities for delivering care differently but also more efficiently. Use of both of these technologies in a transformed service can lead to significant reductions in hospital admissions and lead to better outcomes for patients. Using the emerging evidence base from the Whole System Demonstrator programme7, PCT clusters working with local authorities and the emerging CCGs should spread the benefits of innovations such as telehealth and telecare as part of their ongoing transformation of NHS services. They should also take full consideration of the use of telehealth and telecare as part of any local reconfiguration plans.


**Getting switched on to telecare and telehealth**


**Telehealth: What can the NHS learn from experience at the US Veterans Health Administration?**
John Cruickshank
January 2012
See attached

**Realising sustainable QIPP wins: Opportunities for Telehealth**
February 2011

Introduction
The aim of this paper is to set out the industry’s views on the value and benefits of telehealth as a modernising tool to support the NHS as it seeks to identify significant efficiency savings and become more sustainable in the face of major demographic changes and rising costs. Through case studies from the UK this paper demonstrates how telehealth has a vital role to play in the NHS Quality, Innovation, Productivity and Prevention (QIPP) agenda.

http://www.intellectuk.org/component/docman/doc_view/4980-realising-sustainable-qipp-wins-opportunities-for-telehealth

**Commissioning telehealth for long-term conditions.**

Barriers to implementation

Request Full Text From LKRS
What impact does telehealth have on long-term conditions management?

Our online prezi presentation sheds light on the impact telehealth can have (positive or negative) on the management of people with long-term conditions. This demonstrates less positive outcomes for patients with multiple long term conditions than for single LTC. Patience is needed in opening this site.

http://www.kingsfund.org.uk/topics/technology_and_telecare/telehealth_prezi.html

Whole System Demonstrator Project

The Whole System Demonstrator programme

The Whole System Demonstrator (WSD) programme has been one of the most complex and comprehensive studies the Department has ever undertaken, and has yielded a wide range of very rich data.

The WSD programme was launched in May 2008. It is the largest randomised control trial of telehealth and telecare in the world, involving 6191 patients and 238 GP practices across three sites, Newham, Kent and Cornwall. Three thousand and thirty people with one of three conditions (diabetes, heart failure and COPD) were included in the telehealth trial. For the telecare element of the trial people were selected using the Fair Access to Care Services criteria.

There are many different types of telehealth and telecare but each of the three sites made their own decisions on the equipment they would use in their health and social care economies. That in itself was not a problem for the study, as the proposition being analysed was "Does the use of technology as a remote intervention make a difference?" As each site used different equipment and had differing populations there is confidence that the results are transferable to other locations.

http://www.3millionlives.co.uk/About-Telecare-and-Telehealth.html

Whole System Demonstrator Programme Headline Findings – December 2011

The first set of initial findings from this programme is now available. They show that, if delivered properly, telehealth can substantially reduce mortality, reduce the need for admissions to hospital, lower the number of bed days spent in hospital and reduce the time spent in A&E.

The key is to integrate these technologies into the care and services that are delivered. Going forward this evidence gives us confidence that we can transform the way services are delivered and ensure that we use appropriate technology to put people at the centre, and in control. Look out for the overall finding report due out soon (was due March 2012)


Perspectives on Telehealth and Telecare

Learning from the 12 Whole System Demonstrator Action Network (WSDAN) sites WSDAN briefing paper

Request Full Text from LKRS

Assistive Technology. Independence and Wellbeing Audit Commission Report

Healthcare withoutwalls A framework for delivering telehealth at scale
John Cruickshank

November 2010 aim of this work is to set out an independent view on how best the NHS should exploit the potential of telemedicine, based on best practice in the UK and elsewhere, and what action the new government should take. In particular, it will address:

- a review of key projects and evidence to identify those areas with most potential for early exploitation;
- the potential savings at national and local levels, through embracing telehealth;
- how the NHS can move telehealth on from 'pilot-itis' to an integral role in mainstream care provision;
- investment, funding and reimbursement options and preferred recommendations
- organisational change best practice, including patient adoption and stakeholder engagement
- implications for national and local infrastructure (both public and NHS), and standards
- integration with core patient record systems, at a national and local level
- how the market could be developed and encouraged, for both point solution and service providers
- legal and ethical considerations
- an action plan for national and local implementation, including policy recommendations

http://www.tunstall.co.uk/assets/literature/reports/2020health_report.pdf
Research and Evidence on telehealth and longterm conditions

The assessment of telemedicine: general principles and a systematic review
Ohinmaa A, Hailey D, Roine R

Authors' objectives
To undertake a systematic review of assessments reporting the effectiveness and cost-effectiveness of telemedicine in specific applications.

Authors' conclusions
The most convincing evidence from the review regarding the effectiveness of telemedicine deals with teleradiology, teleneurosurgery, telepsychiatry and transmission of echocardiographic images. Promising results have also been obtained for the transmission of electrocardiograms. However, even in these applications, most of the available literature refers only to pilot projects and short-term outcomes. Further scientific assessment studies in the field of telemedicine are needed. Decision makers under public and commercial pressure to start new telemedicine services should link introduction of new, and in many instances costly, technology to realistic development of a business case and subsequent data collection and analysis. Decision makers should also note that an assessment of a telemedicine application will be strongly influenced by the context in which it is undertaken. Assessments will typically be closely linked to local circumstances and their results may not be generalisable to other situations.

http://www.crd.york.ac.uk/crdweb/ShowRecord.asp?LinkFrom=OAI&ID=12000008053

Evaluating the evidence base for the use of home telehealth remote monitoring in elderly with heart failure
Dang S, Dimmick S, Kelkar G
Condition: coronary heart disease / coronary vascular disease / heart failure / stroke
Technology: Vital signs monitoring
Evidence: evidence of high quality
Summary: Systematic review suggests home telemonitoring reduces the rate of hospital admission among patients with heart failure. In this review, three databases were searched for randomised controlled studies using automated monitoring of signs and symptoms or automated physiologic monitoring of patients with heart failure. The review did not include telephone-based monitoring of signs and symptoms. Nine studies were eligible. Six of the nine randomised controlled studies indicated a 40 per cent – 46 per cent reduction in admissions to hospital related to heart failure. Three studies indicated a 30 per cent – 67 per cent reduction in mortality and three studies indicated a reduction in health care utilisation costs.
Structured telephone support or telemonitoring programmes for patients with chronic heart failure (Review)

Cochrane Database of Systematic Reviews 2010, Issue 8.
Inglis SC, Clark RA, McAlister FA, Ball J, Lewinter C, Cullington D, Stewart S, Cleland JGF

Summary: Review concludes structured telephone support and telemonitoring are effective in reducing the risk of mortality and CHF-related hospitalisations. In this systematic literature review, 25 randomised controlled studies met the criteria for inclusion. The aim was to determine the effects of structured telephone support or telemonitoring on patients with chronic heart failure (CHF) compared to standard practice. Sixteen of the 25 studies evaluated telephone support (over 5,000 participants) and 11 evaluated telemonitoring (over 2,000 participants). Two of these studies evaluated both types of intervention. Telemonitoring reduced all-cause mortality (RR 0.66, 95% CI 0.54 - 0.81, P < 0.0001). Structured telephone support (RR 0.77, 95% CI 0.68 - 0.87, P < 0.0001) and telemonitoring (RR 0.79, 95% CI 0.67 - 0.94, P = 0.008) both reduced CHF-related hospital admissions. The review also found elderly people learned to use the technology easily and were satisfied with the care received.

Multicenter randomised trial on home-based telemanagement to prevent hospital readmission of patients with chronic heart failure

Author: Giordano A, Scalvini S, Zanelli E, Corrà U, Longobardi GL, Ricci VA, Baiardi P, Glisenti F
Source: NHS Evidence
Condition: coronary heart disease / coronary vascular disease / heart failure / stroke
Technology: Information and support services
Evidence: evidence of high quality
Summary: Study indicates telemonitoring reduces hospital admissions and health care costs among patients with heart failure. A randomised controlled study in Italy focused on the impact of a home-based telemanagement (HBT) for heart failure patients. 230 patients were randomised to usual care and 230 were randomised to HBT in which they transmitted data to nurse. After one year, the HBT group were significantly less likely to be re-admitted to hospital (HR = 0.50, 95% CI: 0.34–0.73; p = 0.01). The mean health care cost was also lower for the HBT group.

Impact of telemonitoring at home on the management of elderly patients with congestive heart failure

Summary: Study indicates telemonitoring of elderly heart failure patients is associated with improved outcomes. This Italian study focused on a range of outcomes experienced by a modest (randomised) sample of elderly patients with heart failure who monitored their vital signs and reported them during weekly telephone contacts (n=28) compared to a control group of patients who received standard care (n=29). The sample was followed for 12 months. Analysis showed telemonitoring was associated with much better compliance with prescribed treatment. Home telemonitoring also resulted in a significantly reduced combined rate of mortality and hospital re-admission for heart failure.
Telehealth screen for depression in a chronic illness care management program.
Telemedicine and e-Health, Feb 2007, vol./is. 13/1(51-56), 1530-5627
Turvey, Carolyn L, Willyard, Deborah, Hickman, David H, Klein, Dawn M, Kukoyi, Oladipo
Summary: Research indicates high level of participation in home telephone-based depression screening. A study examined the outcome of using a telephone-based interactive voice recording programme to monitor people with depression at home. On a quarterly basis, the programme administered the Patient Health Questionnaire to screen for depression. An emergency protocol was established in the event that suicidal feelings were detected. Two rounds of screening were carried out and over 90% of the participants in the programme completed the questionnaire. The data did not show that participants were less likely to complete the second round of the screening and their depression scores were ‘slightly lower’ at round 2. (Funding unknown).

Adherence, adaptation and acceptance of elderly chronic heart failure patients to receiving healthcare via telephone-monitoring.
European Journal of Heart Failure, Nov 2007, vol./is. 9/11(1104-11), 1388-9842
Clark RA, Yallop JJ, Piterman L, Croucher J, Tonkin A, Stewart S, Krum H,
Summary: Adherence and adaptation to and acceptance of home tele-monitoring was high amongst elderly patients with chronic heart failure. This feasibility study aimed to determine ‘adherence, adaptation and acceptability’ regarding a national tele-monitoring programme for chronic heart failure that was coordinated by nurses. There were 79 eligible and elderly patients who were randomly allocated to receive tele-monitoring care and 60 of them completed the 12-month programme. Adherence amongst part-completers was 65.8% and amongst 12-month completers it was 92.3%, which was significant (95% CI 0.82-0.97, p?0.001). Only 3% could not use the technology and overall, the programme acceptability rate was 76.45%. (Funding unknown).

Telemonitoring for Patients with Chronic Heart Failure: A Systematic Review
Sarwat I. Chaudhry, Christopher O. Phillips, Simon S. Stewart, Barbara J. Riegel, Jennifer A. Mattera, Anthony F. Jerant, and Harlan M. Krumholz,
Systematic review showed telemonitoring effective in reducing all-cause and heart failure hospitalisation and mortality amongst chronic heart failure patients. This systematic review included six studies on the use of telemonitoring for chronic heart failure. Of the nine studies, five were telephone-based, one was automated measurements of vital signs, one was automated ‘physiologic’ monitoring and two considered the effectiveness of multiple forms of telemonitoring. Six studies showed a reduction in all-cause and heart-related hospitalisation and mortality (range: 14%-55%, 29%-43% and 40%-56% respectively). There were similar levels of effectiveness within studies in which multiple forms of telemonitoring were used, although more complicated methods cost $6688 per patient more than simple methods. (Funding unknown).
Telemonitoring or Structured Telephone Support Programmes for Patients with Chronic Heart Failure: Systematic Review and Meta-analysis
BMJ (British Medical Journal), vol. 334, no. 7600, pp. 942-945, 5 May 2007
Clark, Robyn A.; Inglis, Sally C.; McAlister, Finlay A.; Cleland, John G. F.; Stewart, Simon
Systematic review concludes telehealth programmes for chronic heart failure that include remote monitoring have a positive effect on clinical outcomes. The study aimed to determine whether remote monitoring without regular clinic or home visits improves outcomes for patients with chronic heart failure. Fourteen published RCTs comparing remote monitoring programmes with usual care in patients with chronic heart failure were included (4264 patients): four evaluated remote monitoring, nine evaluated structured telephone support, and one evaluated both. Remote monitoring programmes reduced the rates of admission to hospital for chronic heart failure by an average of 21% and all cause mortality by 20%. Half of six trials in the review evaluating health related quality of life reported significant benefits. Three of four studies reported reduced healthcare costs as a result of structured telephone support.

The research project of the German Federal Ministry of Economics and Technology: 'Partnership for the Heart' -- a new approach in telemedicine.
Disease Management & Health Outcomes, 02 January 2006, vol./is. 14/(37-41), 11738790
Kohler F, Nettlau H, Schweizer T, Waller T, Anker SD
Paper outlines how the health outcomes and cost-effectiveness of a telemedicine programme for heart failure patients will be examined. This paper describes how the research team intends to conduct a randomised, ‘prospective, multicentre’ study which will examine the outcomes of an at-home telemedicine monitoring programme for people with New York Heart Association class II-III heart failure. There will be 450 participants and they will be studied over a minimum of 12 months. The outcome measures will be mortality, duration and costs of inpatient treatment and quality of life scores. (Funded by the German Federal Ministry of Economics and Technology).

Individualised treatment for heart failure is rarely available outside hospital
Professor John Cleland supports individualized treatment in the form of telemonitoring for heart failure management. Systems that are easier to install and use are being developed. Benefits are that patients can receive feedback on their results, as well as reminders and guidance on best use of the technology. Professor Cleland highlights the current mis-match between technology development and service development, remarking that “an effective technology will fail” if resources are lacking.

Influence of an early recovery telehealth intervention on physical activity and functioning after coronary artery bypass surgery among older adults with high disease burden.
Heart & Lung
Barnason S; Zimmerman L; Schulz P; Tu C
Study shows telehealth self-management programme improves physical outcomes for patients following coronary artery bypass surgery. This study evaluated the outcomes of an early recovery telehealth intervention for patients due to undergo coronary artery bypass surgery. The programme was aimed at improving levels of physical activity and psychological functioning and was delivered over a six-week period. Participants aged > 65 years with a preoperative high disease burden were randomly assigned to the experimental condition (n=23) or the usual care condition (n=31). Data were collected at
three and six weeks and three months after surgery. Results indicated that those receiving the intervention were more physically active than those in the control group (as measured by kcal/kg/day). The group receiving the intervention was also more likely to carry out moderate-to-high levels of physical activity across the three data collection phases, whereas the control group reached a plateau by three months.

**Home telehealth for chronic obstructive pulmonary disease: a systematic review and meta-analysis**
Julie Polisena, Khai Tran, Karen Cimon, Brian Hutton, Sarah McGill, Krisan Palmer and Richard E Scott

We conducted a systematic review of the literature about home telehealth for chronic obstructive pulmonary disease (COPD) compared with usual care. An electronic literature search identified 6241 citations. From these, nine original studies (10 references) relating to 858 patients were selected for inclusion in the review. Four studies compared home telemonitoring with usual care, and six randomized controlled trials compared telephone support with usual care. Clinical heterogeneity was present in many of the outcomes measured. Home telehealth (home telemonitoring and telephone support) was found to reduce rates of hospitalization and emergency department visits, while findings for hospital bed days of care varied between studies. However, the mortality rate was greater in the telephone-support group compared with usual care (risk ratio = 1.21; 95% CI: 0.84 to 1.75). Home telehealth interventions were similar or better than usual care for quality of life and patient satisfaction outcomes.

**The assessment of telemedicine: general principles and a systematic review**
Ohinmaa A, Hailey D, Roine R

To undertake a systematic review of assessments reporting the effectiveness and cost-effectiveness of telemedicine in specific applications.

Authors’ conclusions
The most convincing evidence from the review regarding the effectiveness of telemedicine deals with teleradiology, teleneurosurgery, telepsychiatry and transmission of echocardiographic images. Promising results have also been obtained for the transmission of electrocardiograms. However, even in these applications, most of the available literature refers only to pilot projects and short-term outcomes. Further scientific assessment studies in the field of telemedicine are needed. Decision makers under public and commercial pressure to start new telemedicine services should link introduction of new, and in many instances costly, technology to realistic development of a business case and subsequent data collection and analysis. Decision makers should also note that an assessment of a telemedicine application will be strongly influenced by the context in which it is undertaken. Assessments will typically be closely linked to local circumstances and their results may not be generalisable to other situations.

http://www.crd.york.ac.uk/crdweb/ShowRecord.asp?LinkFrom=OAI&ID=12000008053
Noninvasive Home Telemonitoring for Patients With Heart Failure at High Risk of Recurrent Admission and Death

The Trans-European Network–Home-Care Management System (TEN-HMS) Study
John G. F. Cleland, MD, Amala A. Louis, MD, Alan S. Rigby, PHD, Uwe Janssens, MD, Aggie H. M. M. Balk, MD, on behalf of the TEN-HMS Investigators

OBJECTIVES We sought to identify whether home telemonitoring (HTM) improves outcomes compared with nurse telephone support (NTS) and usual care (UC) for patients with heart failure who are at high risk of hospitalization or death.

RESULTS Of 426 patients randomly assigned, 48% were aged 70 years, mean LVEF was 25% (SD, 8) and median plasma N-terminal pro-brain natriuretic peptide was 3,070 pg/ml (interquartile range 1,285 to 6,749 pg/ml). During 240 days of follow-up, 19.5%, 15.9%, and 12.7% of days were lost as the result of death or hospitalization for UC, NTS, and HTM, respectively (no significant difference). The number of admissions and mortality were similar among patients randomly assigned to NTS or HTM, but the mean duration of admissions was reduced by 6 days (95% confidence interval 1 to 11) with HTM. Patients randomly assigned to receive UC had higher one-year mortality (45%) than patients assigned to receive NTS (27%) or HTM (29%) (p  0.032).

CONCLUSIONS Further investigation and refinement of the application of HTM are warranted because it may be a valuable role for the management of selected patients with heart failure.


See also database search at end

Opinion

Observations Medicine and the Media Show us the evidence for telehealth
A recent Department of Health press release sings the praises of telehealth, saying that it could improve three million lives in England. But where are the data to support this technology, asks Margaret McCartney

Is “telehealth”—such as remote monitoring of pulse, blood pressure, weight, or blood oxygen—the way forward? A recent press release from the Department of Health for England would have us believe that “three million lives could be improved across England thanks to new high-tech healthcare.” This will require investment: “Over the next five years the Department of Health will work with industry, the NHS, social care and professional organisations to bring the benefits of assistive technology such as telehealth and telecare to millions of people with long term conditions.” The press release continued: “Early findings indicate that telehealth can lead to: 45% reduction in mortality; 21% reduction in emergency admissions; 24% reduction in elective admissions; 15% reduction in A&E [accident and emergency department] visits; 14% reduction in bed days; and 8% reduction in tariff costs.”

The statements in the press release were duly reported in the mainstream and online press.2 3 What’s the evidence for the statements? Paul Burstow, care services minister, said in the press release, “The trials of telehealth and telecare have shown how people with long term conditions can live more independently, reducing the time they have to spend in hospital and improving their quality of life. The feedback I have heard from people in Cornwall today has been incredibly positive. They were absolutely clear that
high-tech healthcare being used here has improved their lives for the better.” The press release also said, “Over the last three years the Department of Health has been running the world’s largest randomised control trial of telehealth and telecare—involving 6191 participants and 238 GP practices across three locations in Cornwall, Kent and Newham,” and, “Uptake in England has been slow—there are only around 5000 telehealth users and only 1.5 million pieces of telecare in use to date.”

With this criticism of the perceived lack of take up, we might want more evidence about the telehealth trials in England. In December 2011 the health department produced a three page document titled “Whole system demonstrator programme—headline findings.” It stated, “The first set of initial findings from this programme is now available. They show that, if delivered properly, telehealth can substantially reduce mortality, reduce the need for admissions to hospital, lower the number of bed days spent in hospital and reduce the time spent in A&E.” However, the full trial data were not published, with the document saying that “papers will be published in due course” and also stating some relative risks that differed from those in the press release: “a 20% reduction in emergency admissions, a 14% reduction in elective admissions.” However, neither in this document nor in the press release were any absolute risks given, making the true effects of this intervention unclear.

The published evidence so far about telehealth is less clear cut than the press release makes out. A systematic review and meta-analysis published in 2010 showed that home telehealth (home monitoring and telephone support) for patients with chronic obstructive pulmonary disease did reduce length of stay in hospital but also resulted in a greater death rate in comparison with usual care.5 A Cochrane review concluded that telehealth may improve clinical outcomes in patients with severe asthma but that further trials are needed on cost effectiveness.6 The Trans-European Network home care management system study reported in 2005 that nurse telephone support or telemonitoring could reduce the death rate among patients who had heart failure and were at high risk of recurrent admission and death. In the usual care group 33% had died, compared with 20% in the nurse support group and 22% in the telemonitoring group.7 This was not a clear victory for telehealth but for increased contact, which could have been provided by any nurse, not just through telehealth technology. A Cochrane review published in 2010 showed that telemonitoring of patients with chronic heart failure could reduce all cause mortality at one year from 15.4% to 10.4%, in comparison with usual care.8

Why did the health department not publish full results along with a statement of its intentions? A department spokesman told the BMJ, “We know that telehealth will bring great benefits to patients and that’s why we want to take action as soon as we can. We have seen the results of the whole system demonstrator programme, which our Three Million Lives campaign is based on.” This certainty has not been seen in the peer reviewed press, and the National Institute for Health and Clinical Excellence has not assessed the cost effectiveness of the interventions.

The healthcare think tank the King’s Fund is currently publicising the International Congress on Telehealth and Telecare 2012, at which many study results will be available, promises Nick Goodwin, the fund’s senior fellow in health policy, writing in a King’s Fund blog.9 He also said, while recounting the same figures given in the health department press release, that “these impressive results will surpass the expectations of many in the private sector who have found the UK telehealth market (particularly in England) a tough nut to crack,” and, “now that telehealth has a stronger evidence base
and the support of the Department of Health, we have created the most receptive 
environment for it yet." But without access to the full data, never mind absolute rather 
than relative risks, how can we possibly know? The private sector is poised to play. But 
without evidence this becomes a public relations stunt, not a cost effective practice.
http://www.bmj.com/content/344/bmj.e469.full?ijkey=7OHAN8ukhbMVazO&keytype=ref

Telehealth - The impact and success of telehealth
By Dr Raza Toosy and Dr Saeed Chaudhary, 11 January 2012

Two GP viewpoints on deploying telehealth systems from Dr Raza Toosy and Dr Saeed 
Chaudha
http://www.gponline.com/Medeconomics/article/1109965/Telehealth---impact-success-
 telehealth/

Major Reports to Look out for

The impact of telehealth and telecare: evaluation of the Whole System 
Demonstrator project

The 2006 Department of Health White Paper, Our health, our care, our say: a new 
direction for community services, proposed to establish whole system demonstrators to 
test the benefits of integrated health and social care supported by assistive technologies 
like telecare and telehealth. Individuals were recruited into whole system demonstrators 
in three sites around England: Cornwall, Kent and Newham.

We believe with nearly 6,000 participants this study is the largest randomised trial of 
these technologies in the world

The evaluation is a randomised control trial, with an intervention group that receives 
telecare or telehealth, and a control group that receives usual care. Though these 
technologies are increasingly common there are few randomised controlled evaluations 
of their effectiveness. The Nuffield Trust is leading Theme 1 of the evaluation, which is 
investigating the impact of telecare and telehealth on the use of NHS and social 
services, and the associated costs. We will use innovative data matching techniques to 
build up a picture of each participant’s health and social care use over the trial period 
and compare the intervention and control groups.
The four other themes of the evaluation are:

Participant/carer reported outcomes and clinical effectiveness;
  • Costs and cost effectiveness;
  • Experiences of service users, informal carers and health and social care 
  professionals;
  • Organisational factors that help or hinder sustainable adoption of telecare and 
  telehealth.
  • The results from the evaluation will be published in spring 2012. The Nuffield 
  Trust will separately publish a range of reports and articles describing the results 
  from its investigations into the initial impact of telecare and telehealth on the use 
  of NHS and social services, and the associated costs in spring 2012
http://www.nuffieldtrust.org.uk/our-work/projects/impact-telehealth-and-telecare-
evaluation-whole-system-demonstrator-project
Useful Resources to Browse

About the International Telehealth and Telecare Congress About the event

Register for this virtual event website to watch the main presentations, and download the presentation slides, from the International Congress on Telehealth and Telecare 2012. The event took place on the 6-8 March 2012 and registration for this virtual event website will give you access to all the material from the congress.

Organised by The King’s Fund and the University Medical Center Utrecht (UMC), this annual event brought together key speakers from around the world to showcase innovations and best practice in the deployment of telehealth and telecare. In addition to the physical three day congress in London we also ran this congress as a virtual event in order to share learning on a larger scale. The congress featured results and learning from the UK Whole System Demonstrator programme (the largest randomised controlled trial of telehealth and telecare in the world), and UK and international case studies, providing insight and best practice into the use of telehealth and telecare. This virtual event will allow you to watch all of the main plenary presentations from the event and download the slides; visit exhibition stands to watch videos and download brochures; and download resources from the resource centre.
http://virtualtelehealth2012.kingsfund.org.uk/events.php

Telehealth in Long Term Conditions (COPD & HF)
A slightly odd looking resource, which takes you through a wealth of information from SHA Northwest
http://sha.youngfoundation.org/stations/telehealth-long-term-conditions-copd-hf

Opinion

Show us the evidence for telehealth
BMJ 2012; 344
A recent Department of Health press release sings the praises of telehealth, saying that it could improve three million lives in England. But where are the data to support this technology, asks Margaret McCartney
http://www.bmj.com/content/344/bmj.e469.full?ijkey=7OHAN8ukhbMVazO&keytype=ref
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Search History

1. HEALTH BUSINESS ELITE; telehealth.ti,ab; 229 results.
2. HEALTH BUSINESS ELITE; telemedicine.ti,ab; 759 results.
3. HEALTH BUSINESS ELITE; commissioning.ti,ab; 2339 results.
4. HEALTH BUSINESS ELITE; 2 AND 3; 2 results.
5. HEALTH BUSINESS ELITE; 1 AND 3; 3 results.
6. HMIC; TELEMEDICINE/; 1050 results.
7. HMIC; TELEHEALTH/; 173 results.
8. HMIC; COMMISSIONING/; 3300 results.
9. HMIC; 6 AND 8; 3 results.
10. HMIC; 7 AND 8; 0 results.
11. HEALTH BUSINESS ELITE; TELECOMMUNICATION IN MEDICINE/; 816 results.
12. HEALTH BUSINESS ELITE; 3 AND 11; 4 results.
13. MEDLINE; TELEMEDICINE/; 9026 results.
14. MEDLINE; TELEMEDICINE/ [Limit to: (Clinical Queries Reviews best balance of sensitivity and specificity)]; 1144 results.
15. MEDLINE; COMPARATIVE EFFECTIVENESS RESEARCH/ [Limit to: (Clinical Queries Reviews best balance of sensitivity and specificity)]; 91 results.
16. MEDLINE; effectiveness.ti,ab [Limit to: (Clinical Queries Reviews best balance of sensitivity and specificity)]; 39744 results.
17. MEDLINE; 14 AND 15 [Limit to: (Clinical Queries Reviews best balance of sensitivity and specificity) and (Clinical Queries Reviews best balance of sensitivity and specificity)]; 0 results.
18. MEDLINE; 13 AND 16 [Limit to: (Clinical Queries Reviews best balance of sensitivity and specificity)]; 129 results.
19. MEDLINE; *CHRONIC DISEASE/th [Therapy]; 1990 results.
1. Telemedicine versus face to face patient care: effects on professional practice and health care outcomes.

Citation: Cochrane Database of Systematic Reviews, 2000, vol./is. /2(CD002098), 1361-6137;1469-493X (2000)

Author(s): Currell R; Urquhart C; Wainwright P; Lewis R

Language: English

Abstract: BACKGROUND: Telemedicine is the use of telecommunications technology for medical diagnosis and patient care. From its beginnings telemedicine has been used in a variety of health care fields, although widespread interest among healthcare providers has only now become apparent with the development of more sophisticated technology. OBJECTIVES: To assess the effects of telemedicine as an alternative to face-to-face patient care. SEARCH STRATEGY: We searched the Effective Practice and Organisation of Care Group's specialised register, The Cochrane Library, MEDLINE (1966-August 1999), EMBASE (to 1996), Cinahl (to August 1999), Inspec (to August 1996), Healthstar (1983-1996), OCLC, Sigle (to 1999), Assia, SCI (1981-1997), SSCI (1981-1997), DHSS-Data. We hand searched the Journal of Telemedicine and Telecare (1995-1999), Telemedicine Journal (1995-1999) and reference lists of articles. We also hand searched conference proceedings and contacted experts in countries identified as having an interest in telemedicine. SELECTION CRITERIA: Randomised trials, controlled before and after studies and interrupted time series comparing telemedicine with face-to-face patient care. The participants were qualified health professionals and patients receiving care through telemedicine. DATA COLLECTION AND ANALYSIS: Two reviewers independently assessed trial quality and extracted data. MAIN RESULTS: Seven trials involving more than 800 people were included. One trial was concerned with telemedicine in the emergency department, one with video-consultations between primary health care and the hospital outpatients department, and the remainder were concerned with the provision of home care or patient self-monitoring of chronic disease. The studies appeared to be well conducted, although patient numbers were small in all but one. Although none of the studies showed any detrimental effects from the interventions, neither did they show unequivocal benefits and the findings did not constitute evidence of the safety of telemedicine. None of the studies included formal economic analysis. All the technological aspects of the interventions appear to have been reliable, and to have been well accepted by patients. REVIEWER'S CONCLUSIONS: Establishing systems for patient care using telecommunications technologies is feasible, but there is little evidence of clinical benefits. The studies provided variable and inconclusive results for other outcomes such as psychological measures, and no analysable data about the cost effectiveness of telemedicine systems. The review demonstrates the need for further research and the fact that it is feasible to carry out randomised trials of telemedicine applications. Policy makers should be cautious about recommending increased use and investment in unevaluated technologies.

Publication Type: Journal Article; Review
Source: MEDLINE
Full Text: Available in fulltext at Wiley


Citation: Journal of Cardiovascular Nursing, July 2000, vol./is. 14/4(94-105), 0889-4655;0889-4655 (2000 Jul)

Author(s): Bennett SJ; Hays LM; Embree JL; Arnould M

Language: English

Abstract: Heart failure is a major health problem in the United States leading to high rates of mortality and morbidity and impaired quality of life. Assisting patients to improve compliance with their self-care regimen, including medications, dietary sodium restrictions, and self-monitoring (daily weights, edema assessment), may improve these poor outcomes. This article describes the development and initial evaluation of Heart Messages, a theory-based, tailored message intervention to improve compliance with the
self-care regimen recommended for patients with heart failure. The project involved four phases, each of which is described in this article. The Heart Messages tailored message intervention program is available in both printed and Web-based formats. In a pilot study and clinical evaluation project, the program was found to be useful for patient education and feasible for implementation. Larger randomized trials are now warranted to evaluate the effectiveness of the intervention in improving compliance with the self-care regimen and thereby improving outcomes among patients with heart failure.

Publication Type: Journal Article; Review
Source: MEDLINE
Full Text: Available in fulltext at EBSCOhost


Citation: Journal of Telemedicine & Telecare, 2002, vol./is. 8 Suppl 1/(1-30), 1357-633X;1357-633X (2002)
Author(s): Hailey D; Roine R; Ohinmaa A
Language: English
Abstract: A systematic review of telemedicine assessments based on searches of electronic databases between 1966 and December 2000 identified 66 scientifically credible studies that included comparison with a non-telemedicine alternative and that reported administrative changes, patient outcomes, or results of economic assessment. Thirty-seven of the studies (56%) suggested that telemedicine had advantages over the alternative approach, 24 (36%) also drew attention to some negative aspects or were unclear whether telemedicine had advantages and five (8%) found that the alternative approach had advantages over telemedicine. The most convincing evidence on the efficacy and effectiveness of telemedicine was given by some of the studies on teleradiology (especially neurosurgical applications), telemental health, transmission of echocardiographic images, teledermatology, home telecare and on some medical consultations. However, even in these applications, most of the available literature referred only to pilot projects and to short-term outcomes. Few papers considered the long-term or routine use of telemedicine. For several applications, including teleradiology, savings and sometimes clinical benefit were obtained through avoidance of travel and associated delays. Studies of home care and monitoring applications showed convincing evidence of benefit, while those on teledermatology indicated that there were cost disadvantages to health-care providers, although not to patients. Forty-four of the studies (67%) appeared to have potential to influence future decisions on the telemedicine application under consideration. However, a number of these had methodological limitations. Although useful clinical and economic outcomes data have been obtained for some telemedicine applications, good-quality studies are still scarce and the generalizability of most assessment findings is rather limited.

Publication Type: Journal Article; Review
Source: MEDLINE
Full Text: Available in fulltext at EBSCOhost


Citation: BMJ, June 2002, vol./is. 324/7351(1434-7), 0959-535X;1756-1833 (2002 Jun 15)
Author(s): Whitten PS; Mair FS; Haycox A; May CR; Williams TL; Hellmich S
Language: English
Abstract: OBJECTIVES: To systematically review cost benefit studies of telemedicine. DESIGN: Systematic review of English language, peer reviewed journal articles. DATA SOURCES: Searches of Medline, Embase, ISI citation indexes, and database of Telemedicine Information Exchange. STUDIES SELECTED: 55 of 612 identified articles that presented actual cost benefit data. MAIN OUTCOME MEASURES: Scientific quality of reports assessed by use of an established instrument for adjudicating on the quality of
economic analyses. RESULTS: 557 articles without cost data categorised by topic. 55 articles with data initially categorised by cost variables employed in the study and conclusions. Only 24/55 (44%) studies met quality criteria justifying inclusion in a quality review. 20/24 (83%) restricted to simple cost comparisons. No study used cost utility analysis, the conventional means of establishing the "value for money" that a therapeutic intervention represents. Only 7/24 (29%) studies attempted to explore the level of utilisation that would be needed for telemedicine services to compare favourably with traditionally organised health care. None addressed this question in sufficient detail to adequately answer it. 15/24 (62.5%) of articles reviewed here provided no details of sensitivity analysis, a method all economic analyses should incorporate. CONCLUSION: There is no good evidence that telemedicine is a cost effective means of delivering health care.

Publication Type: Journal Article; Review
Source: MEDLINE
Full Text: Available in fulltext at Highwire Press

5. The socio-economic impact of telehealth: a systematic review.

Citation: Journal of Telemedicine & Telecare, 2003, vol./is. 9/6(311-20), 1357-633X; 1357-633X (2003)
Author(s): Jennett PA; Affleck Hall L; Hailey D; Ohinmaa A; Anderson C; Thomas R; Young B; Lorenzetti D; Scott RE
Language: English
Abstract: We reviewed the socio-economic impact of telehealth, focusing on nine main areas: paediatrics, geriatrics, First Nations (i.e. indigenous peoples), home care, mental health, radiology, renal dialysis, rural/remote health services and rehabilitation. A systematic search led to the identification of 4646 citations or abstracts; from these, 306 sources were analysed. A central finding was that telehealth studies to date have not used socio-economic indicators consistently. However, specific telehealth applications have been shown to offer significant socio-economic benefit, to patients and families, health-care providers and the health-care system. The main benefits identified were: increased access to health services, cost-effectiveness, enhanced educational opportunities, improved health outcomes, better quality of care, better quality of life and enhanced social support. Although the review found a number of areas of socio-economic benefit, there is the continuing problem of limited generalizability.

Publication Type: Journal Article; Research Support, Non-U.S. Gov't; Review
Source: MEDLINE
Full Text: Available in fulltext at EBSCOhost

6. Telemedicine and the delivery of health services to veterans with multiple sclerosis.

Citation: Journal of Rehabilitation Research & Development, May 2003, vol./is. 40/3(265-82), 0748-7711; 0748-7711 (2003 May-Jun)
Author(s): Hatzakis M Jr; Haselkorn J; Williams R; Turner A; Nichol P
Language: English
Abstract: Telemedicine involves the provision of health care and sharing of medical knowledge using telecommunications technologies. Preventive, diagnostic, and therapeutic services, as well as patient education and assistance with self-management of health, can be provided via telemedicine. The Veterans Health Administration (VHA) has a wide range of telemedicine capabilities. Given limitations on studying its effectiveness, telemedicine is often applied to new patient populations without explicit evaluation of efficacy. Evaluating the potential use of telemedicine services through supporting literature from other disorders may be possible. This paper discusses applying telemedicine to the care of individuals with multiple sclerosis (MS) when few published evaluations exist in MS. In this paper, we (1) provide a background on the use of telemedicine in the private sector
and in the VHA, (2) discuss the use of current telemedicine literature to management of
individuals with MS, and (3) review the strengths and limitations of telemedicine as a
care delivery vehicle.

Publication Type: Comparative Study; Journal Article; Review
Source: MEDLINE
Full Text: Available in fulltext at EBSCOhost

7. Integrating service development with evaluation in telehealthcare: an ethnographic study.

Citation: BMJ, November 2003, vol./is. 327/7425(1205-9), 0959-535X;1756-1833 (2003 Nov 22)
Author(s): Finch T; May C; Mair F; Mort M; Gask L
Language: English
Abstract: OBJECTIVES: To identify issues that facilitate the successful integration of evaluation
and development of telehealthcare services.DESIGN: Ethnographic study using various
qualitative research techniques to obtain data from several sources, including in-depth
semistructured interviews, project steering group meetings, and public telehealthcare
meetings.SETTING: Seven telehealthcare evaluation projects (four randomised controlled
trials and three pragmatic service evaluations) in the United Kingdom, studied over two
years. Projects spanned a range of specialties-dermatology, psychiatry, respiratory
medicine, cardiology, and oncology.PARTICIPANTS: Clinicians, managers, technical
experts, and researchers involved in the projects.RESULTS AND DISCUSSION: Key
problems in successfully integrating evaluation and service development in telehealthcare
are, firstly, defining existing clinical practices (and anticipating changes) in ways that
permit measurement; secondly, managing additional workload and conflicting
responsibilities brought about by combining clinical and research responsibilities
(including managing risk); and, thirdly, understanding various perspectives on
effectiveness and the limitations of evaluation results beyond the context of the research
study.CONCLUSIONS: Combined implementation and evaluation of telehealthcare
systems is complex, and is often underestimated. The distinction between quantitative
outcomes and the workability of the system is important for producing evaluative
knowledge that is of practical value. More pragmatic approaches to evaluation, that
permit both quantitative and qualitative methods, are required to improve the quality of
such research and its relevance for service provision in the NHS.

Publication Type: Journal Article; Research Support, Non-U.S. Gov't; Review
Source: MEDLINE
Full Text: Available in fulltext at Highwire Press

8. Study quality and evidence of benefit in recent assessments of telemedicine.

Citation: Journal of Telemedicine & Telecare, 2004, vol./is. 10/6(318-24), 1357-633X;1357-633X
(2004)
Author(s): Hailey D; Ohinmaa A; Roine R
Language: English
Abstract: We carried out a systematic review of recent telemedicine assessments to identify
scientifically credible studies that included comparison with a non-telemedicine
alternative and that reported administrative changes, patient outcomes or the results of an
economic assessment. From 605 publications identified in the literature search, 44 papers
met the selection criteria and were included in the review. Four other publications were
identified through references cited in one of the retrieved papers and from a separate
project to give a total of 48 papers for consideration, which referred to 42 telemedicine
programmes and 46 studies. Some kind of economic analysis was included in 25 (52%) of
the papers. In considering the studies, we used a quality appraisal approach that took
account of both study design and study performance. For those studies that included an
economic analysis, a further quality-scoring approach was applied to indicate how well
the economic aspects had been addressed. Twenty-four of the studies were judged to be of
high or good quality and 11 of fair to good quality but with some limitations. Seven studies were regarded as having limited validity and a further four as being unacceptable for decision makers. New evidence on the efficacy and effectiveness of telemedicine was given by studies on geriatric care, intensive care and some of those on home care. For a number of other applications, reports of clinical or economic benefits essentially confirmed previous findings. Although further useful clinical and economic outcomes data have been obtained for some telemedicine applications, good-quality studies are still scarce.


Citation: Journal of Telemedicine & Telecare, 2005, vol./is. 11/2(60-70), 1357-633X;1357-633X (2005)

Author(s): Hjelm NM

Language: English

Abstract: Telemedicine is a vast subject, but as yet there are limited data on the clinical effectiveness and cost-effectiveness of most telemedicine applications. As a result, objective information about the benefits and drawbacks of telemedicine is limited. This review is therefore based mainly on preliminary results, opinions and predictions. Many potential benefits of telemedicine can be envisaged, including: improved access to information; provision of care not previously deliverable; improved access to services and increasing care delivery; improved professional education; quality control of screening programmes; and reduced health-care costs. Although telemedicine clearly has a wide range of potential benefits, it also has some disadvantages. The main ones that can be envisaged are: a breakdown in the relationship between health professional and patient; a breakdown in the relationship between health professionals; issues concerning the quality of health information; and organizational and bureaucratic difficulties. On balance, the benefits of telemedicine are substantial, assuming that more research will reduce or eliminate the obvious drawbacks.

10. Ten years of teledermatology.

Citation: Studies in Health Technology & Informatics, 2006, vol./is. 124/(362-7), 0926-9630;0926-9630 (2006)

Author(s): Eminovic N; de Keizer NF; Bindels PJ; Hasman A

Language: English

Abstract: Using telemedicine health professionals can communicate with each other and with their patients over a distance. Teledermatology, dermatology application of telemedicine, is one of the most often applied telemedicine applications worldwide. Various studies have been performed to evaluate the effectiveness and efficiency of and satisfaction with teledermatology. Up to now no or limited valid scientific evidence has been found that teledermatology is beneficial for any group of users. This study aimed to perceive insight into the evolution of evaluation studies of teledermatology over the past ten years in terms of the telemedicine evaluation framework by Holle and Zahlmann consisting of four continuous phases. We added the phase "post implementation studies" that evaluate teledermatology as a fully integrated service in regular care. Retrieved literature from Medline was reviewed by two reviewers independently in order to include studies and classify them into the five phases. Ninety-nine studies out of 372 found unique references were included and classified into the phases. Most represented phase was phase II with 72
(72%) studies. The number of phase II studies is continuously growing since the introduction of evaluation in teledermatology. There were eight reported RCTs found (two in phase III, six in phase IV). The number of phase III and IV studies is too low to draw conclusions about the trends in their publication and stress the need for more such studies. Phase I and post implementations studies are probably under-represented as they might often not be published separately in scientific journal papers.

**Publication Type:** Journal Article; Review  
**Source:** MEDLINE  
**Full Text:** Available in fulltext at EBSCOhost

### 11. Teledermatology research review.

**Citation:** International Journal of Dermatology, March 2006, vol./is. 45/3(220-9), 0011-9059;0011-9059 (2006 Mar)  
**Author(s):** Whited JD  
**Language:** English  
**Abstract:** Teledermatology consultations can be performed using either store-and-forward or real-time technology. The best-studied aspect of teledermatology is diagnostic reliability, also known as diagnostic agreement. A good level of diagnostic reliability is achieved by dermatologists using both store-and-forward and real-time modalities and is comparable to that found between clinic-based examiners. Less information is available regarding diagnostic accuracy. Current data suggest that teledermatologists reviewing store-and-forward consults achieve accuracy comparable to that of clinic-based dermatologists. When store-and-forward consult systems are used, approximately one in four in-person clinic appointments are averted. Real-time consult systems avoid the need to schedule approximately one in two clinic visits. Store-and-forward technology results in timelier interventions for patients when compared to a conventional referral process. To date, surveys of both store-and-forward and real-time teledermatology consult modalities suggest that patients, referring clinicians, and dermatologists are all highly satisfied with teledermatology consults. Very little has been published about the economic impact of store-and-forward teledermatology, whereas several studies have evaluated real-time modalities. Teledermatology has ranged from a cost-saving strategy to an intervention that incurs greater costs than conventional care, depending on the health care setting and economic perspective. Future research focusing on diagnostic accuracy, clinical outcomes using clinical course or disease status as outcome measures, development of reliable and valid teledermatology-specific survey instruments, and economic analyses that assess cost-effectiveness will help guide future teledermatology program assessments and policy.

**Publication Type:** Journal Article; Research Support, U.S. Gov't, Non-P.H.S.; Review  
**Source:** MEDLINE  
**Full Text:** Available in fulltext at EBSCOhost


**Citation:** Journal of Telemedicine & Telecare, 2007, vol./is. 13/2(62-8), 1357-633X;1357-633X (2007)  
**Author(s):** Garcia-Lizana F; Sarria-Santamera A  
**Language:** English  
**Abstract:** We conducted a systematic review of the clinical effectiveness of interventions using information and communication technologies (ICTs) for managing and controlling chronic diseases. Electronic databases were searched for randomized clinical trials that assessed the effectiveness of ICTs (except for those that included only telephone communication) and measured some clinical indicator. Information was reviewed and assessed independently by two researchers. Of the 950 clinical trials identified, 56 studies were identified for potential inclusion. Of those, 24 were finally included: 5 studies in asthma, 3 in hypertension, 1 in home telecare, 7 in diabetes, 6 in heart failure and 2 in
prevention heart disease. Overall, ICT applications did not show an improvement in clinical outcomes, although no adverse effects were identified. However, ICTs used in the detection and follow up of cardiovascular diseases provided better clinical outcomes, mortality reduction and lower health services utilization. Systems used for improving education and social support were also shown to be effective. At present the evidence about the clinical benefits of ICTs for managing chronic disease is limited.

Publication Type: Journal Article; Review
Source: MEDLINE
Full Text: Available in fulltext at EBSCOhost

13. A systematic review of the benefits of home telecare for frail elderly people and those with long-term conditions.

Citation: Journal of Telemedicine & Telecare, 2007, vol./is. 13/4(172-9), 1357-633X;1357-633X (2007)
Author(s): Barlow J; Singh D; Bayer S; Curry R
Language: English
Abstract: We have conducted a systematic review of home telecare for frail elderly people and for patients with chronic conditions. We searched 17 electronic databases, the reference lists of identified studies, conference proceedings and Websites for studies available in January 2006. We identified summaries of 8666 studies, which were assessed independently for relevance by two reviewers. Randomized controlled trials of any size and observational studies with 80 or more participants were eligible for inclusion if they examined the effects of using telecommunications technology to (a) monitor vital signs or safety and security in the home, or (b) provide information and support. The review included 68 randomized controlled trials (69%) and 30 observational studies with 80 or more participants (31%). Most studies focused on people with diabetes (31%) or heart failure (29%). Almost two-thirds (64%) of the studies originated in the US; more than half (55%) had been published within the previous three years. Based on the evidence reviewed, the most effective telecare interventions appear to be automated vital signs monitoring (for reducing health service use) and telephone follow-up by nurses (for improving clinical indicators and reducing health service use). The cost-effectiveness of these interventions was less certain. There is insufficient evidence about the effects of home safety and security alert systems. It is important to note that just because there is insufficient evidence about some interventions, this does not mean that those interventions have no effect.

Publication Type: Journal Article; Research Support, Non-U.S. Gov't; Review
Source: MEDLINE
Full Text: Available in fulltext at EBSCOhost


Citation: Journal of Evaluation in Clinical Practice, April 2007, vol./is. 13/2(242-53), 1356-1294;1356-1294 (2007 Apr)
Author(s): Jaana M; Pare G
Language: English
Abstract: RATIONALE, AIMS AND OBJECTIVES: Diabetes represents a common chronic disease continuously growing worldwide. Unless closely monitored, it can be associated with serious complications and high expenditures. Telemonitoring is a patient management approach increasingly used with chronic illnesses. It supports timely transmission and remote interpretation of patients’ data for follow-up and preventive interventions. No comprehensive review exists on all aspects of diabetes ‘home telemonitoring’ and its effects. The objective of this study is to provide a systematic review of this approach and its effect at the informational, clinical, behavioural, structural and economical levels.METHODS: A comprehensive literature review was conducted on Medline and Cochrane Library to identify relevant articles. The keywords used include
diabetes, telemonitoring, home monitoring, telecare and telemedicine.

RESULTS: Seventeen studies using diverse technologies and transmitting different clinical, medical and behavioural data were found. Significant impacts were observed namely at the behavioural, clinical and structural levels. Minimal technical problems and no cost-benefit and cost-effectiveness analyses were reported.

CONCLUSION: Close management of diabetic patients through telemonitoring showed significant reduction in HbA1c and complications, good receptiveness by patients and patient empowerment and education. Yet, the magnitude of its effects remains debatable, especially with the variation in patients' characteristics (e.g. background, ability for self-management, medical condition), samples selection and approach for treatment of control groups. Further investigation of telemonitoring efficacy and cost-effectiveness over longer periods of time, and larger samples is needed. Assessment of the attitude of providers is also important in light of their heavy workload and issues of reimbursement.

Publication Type: Journal Article; Review
Source: MEDLINE
Full Text: Available in fulltext at EBSCOhost


Citation: Journal of the American Medical Informatics Association, May 2007, vol./is. 14/3(269-77), 1067-5027;1067-5027 (2007 May-Jun)
Author(s): Pare G; Jaana M; Sicotte C
Language: English
Abstract: OBJECTIVE: Home telemonitoring represents a patient management approach combining various information technologies for monitoring patients at distance. This study presents a systematic review of the nature and magnitude of outcomes associated with telemonitoring of four types of chronic illnesses: pulmonary conditions, diabetes, hypertension, and cardiovascular diseases. METHODS: A comprehensive literature search was conducted on Medline and the Cochrane Library to identify relevant articles published between 1990 and 2006. A total of 65 empirical studies were obtained (18 pulmonary conditions, 17 diabetes, 16 cardiac diseases, 14 hypertension) mostly conducted in the United States and Europe. RESULTS: The magnitude and significance of the telemonitoring effects on patients' conditions (e.g., early detection of symptoms, decrease in blood pressure, adequate medication, reduced mortality) still remain inconclusive for all four chronic illnesses. However, the results of this study suggest that regardless of their nationality, socioeconomic status, or age, patients comply with telemonitoring programs and the use of technologies. Importantly, the telemonitoring effects on clinical effectiveness outcomes (e.g., decrease in the emergency visits, hospital admissions, average hospital length of stay) are more consistent in pulmonary and cardiac studies than diabetes and hypertension. Lastly, economic viability of telemonitoring was observed in very few studies and, in most cases, no in-depth cost-minimization analyses were performed. CONCLUSION: Home telemonitoring of chronic diseases seems to be a promising patient management approach that produces accurate and reliable data, empowers patients, influences their attitudes and behaviors, and potentially improves their medical conditions. Future studies need to build evidence related to its clinical effects, cost effectiveness, impacts on services utilization, and acceptance by health care providers.

Publication Type: Journal Article; Review
Source: MEDLINE
Full Text: Available in fulltext at National Library of Medicine

16. Telerehabilitation for service delivery in speech-language pathology.

Citation: Journal of Telemecine & Telecare, 2008, vol./is. 14/5(221-4), 1357-633X;1758-1109 (2008)
Author(s): Theodoros DG
Abstract: Communication disorders in adults and children can have a significant effect on their quality of life and on that of their families. Speech-language pathologists face several challenges in providing assessment and treatment services to such people. Challenges include facilitating equitable access to services and providing appropriate management within a changing social and economic context. Telerehabilitation has the potential to deliver services in the home or local community via videoconferencing and through interactive computer-based therapy activities. This form of service delivery has the capacity to optimize functional outcomes by facilitating generalization of treatment effects within the person's everyday environment, and enable monitoring of communication and swallowing behaviours on a long-term basis. A number of image-based telerehabilitation applications have been used in the management of adult neurogenic speech and language disorders, stuttering, voice disorders, speech and language disorders in children, laryngectomy and swallowing dysfunction. Further development of such applications and other computer-based therapies, cost-benefit and cost-effectiveness analyses, and professional education are needed if telerehabilitation is to become an integral part of speech-language pathology practice.

Publication Type: Journal Article; Review
Source: MEDLINE
Full Text: Available in fulltext at EBSCOhost

17. A systematic review of networked technologies supporting carers of people with dementia.

Citation: Journal of Telemedicine & Telecare, 2008, vol./is. 14/3(154-6), 1357-633X;1357-633X (2008)
Author(s): Powell J; Chiu T; Eysenbach G
Language: English
Abstract: We conducted a systematic review of the effectiveness of networked ICT interventions in supporting carers of people with dementia. Five bibliographic databases were searched and a total of 1456 abstracts were identified as potentially relevant. From these we identified 15 papers describing five interventions: ComputerLink, AlzOnline, Caring for Others and two studies from the REACH project (TLC and CTIS). The interventions reviewed were multifaceted with elements of networked peer support. Outcomes were inconsistent but suggested that the interventions had moderate effects on improving carer stress and depression. Treatment effects were found to vary with caregiver characteristics such as ethnic groups, formal support and baseline burden. Further evaluation is needed in robust trials with good follow-up.

Publication Type: Journal Article; Research Support, Non-U.S. Gov't; Review
Source: MEDLINE
Full Text: Available in fulltext at EBSCOhost

18. The effectiveness of telemental health applications: a review.

Citation: Canadian Journal of Psychiatry - Revue Canadienne de Psychiatrie, November 2008, vol./is. 53/11(769-78), 0706-7437;0706-7437 (2008 Nov)
Author(s): Hailey D; Roine R; Ohinmaa A
Language: English
Abstract: OBJECTIVE: To review the evidence of benefit from use of telemental health (TMH) in studies that reported clinical or administrative outcomes.METHOD: Relevant publications were identified through computerized literature searches using several electronic databases. Included for review were scientifically valid articles that described controlled studies, comparing TMH with a non-TMH alternative, and uncontrolled studies that had no fewer than 20 participants. Quality of the evidence was assessed with an approach that considers both study performance and study design. Judgments were made
on whether further data were needed to establish each TMH application as suitable for routine clinical use. RESULTS: Included in the review were 72 papers that described 65 clinical studies; 32 (49%) studies were of high or good quality. Quality of evidence was higher for Internet- and telephone-based interventions than for video conferencing approaches. There was evidence of success with TMH in the areas of child psychiatry, depression, dementia, schizophrenia, suicide prevention, posttraumatic stress, panic disorders, substance abuse, eating disorders, and smoking prevention. Evidence of success for general TMH programs and in the management of obsessive-compulsive disorder were less convincing. Further study was judged to be necessary or desirable in 53 (82%) of the studies. CONCLUSION: Evidence of benefit from TMH applications is encouraging, though still limited. There is a need for more good-quality studies on the use of TMH in routine care. The emerging use of Internet-based applications is an important development that deserves further evaluation.

Publication Type: Journal Article; Research Support, Non-U.S. Gov't; Review
Source: MEDLINE
Full Text: Available in fulltext at EBSCOhost


Citation: Cerebrovascular Diseases, 2009, vol./is. 27 Suppl 4/(36-9), 1015-9770;1421-9786 (2009)
Author(s): de Bustos EM; Moulin T; Audebert HJ
Language: English
Abstract: The use of telemedicine services, such as telestroke, is still highly fragmented and its deployment in an integrative healthcare system is challenging. Factors impeding the growth of telemedicine include confidence and malpractice issues, technical advances, reimbursement, licensing, credentialing costs, cost effectiveness, and legal issues. These barriers, limitations and requirements in the routine use of telemedicine are reviewed, in addition to medical activities, the objectives of telestroke, technical aspects, funding, legal issues, evaluation and quality management. As telemedicine induces a new form of interrelationship between health care providers, mutual trust and acceptance need to be developed in telemedicine services. Furthermore, education and training will be crucial in order to facilitate the use of telestroke over the next decade. (c) 2009 S. Karger AG, Basel.

Publication Type: Journal Article; Review
Source: MEDLINE
Full Text: Available in fulltext at EBSCOhost

20. Telestroke: scientific results.

Citation: Cerebrovascular Diseases, 2009, vol/is. 27 Suppl 4/(15-20), 1015-9770;1421-9786 (2009)
Author(s): Audebert HJ; Schwamm L
Language: English
Abstract: Telestroke is the application of telemedicine in stroke care. Hence, teleconsultation means the performance of consultation by a remotely located expert through the use of high-quality videoconferencing. Remote evaluation of stroke patients via telemedicine is increasingly utilized, particularly in neurologically underserved areas. It is usually based on video examination and evaluations of brain scans via teleradiology. Scientific analyses have demonstrated the reliability of neurological assessments via videoconference. Teleradiology using electronically transmitted original imaging data is potentially equivalent to onsite assessment. Telemedicine consultation including video examination and teleradiology improves accuracy of acute stroke treatment decisions compared to telephone-based consultation. Telemedicine is already frequently used to extend the benefits of intravenous thrombolysis to patients in nonspecialized hospitals. Beyond thrombolysis, telemedicine can be used for immediate decision making in acute stroke,
e.g. for triage of patients who might benefit from interventional treatments not available at the referring hospital. However, improved clinical outcomes of stroke patients have only been investigated and shown when telemedicine was combined with the Stroke Unit concept based on specialized stroke wards and organized stroke care. More scientific evaluation is needed in the fields of cost effectiveness, quality management and implementation of further technological innovations. There are still insufficient data about the use of telemedicine in stroke prevention, rehabilitation and post-stroke care. (c) 2009 S. Karger AG, Basel.


Citation: Journal of Telemedicine & Telecare, 2009, vol./is. 15/3(132-4), 1357-633X;1758-1109 (2009)

Author(s): Keane MG

Language: English

Abstract: A literature search was conducted for articles on the role of telemedicine in accident and emergency work. The search yielded 39 relevant papers, which came from 21 independent groups that had used telemedicine in an emergency medicine setting. The articles showed that telemedicine has been applied in a variety of ways from medical advice for paramedics in the disaster setting, to patient follow-up in the fracture clinic. A variety of communications equipment has been tried, including radio links, telephone, email and mobile wireless videoconferencing devices. All such links have been found to transfer information effectively, but success has sometimes been limited by technical failure and by staff lacking confidence in using the systems. Telemedicine has been used widely to support emergency nurse practitioners in minor injury units. Telemedicine has also been suggested as a way for paramedics to communicate with regional coronary care units quickly, hence enabling them to provide pre-hospital thrombolysis in the field when appropriate. The accident and emergency setting is well suited to the application of telemedicine. Larger trials and cost-effectiveness studies are required in this area.


Citation: BMC Family Practice, 2009, vol./is. 10/(72), 1471-2296;1471-2296 (2009)

Author(s): Costa BM; Fitzgerald KJ; Jones KM; Dunning Am T

Language: English

Abstract: BACKGROUND: Information technology (IT) is increasingly being used in general practice to manage health care including type 2 diabetes. However, there is conflicting evidence about whether IT improves diabetes outcomes. This review of the literature about IT-based diabetes management interventions explores whether methodological issues such as sample characteristics, outcome measures, and mechanisms causing change in the outcome measures could explain some of the inconsistent findings evident in IT-based diabetes management studies. METHODS: Databases were searched using terms related to IT and diabetes management. Articles eligible for review evaluated an IT-based diabetes management intervention in general practice and were published between 1999 and 2009 inclusive in English. Studies that did not include outcome measures were excluded. RESULTS: Four hundred and twenty-five articles were identified, sixteen met the inclusion criteria: eleven GP focussed and five patient focused interventions were evaluated. Nine were RCTs, five non-randomised control trials, and two single-sample before and after designs. Important sample characteristics such as diabetes type,
familiarity with IT, and baseline diabetes knowledge were not addressed in any of the studies reviewed. All studies used HbA1c as a primary outcome measure, and nine reported a significant improvement in mean HbA1c over the study period; only two studies reported the HbA1c assay method. Five studies measured diabetes medications and two measured psychological outcomes. Patient lifestyle variables were not included in any of the studies reviewed. IT was the intervention method considered to effect changes in the outcome measures. Only two studies mentioned alternative possible causal mechanisms.

CONCLUSION: Several limitations could affect the outcomes of IT-based diabetes management interventions to an unknown degree. These limitations make it difficult to attribute changes solely to such interventions.

Publication Type: Comparative Study; Journal Article; Research Support, Non-U.S. Gov't; Review
Source: MEDLINE
Full Text: Available in fulltext at EBSCOhost


Citation: Diabetes, Obesity & Metabolism, October 2009, vol./is. 11/10(913-30), 1462-8902;1463-1326 (2009 Oct)
Author(s): Polisena J; Tran K; Cimon K; Hutton B; McGill S; Palmer K
Language: English
Abstract:
AIM: It is estimated that more than 180 million people worldwide have diabetes. Health-care providers can remotely deliver health services to this patient population using information and communication technology, also known as home telehealth. Home telehealth may be classified into two subtypes: home telemonitoring (HTM) and telephone support (TS). The research objective was to systematically review the literature and perform meta-analyses to assess the potential benefits of home telehealth compared with usual care (UC) for patients with diabetes.

METHODS: An electronic literature search was conducted to identify studies on home telehealth and patients with diabetes that were published between 1998 and 2008 using Medline, Medline In-Process & Other Non-Indexed Citations, BIOSIS Previews and EMBASE.

RESULTS: Twenty-six studies (n = 5069 patients) on home telehealth for diabetes were selected. Twenty-one studies evaluated HTM and 5 randomized controlled trials assessed TS. HTM had a positive effect on glycaemic control [as measured by lower glycaated haemoglobin level] compared with UC (weighted mean difference =-0.21; 95% confidence interval -0.35 to -0.08), but the results were mixed for TS. Study results indicated that home telehealth helps to reduce the number of patients hospitalized, hospitalizations and bed days of care. Home telehealth was similar or favourable to UC across studies for quality-of-life and patient satisfaction outcomes.

CONCLUSIONS: In general, home telehealth had a positive impact on the use of numerous health services and glycaemic control. More studies of higher methodological quality are required to give more precise insights into the potential clinical effectiveness of home telehealth interventions.

Publication Type: Journal Article; Meta-Analysis; Research Support, Non-U.S. Gov't; Review
Source: MEDLINE
Full Text: Available in fulltext at EBSCOhost


Citation: Journal of Telemedicine & Telecare, 2010, vol./is. 16/2(68-76), 1357-633X;1758-1109 (2010)
Author(s): Polisena J; Tran K; Cimon K; Hutton B; McGill S; Palmer K; Scott RE
Language: English
Abstract:
We conducted a systematic review of the literature about home telemmonitoring compared with usual care. An electronic literature search was conducted to identify studies of home
telemonitoring use in congestive heart failure (CHF) patients. Twenty-one original studies on home telemonitoring for patients with CHF were included (3082 patients). A random effects model was used to compute treatment efficacy to measure the average effect of the intervention across all studies where the quantitative pooling of results was appropriate. Home telemonitoring reduced mortality (risk ratio = 0.64; 95% CI: 0.48-0.85) compared with usual care. Several studies suggested that home telemonitoring also helped to lower the number of hospitalizations and the use of other health services. Patient quality of life and satisfaction with home telemonitoring were similar or better than with usual care. More studies of higher methodological quality are required to give more precise information about the potential clinical effectiveness of home telehealth interventions.

Publication Type: Journal Article; Meta-Analysis; Research Support, Non-U.S. Gov't; Review
Source: MEDLINE
Full Text: Available in fulltext at EBSCOhost

25. Telehealthcare for asthma.

Citation: Cochrane Database of Systematic Reviews, 2010, vol./is./10(CD007717), 1361-6137;1469-493X (2010)
Author(s): McLean S; Chandler D; Nurmatov U; Liu J; Pagliari C; Car J; Sheikh A
Language: English
Abstract: BACKGROUND: Healthcare systems internationally need to consider new models of care to cater for the increasing numbers of people with asthma. Telehealthcare interventions are increasingly being seen by policymakers as a potential means of delivering asthma care. We defined telehealthcare as being healthcare delivered from a distance, facilitated electronically and involving the exchange of information through the personalised interaction between a healthcare professional using their skills and judgement and the patient providing information. OBJECTIVES: To assess the effectiveness of telehealthcare interventions in people with asthma. SEARCH STRATEGY: We searched in the following databases: Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, EMBASE, CINAHL, AMED, and PsycINFO; this was supplemented by handsearching of respiratory journals. We also searched registers of ongoing and unpublished trials. SELECTION CRITERIA: We selected completed randomised controlled trials of telehealthcare initiatives aiming to improve asthma care. DATA COLLECTION AND ANALYSIS: Two review authors independently appraised studies for inclusion and extracted data and performed meta-analyses. We analysed dichotomous variables to produce an odds ratio (OR) and continuous variables to produce a mean difference. MAIN RESULTS: We included 21 trials in this review. The 21 included studies investigated a range of technologies aiming to support the provision of care from a distance. These included: telephone (n = 9); video-conferencing (n = 2); Internet (n = 2); other networked communications (n = 6); text Short Messaging Service (n = 1); or a combination of text and Internet (n = 1). Meta-analysis showed that these interventions did not result in clinically important improvements in asthma quality of life (minimum clinically important difference = 0.5): mean difference in Juniper's Asthma Quality of Life Questionnaire (AQLQ) 0.08 (95% CI 0.01 to 0.16). Telehealthcare for asthma resulted in a non-significant increase in the odds of emergency department visits over a 12-month period: OR 1.16 (95% CI 0.52 to 2.58). There was, however, a significant reduction in hospitalisations over a 12-month period: OR 0.21 (95% CI 0.07 to 0.61), the effect being most marked in people with more severe asthma managed predominantly in secondary care settings. AUTHORS' CONCLUSIONS: Telehealthcare interventions are unlikely to result in clinically relevant improvements in health outcomes in those with relatively mild asthma, but they may have a role in those with more severe disease who are at high risk of hospital admission. Further trials evaluating the effectiveness and cost-effectiveness of a range of telehealthcare interventions are needed.

Publication Type: Journal Article; Meta-Analysis; Review
Source: MEDLINE
Full Text: Available in fulltext at Wiley

Citation: BMC Public Health, 2010, vol./is. 10(452), 1471-2458;1471-2458 (2010)

Author(s): Eakin EG; Reeves MM; Marshall AL; Dunstan DW; Graves N; Healy GN; Bleier J; Barnett AG; O'Moore-Sullivan T; Russell A; Wilkie K

Language: English

Abstract: BACKGROUND: By 2025, it is estimated that approximately 1.8 million Australian adults (approximately 8.4% of the adult population) will have diabetes, with the majority having type 2 diabetes. Weight management via improved physical activity and diet is the cornerstone of type 2 diabetes management. However, the majority of weight loss trials in diabetes have evaluated short-term, intensive clinic-based interventions that, while producing short-term outcomes, have failed to address issues of maintenance and broad population reach. Telephone-delivered interventions have the potential to address these gaps.

METHODS/DESIGN: Using a two-arm randomised controlled design, this study will evaluate an 18-month, telephone-delivered, behavioural weight loss intervention focussing on physical activity, diet and behavioural therapy, versus usual care, with follow-up at 24 months. Three-hundred adult participants, aged 20-75 years, with type 2 diabetes, will be recruited from 10 general practices via electronic medical records search. The Social-Cognitive Theory driven intervention involves a six-month intensive phase (4 weekly calls and 11 fortnightly calls) and a 12-month maintenance phase (one call per month). Primary outcomes, assessed at 6, 18 and 24 months, are: weight loss, physical activity, and glycaemic control (HbA1c), with weight loss and physical activity also measured at 12 months. Incremental cost-effectiveness will also be examined. Study recruitment began in February 2009, with final data collection expected by February 2013.

DISCUSSION: This is the first study to evaluate the telephone as the primary method of delivering a behavioural weight loss intervention in type 2 diabetes. The evaluation of maintenance outcomes (6 months following the end of intervention), the use of accelerometers to objectively measure physical activity, and the inclusion of a cost-effectiveness analysis will advance the science of broad reach approaches to weight control and health behaviour change, and will build the evidence base needed to advocate for the translation of this work into population health practice.

TRIAL REGISTRATION: ACTRN12608000203358.

Publication Type: Journal Article; Randomized Controlled Trial; Research Support, Non-U.S. Gov't

Source: MEDLINE

Full Text: Available in fulltext at EBSCOhost
Available in fulltext at BioMedCentral
Available in fulltext at National Library of Medicine

27. Telemedicine for depression: a systematic review.

Citation: Perspectives in Psychiatric Care, April 2010, vol./is. 46/2(119-26), 0031-5990;1744-6163 (2010 Apr)

Author(s): Garcia-Lizana F; Munoz-Mayorga I

Language: English

Abstract: PURPOSE: More than 14% of the population has a mood disorder, and more than 50% do not receive treatment. Information and communication technology (ICT) could improve health care. A systematic review was considered in order to know the programs that apply ICT in the management of depression and to assess their effectiveness.

CONCLUSION: There is insufficient scientific evidence regarding the effectiveness of ICT use in the management of depression. However, there is a well-founded hypothesis that videoconference produces the same results as face-to-face treatment and that self-help Internet programs could improve symptoms.

PRACTICE IMPLICATIONS: More research is needed; nevertheless, when traditional care is not possible, telemedicine could be used.

Publication Type: Journal Article; Research Support, Non-U.S. Gov't; Review

**Source:** MEDLINE

**Full Text:** Available in fulltext at EBSCOhost Available in fulltext at EBSCOhost

**Citation:** Journal of Diabetes Science & Technology, May 2010, vol./is. 4/3(666-84), 1932-2968;1932-2968 (2010 May)

**Author(s):** Verhoeven F; Tanja-Dijkstra K; Nijland N; Eysenbach G; van Gemert-Pijnen L

**Language:** English

**Abstract:** AIM: A systematic literature review, covering publications from 1994 to 2009, was carried out to determine the effects of teleconsultation regarding clinical, behavioral, and care coordination outcomes of diabetes care compared to usual care. Two types of teleconsultation were distinguished: (1) asynchronous teleconsultation for monitoring and delivering feedback via email and cell phone, automated messaging systems, or other equipment without face-to-face contact; and (2) synchronous teleconsultation that involves real-time, face-to-face contact (image and voice) via videoconferencing equipment (television, digital camera, webcam, videophone, etc.) to connect caregivers and one or more patients simultaneously, e.g., for the purpose of education. METHODS: Electronic databases were searched for relevant publications about asynchronous and synchronous tele-consultation [Medline, Picarta, Psychinfo, ScienceDirect, Telemedicine Information Exchange, Institute for Scientific Information Web of Science, Google Scholar]. Reference lists of identified publications were hand searched. The contribution to diabetes care was examined for clinical outcomes [e.g., hemoglobin A1c (HbA1c), dietary values, blood pressure, quality of life], for behavioral outcomes (patient-caregiver interaction, self-care), and for care coordination outcomes (usability of technology, cost-effectiveness, transparency of guidelines, equity of access to care). Randomized controlled trials with HbA1c as an outcome were pooled using standard meta-analytical methods. RESULTS: Of 2060 publications identified, 90 met inclusion criteria for electronic communication between (groups of) caregivers and patients with type 1 and 2 or gestational diabetes. Studies that evaluated teleconsultation not particularly aimed at diabetes were excluded, as were those that described interventions aimed solely at clinical improvements (e.g., HbA1c or lipid profiles). In 63 of 90 interventions, the interaction had an asynchronous teleconsultation character, in 18 cases interaction was synchronously (videoconferencing), and 9 involved a combination of synchronous with asynchronous interaction. Most of the reported improvements concerned clinical values (n = 49), self-care (n = 46), and satisfaction with technology (n = 43). A minority of studies demonstrated improvements in patient-caregiver interactions (n = 28) and cost reductions (n = 27). Only a few studies reported enhanced quality of life (n = 12), transparency of health care (n = 7), and improved equity in care delivery (n = 4). Asynchronous and synchronous applications appeared to differ in the type of contribution they made to diabetes care compared to usual care: asynchronous applications were more successful in improving clinical values and self-care, whereas synchronous applications led to relatively high usability of technology and cost reduction in terms of lower travel costs for both patients and care providers and reduced unscheduled visits compared to usual care. The combined applications (n = 9) scored best according to quality of life (22.2%). No differences between synchronous and asynchronous teleconsultation could be observed regarding the positive effect of technology on the quality of patient-provider interaction. Both types of applications resulted in intensified contact and increased frequency of transmission of clinical values with respect to usual care. Fifteen of the studies contained HbA1c data that permitted pooling. There was significant statistical heterogeneity among the pooled randomized controlled trials (chi² = 96.46, P < 0.001). The pooled reduction in HbA1c was not statistically significant (weighted mean difference -0.10; 95% confidence interval -0.39 to 0.18). CONCLUSION: The included studies suggest that both synchronous and asynchronous teleconsultations for diabetes care are feasible, cost-effective, and reliable. However, it should be noted that many of the included studies showed no significant differences between control (usual care) and intervention groups. This might be due to the diversity and lack of quality in study
Future research needs quasi-experimental study designs and a holistic approach that focuses on multilevel determinants (clinical, behavioral, and care coordination) to promote self-care and proactive collaborations between health care professionals and patients to manage diabetes care. Also, a participatory design approach is needed in which target users are involved in the development of cost-effective and personalized interventions. Currently, too often technology is developed within the scope of the existing structures of the health care system. Including patients as part of the design team stimulates and enables designers to think differently, unconventionally, or from a new perspective, leading to applications that are better tailored to patients' needs. (c) 2010 Diabetes Technology Society.

Publication Type: Journal Article; Review
Source: MEDLINE
Full Text: Available in fulltext at National Library of Medicine

Citation: GP: General Practitioner, 22 October 2010, vol./is. (62-62), 02688417
Author(s): Ingham, Peter; Dodds, Simon
Language: English
Abstract: The article offers information on the success of a leg ulcer telemedicine (LUTM) system for leg ulcer wound care in Great Britain. It informs that wound images are sent to the consultant vascular surgeon with the conventional methods of communication including fax, letter, and phone. It also informs that for Service Improvement the system got Great Britain's National Health Service (NHS) Innovation Award.

Publication Type: Periodical
Source: HEALTH BUSINESS ELITE
Full Text: Available in fulltext at EBSCOhost

30. Telerehabilitation in stroke care--a systematic review.
Citation: Journal of Telemedicine & Telecare, 2011, vol./is. 17/1(1-6), 1357-633X;1758-1109 (2011)
Author(s): Johansson T; Wild C
Language: English
Abstract: We conducted a systematic review of telerehabilitation interventions in stroke care. The following databases were searched: Medline, Embase, DARE-NHSEED-HTA (INAHTA) and the Cochrane Library. Nine studies, all published after 2000, were included in the review. Awide variety of telemedicine interventions in post-stroke rehabilitation care was identified. Four studies had been carried out in the USA, two in the Netherlands, two in Italy and one in China. There were four randomized controlled trials and one qualitative analysis. Four studies used an observational study design/case series. Home-based telerehabilitation interventions showed promising results in improving the health of stroke patients and in supporting caregivers. Telemedicine systems based on a virtual environment for upper extremity exercise can improve the physical health of stroke patients. Health professionals and participants reported high levels of satisfaction and acceptance of telerehabilitation interventions. There was no evidence regarding the effects on resource utilization or cost-effectiveness. Most studies showed promising results, although overall, the quality of the evidence on telerehabilitation in post-stroke care was low.

Publication Type: Journal Article; Research Support, Non-U.S. Gov't; Review
Source: MEDLINE
Full Text: Available in fulltext at EBSCOhost
31. Telehealthcare for chronic obstructive pulmonary disease.

**Citation:** Cochrane Database of Systematic Reviews, 2011, vol./is. /7(CD007718), 1361-6137;1469-493X (2011)

**Author(s):** McLean S; Nurmatov U; Liu JL; Pagliari C; Car J; Sheikh A

**Language:** English

**Abstract:**

BACKGROUND: Chronic obstructive pulmonary disease (COPD) is a disease of irreversible airways obstruction in which patients often suffer exacerbations. Sometimes these exacerbations need hospital care: telehealthcare has the potential to reduce admission to hospital when used to administer care to the patient from within their own home.

OBJECTIVES: To review the effectiveness of telehealthcare for COPD compared with usual face-to-face care.

SEARCH STRATEGY: We searched the Cochrane Airways Group Specialised Register, which is derived from systematic searches of the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, EMBASE, CINAHL, AMED, and PsycINFO; last searched January 2010.

SELECTION CRITERIA: We selected randomised controlled trials which assessed telehealthcare, defined as follows: healthcare at a distance, involving the communication of data from the patient to the health carer, usually a doctor or nurse, who then processes the information and responds with feedback regarding the management of the illness. The primary outcomes considered were: number of exacerbations, quality of life as recorded by the St George's Respiratory Questionnaire, hospitalisations, emergency department visits and deaths.

DATA COLLECTION AND ANALYSIS: Two authors independently selected trials for inclusion and extracted data. We combined data into forest plots using fixed-effects modelling as heterogeneity was low (I(2) < 40%).

MAIN RESULTS: Ten trials met the inclusion criteria. Telehealthcare was assessed as part of a complex intervention, including nurse case management and other interventions. Telehealthcare was associated with a clinically significant increase in quality of life in two trials with 253 participants (mean difference -6.57 (95% confidence interval (-13.62 to 0.48); minimum clinically significant difference is a change of -4.0), but the confidence interval was wide.

Telehealthcare showed a significant reduction in the number of patients with one or more emergency department attendances over 12 months; odds ratio (OR) 0.27 (95% CI 0.11 to 0.66) in three trials with 449 participants, and the OR of having one or more admissions to hospital over 12 months was 0.46 (95% CI 0.33 to 0.65) in six trials with 604 participants. There was no significant difference in the OR for deaths over 12 months for the telehealthcare group as compared to the usual care group in three trials with 503 participants; OR 1.05 (95% CI 0.63 to 1.75).

AUTHORS’ CONCLUSIONS: Telehealthcare in COPD appears to have a possible impact on the quality of life of patients and the number of times patients attend the emergency department and the hospital. However, further research is needed to clarify precisely its role since the trials included telehealthcare as part of more complex packages.

**Publication Type:** Journal Article; Meta-Analysis; Review

**Source:** MEDLINE

**Full Text:** Available in fulltext at Wiley

32. Evidence of benefit from telerehabilitation in routine care: a systematic review.

**Citation:** Journal of Telemedicine & Telecare, 2011, vol./is. 17/6(281-7), 1357-633X;1758-1109 (2011)

**Author(s):** Hailey D; Roine R; Ohinmaa A; Dennett L

**Language:** English

**Abstract:**

We systematically reviewed the evidence on the effectiveness of telerehabilitation (TR) applications. The review included reports on rehabilitation for any disability, other than mental health conditions, and drug or alcohol addiction. All forms of telecommunications technology for TR and all types of study design were considered. Study quality was assessed using an approach that considered both study performance and study design. Judgements were made on whether each TR application had been successful, whether
reported outcomes were clinically significant, and whether further data were needed to establish the application as suitable for routine use. Sixty-one scientifically credible studies that reported patient outcomes or administrative changes were identified through computerized literature searches on five databases. Twelve clinical categories were covered by the studies. Those dealing with cardiac or neurological rehabilitation were the most numerous. Thirty-one of the studies (51%) were of high or good quality. Study results showed that 71% of the TR applications were successful, 18% were unsuccessful and for 11% the status was unclear. The reported outcomes for 51% of the applications appeared to be clinically significant. Poorer-quality studies tended to have worse outcomes than those from high- or good-quality studies. We judged that further study was required for 62% of the TR applications and desirable for 23%. TR shows promise in many fields, but compelling evidence of benefit and of impact on routine rehabilitation programmes is still limited. There is a need for more detailed, better-quality studies and for studies on the use of TR in routine care.

Publication Type: Journal Article; Review
Source: MEDLINE
Full Text: Available in fulltext at EBSCOhost

33. Why business modeling is crucial in the development of eHealth technologies.

Citation: Journal of Medical Internet Research, 2011, vol./is. 13/4(e124), 1438-8871;1438-8871 (2011)
Author(s): van Limburg M; van Gemert-Pijnen JE; Nijland N; Ossebaard HC; Hendrix RM; Seydel ER
Language: English
Abstract: The impact and uptake of information and communication technologies that support healthcare are rather low. Current frameworks for eHealth development suffer from a lack of fitting infrastructures, inability to find funding, complications with scalability, and uncertainties regarding effectiveness and sustainability. These issues can be addressed by defining a better implementation strategy early in the development of eHealth technologies. A business model, and thus business modeling, help to determine such an implementation strategy by involving all important stakeholders in a value-driven dialogue on what the technology should accomplish. This idea also seems promising to eHealth, as it can contribute to the whole development of eHealth technology. We therefore suggest that business modeling can be used as an effective approach to supporting holistic development of eHealth technologies. The contribution of business modeling is elaborated in this paper through a literature review that covers the latest business model research, concepts from the latest eHealth and persuasive technology research, evaluation and insights from our prior eHealth research, as well as the review conducted in the first paper of this series. Business modeling focuses on generating a collaborative effort of value cocreation in which all stakeholders reflect on the value needs of the others. The resulting business model acts as the basis for implementation. The development of eHealth technology should focus more on the context by emphasizing what this technology should contribute in practice to the needs of all involved stakeholders. Incorporating the idea of business modeling helps to cocreate and formulate a set of critical success factors that will influence the sustainability and effectiveness of eHealth technology.

Publication Type: Journal Article; Review
Source: MEDLINE
Full Text: Available in fulltext at EBSCOhost

34. Effects of eHealth interventions on medication adherence: a systematic review of the literature.

Citation: Journal of Medical Internet Research, 2011, vol./is. 13/4(e103), 1438-8871;1438-8871 (2011)
BACKGROUND: Since medication nonadherence is considered to be an important health risk, numerous interventions to improve adherence have been developed. During the past decade, the use of Internet-based interventions to improve medication adherence has increased rapidly. Internet interventions have the potential advantage of tailoring the interventions to the needs and situation of the patient.

OBJECTIVE: The main aim of this systematic review was to investigate which tailored Internet interventions are effective in improving medication adherence.

METHODS: We undertook comprehensive literature searches in PubMed, PsycINFO, EMBASE, CINAHL, and Communication Abstracts, following the guidelines of the Cochrane Collaboration. The methodological quality of the randomized controlled trials and clinical controlled trials and methods for measuring adherence were independently reviewed by two researchers.

RESULTS: A total of 13 studies met the inclusion criteria. All included Internet interventions clearly used moderately or highly sophisticated computer-tailored methods. Data synthesis revealed that there is evidence for the effectiveness of Internet interventions in improving medication adherence: 5 studies (3 high-quality studies and 2 low-quality studies) showed a significant effect on adherence; 6 other studies (4 high-quality studies and 2 low-quality studies) reported a moderate effect on adherence; and 2 studies (1 high-quality study and 1 low-quality study) showed no effect on patients' adherence. However, most studies used self-reported measurements to assess adherence, which is generally perceived as a low-quality measurement. In addition, we did not find a clear relationship between the quality of the studies or the level of sophistication of message tailoring and the effectiveness of the intervention. This might be explained by the great difference in study designs and the way of measuring adherence, which makes results difficult to compare. There was also large variation in the measured interval between baseline and follow-up measurements.

CONCLUSION: This review shows promising results on the effectiveness of Internet interventions to enhance patients' adherence to prescribed long-term medications. Although there is evidence according to the data synthesis, the results must be interpreted with caution due to low-quality adherence measurements. Future studies using high-quality measurements to assess medication adherence are recommended to establish more robust evidence for the effectiveness of eHealth interventions on medication adherence.
Advances in telecommunication technologies have created new opportunities to provide telemedical care as an adjunct to medical management of patients with heart failure. Meta-analyses suggest that telemedicine can reduce morbidity and mortality in such patients; however, two prospective clinical trials not included in the analyses do not support these findings. Therefore, the effectiveness of telemedicine in heart failure is not established. Telemedicine approaches range from computer-based support systems to programmes led by nurses and physicians. Standardisation and appropriate classification of telemedical systems are needed to enable accurate interpretation of clinical trials. Here we propose a classification of four generations of telemedicine in heart failure. Not all approaches are the same and not every patient with heart failure will need telemedicine. Crisis prevention and treatment, and stabilisation and self-empowerment of patients are focuses of telemedicine in heart failure. The profile of patients who can potentially benefit from telemedicine is unknown and should be investigated in adequately powered randomised clinical trials. We are optimistic that telemedicine is an efficient approach and will become an important feature of management in heart failure. Copyright Copyright 2011 Elsevier Ltd. All rights reserved.

37. Telehealthcare for asthma: a Cochrane review.

BACKGROUND: Telehealthcare has the potential to provide care for long-term conditions that are increasingly prevalent, such as asthma. We conducted a systematic review of studies of telehealthcare interventions used for the treatment of asthma to determine whether such approaches to care are effective.

METHODS: We searched the Cochrane Airways Group Specialised Register of Trials, which is derived from systematic searches of bibliographic databases including CENTRAL (the Cochrane Central Register of Controlled Trials), MEDLINE, Embase, CINAHL (Cumulative Index to Nursing and Allied Health Literature) and PsycINFO, as well as other electronic resources. We also searched registers of ongoing and unpublished trials. We were interested in studies that measured the following outcomes: quality of life, number of visits to the emergency department and number of admissions to hospital. Two reviewers identified studies for inclusion in our meta-analysis. We extracted data and used fixed-effect modelling for the meta-analyses.

RESULTS: We identified 21 randomized controlled trials for inclusion in our analysis. The methods of telehealthcare intervention these studies investigated were the telephone and video- and Internet-based models of care. Meta-analysis did not show a clinically important improvement in patients’ quality of life, and there was no significant change in the number of visits to the emergency department over 12 months. There was a significant reduction in the number of patients admitted to hospital once or more over 12 months (risk ratio 0.25 [95% confidence interval 0.09 to 0.66]).

INTERPRETATION: We found no evidence of a clinically important impact on patients’ quality of life, but telehealthcare interventions do appear to have the potential to reduce the risk of admission to hospital, particularly for patients with severe asthma. Further research is required to clarify the cost-effectiveness of models of care based on telehealthcare.

Citation: GP: General Practitioner, 16 September 2011, vol./is. /58-58/, 02688417
Author(s): Durham, Neil
Language: English
Abstract: The article presents suggestions for commissioning urgent care, mentioned in the "Guidance for Commissioning Integrated Urgent and Emergency Care," from the Royal College of General Practitioners (RCGP). It states that general practitioners (GPs) should create integrated discharge posts, director and manager jointly with local authority, and appoint integrated discharge posts, director and manager jointly with local authority, and use telehealth for patients with heart failure.

Publication Type: Periodical
Source: HEALTH BUSINESS ELITE
Full Text: Available in fulltext at EBSCOhost

39. The cost-effectiveness of three screening alternatives for people with diabetes with no or early diabetic retinopathy.

Citation: Health Services Research, October 2011, vol./is. 46/5(1534-61), 0017-9124;1475-6773 (2011Oct)
Author(s): Rein DB; Wittenborn JS; Zhang X; Allaire BA; Song MS; Klein R; Saaddine JB; Vision Cost-Effectiveness Study Group
Language: English
Abstract: OBJECTIVE: To determine whether biennial eye evaluation or telemicine screening are cost-effective alternatives to current recommendations for the estimated 10 million people aged 30-84 with diabetes but no or minimal diabetic retinopathy. DATA SOURCES: United Kingdom Prospective Diabetes Study, National Health and Nutrition Examination Survey, American Academy of Ophthalmology Preferred Practice Patterns, Medicare Payment Schedule. STUDY DESIGN: Cost-effectiveness Monte Carlo simulation. DATA COLLECTION/EXTRACTION METHODS: Literature review, analysis of existing surveys. PRINCIPAL FINDINGS: Biennial eye evaluation was the most cost-effective treatment option when the ability to detect other eye conditions was included in the model. Telemicine was most cost-effective when other eye conditions were not considered or when telemedicine was assumed to detect refractive error. The current annual eye evaluation recommendation was costly compared with either treatment alternative. Self-referral was most cost-effective up to a willingness to pay (WTP) of U.S.$37,600, with either biennial or annual evaluation most cost-effective at higher WTP levels. CONCLUSIONS: Annual eye evaluations are costly and add little benefit compared with either plausible alternative. More research on the ability of telemicine to detect other eye conditions is needed to determine whether it is more cost-effective than biennial eye evaluation. Copyright Health Research and Educational Trust.

Publication Type: Journal Article; Research Support, N.I.H., Extramural; Research Support, U.S. Gov't, P.H.S.; Review
Source: MEDLINE
Full Text: Available in fulltext at EBSCOhost


Citation: GP: General Practitioner, 11 January 2012, vol./is. /34-34/, 02688417
Language: English
Abstract: The article presents the views of London, England-based general practitioners (GPs) Raza Toosy and Saeed Chaudhary on deploying telehealth systems. Toosy says the aim of his telehealth project was to bring together providers from health and social care, and mental
health services, to discuss patients jointly, with the aim of improving care provision. Chaudhary says telehealth is aimed to reduce unplanned hospital admissions and lessen growing pressures on GP resources.

**Publication Type:** Periodical  
**Source:** HEALTH BUSINESS ELITE  
**Full Text:** Available in fulltext at EBSCOhost

**41. Editorial: DH must explain how telecare saves pounds 1.2bn.**

**Citation:** GP: General Practitioner, 25 April 2012, vol./is. /(17-17), 02688417  
**Language:** English  
**Abstract:** The author reflects on telecare and telehealth services of Great Britain that saved 1.2 billion pounds in 5-years. It states that the ability to arrange latest technology in the Great Britain's National Health Service (NHS) results in saving money and improvement in the quality of patient care. It mentions that general practitioners (GPs) will lead the clinical commissioning groups effectively to decide the budget of NHS.

**Publication Type:** Periodical  
**Source:** HEALTH BUSINESS ELITE  
**Full Text:** Available in fulltext at EBSCOhost