

Rehabilitation Research Review

Making Education Easy

Issue 13 – 2010

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Welcome to the thirteenth issue of Rehabilitation Research Review.

In this edition, two groups of researchers examine aspects of complexity of rehabilitation care – one paper discusses the ways in which comorbid mental health issues affect inpatient rehabilitation facility (IRF) costs and the extent to which Medicare's payment system reimburses these costs, while the second paper evaluates the usefulness of the Rehabilitation Complexity Scale in comparison with the more commonly used FIM and BI. Evaluations such as these can help us better appreciate the many variables involved in rehabilitation and how they affect patients' outcomes although complexity remains. If you are interested in working with us to investigate this complexity, we have two positions coming up in our research team so do get in contact.

I hope the issue is of interest and I welcome your comments and feedback.

Kind regards,

Kath McPherson

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A randomised 2 x 2 trial of community versus hospital pulmonary rehabilitation, followed by telephone or conventional follow-up

Authors: Waterhouse JC et al

Summary: This UK-based study compared the efficacy and cost-effectiveness of a pulmonary rehabilitation programme delivered in a community setting with one carried out in a standard hospital setting. It also examined whether telephone follow-up is both cost-effective and useful in prolonging the beneficial effects of a pulmonary rehabilitation programme. Outcomes are reported for 240 participants with chronic obstructive pulmonary disease who were randomly assigned to one of four groups: hospital rehabilitation with no telephone follow-up; hospital rehabilitation with telephone follow-up; community rehabilitation with no telephone follow-up; or community rehabilitation with telephone follow-up. For the primary outcome measure (the difference in improvement in endurance shuttle walking test [ESWT] between hospital and community pulmonary rehabilitation groups post rehabilitation), no statistically significant between-group differences were observed; likewise, no rehabilitation group effect was seen at 6, 12, or 18 months' post-rehabilitation follow-up. Both settings produced similar and significant improvements in quality of life; health economic analysis did not favour either hospital or community settings, telephone follow-up or routine care.

Comment: It is tempting to think community approaches are cheaper than hospital-based (not always the case), or that one or other approach is necessarily 'better' (again not always the case). As the authors point out, the right model of service delivery seems to depend on a multitude of factors (some of which change over time) so a quick and easy answer is not to be had. More research unpicking just who benefits from which approach to service delivery is clearly needed. I like the authors' suggestion that this should include more complex analysis of the relationship to not only patient characteristics to outcomes, but those of staff.

Reference: *Health Technol Assess.* 2010;14(6):i-v, vii-xi, 1-140.

<http://www.hta.ac.uk/execsumm/summ1406.htm>



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Rehabilitation interventions for improving physical and psychosocial functioning after hip fracture in older people

Authors: Crotty M et al

Summary: This Cochrane review evaluated data from nine randomised and quasi-randomised trials (n=1400) of differing rehabilitation interventions applied in inpatient or ambulatory settings to improve physical or psychosocial functioning in older adults with hip fracture. Outcomes did not differ significantly for three trials testing interventions (reorientation measures, intensive occupational therapy, cognitive behavioural therapy) delivered in inpatient settings. Whereas specialist-nurse led care post-discharge appeared to be beneficial in one trial, another failed to show any advantages at 12 months. Of two trials that examined coaching (educational and motivational interventions), one found no effect on function at six months, while the other showed coaching improved self-efficacy expectations at six months, although not when combined with exercise. Two trials testing interventions (home rehabilitation; group learning programme) started several weeks after hip fracture found no significant differences in outcomes at 12 months.

Comment: Systematic reviews (including Cochrane) aim, as many people know, to synthesise research even when there are conflicting findings so that overall, one can say what the level of evidence is for any one intervention. Sadly – the synthesis often leaves an unclear answer. The phrase ‘the absence of evidence does not necessarily mean the absence of effect’ is an important one to remember. Similarly – ‘the best thing to do in the absence of evidence is to do what is theoretically sound’ also seems relevant. Given the well-established links between social isolation and poorer mental health, and the link between enhanced physical activity/function and health, more research is clearly needed to identify just which interventions help promote these outcomes as well as which measures are best at identifying change in the outcomes of interest. These are no small feats but if we don’t get onto it – we will still be saying ‘there is no firm answer to this question’ in 20 years.

Reference: *Cochrane Database Syst Rev.* 2010 Jan 20;(1):CD007624.

<http://tinyurl.com/y945v54>

Impact of mental disorders on cost and reimbursement for patients in inpatient rehabilitation facilities

Authors: Dobrez D et al

Summary: These US-based researchers assessed data from Medicare IRF Patient Assessment Instrument files and Medicare Provider and Review files, to examine whether comorbid mental disorders affect inpatient rehabilitation facility (IRF) costs. They also sought to determine the extent to which Medicare’s prospective payment system reimbursement sufficiently covers those costs. Of 1,146,799 Medicare fee-for-service beneficiaries discharged from 1334 IRFs from 2002 to 2004, 13% had mental disorders. After controlling for payment group and comorbidity classifications, patients with mood, major depression, or anxiety disorders had significantly greater costs of \$US433, \$US1642, and \$US247, respectively, compared with patients without these disorders.

Comment: OK – we are not in the US and funding for our services is different. However, services in any country cost money and every population needs to decide just ‘what’ and ‘how’ they will be resourced. On the one hand, it feels uncomfortable identifying subpopulations whose co-morbidities impact on the cost of their rehabilitation, but not to do so has some very real risks. If the real cost is more (but it yields a good outcome and one that is agreed to be cost-effective) then not to fund means these people will perhaps miss out on the opportunity for rehabilitation (so called cherry picking). Another possibility is that ignoring a differential cost means outcomes for all patients are likely to be less than optimum because the intensity and frequency of therapy has to fall short in an effort to provide ‘equal’ rather than ‘equitable’ services. These debates are happening in the USA and the UK (see Turner-Stokes paper in this issue of RRR) and seem just as relevant for us.

Reference: *Arch Phys Med Rehabil.* 2010;91(2):184-8.

<http://www.archives-pmr.org/article/S0003-9993%2809%2900907-1/abstract>

The Rehabilitation Complexity Scale version 2: a clinimetric evaluation in patients with severe complex neurodisability

Authors: Turner-Stokes L et al

Summary: This study assessed the dimensionality, repeatability, consistency and responsiveness of repeat Rehabilitation Complexity Scale (RCS) ratings of the level of care, nursing, therapy and medical interventions, compared with ratings by the Northwick Park Nursing and Therapy Dependency Scales, the Functional Independence Measure (FIM) and Barthel Index, recorded at the start and end of treatment in 179 inpatients with complex neurological disabilities. Test-retest reliability confirmed the RCS to be repeatable (κ 0.93 to 0.96) and moderately responsive to changes in levels of intervention during the programme, suggesting the need for serial evaluation. The coefficient- α was 0.76 and item-total correlations were all >0.50, with moderate to high loadings on the first principal component. A confirmatory factor analysis identified two factors (‘Nursing/medical care,’ and ‘Therapies’). Convergent and discriminant validity of the RCS was good, as assessed by the Northwick Park Nursing and Therapy Dependency Scales, but there was some ceiling effect. FIM motor and Barthel scores correlated well with basic care and nursing scores.

Comment: Turner-Stokes and colleagues are addressing in some ways the issues raised by Dobrez et al. in the paper reviewed above. However, they go a step further in attempting to measure features that make rehabilitation for some patients more complex (and therefore more costly). Derick Wade is somewhat critical of the actual scale in the same issue of JNNP (2010;81:127), noting that it fails to actually get at the full complexity influencing rehabilitation need. However – perhaps it’s a step in the right direction.

Reference: *J Neurol Neurosurg Psychiatry.* 2010;81(2):146-53.

<http://jnnp.bmj.com/content/81/2/146.abstract>

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Is physical rehabilitation for older people in long-term care effective? Findings from a systematic review

Authors: Forster A et al

Summary: Data from 49 RCTs investigating physical rehabilitation for people permanently resident in long-term care aged ≥ 60 years were systematically reviewed to determine the effects of physical rehabilitation in such populations. The trials included 3611 subjects with an average age of 82 years. Typically, intervention durations lasted 12 weeks with a treatment intensity of three 30-min sessions per week. Exercise was the main component of the interventions. The mean attendance rate for 17 studies was 84%. Thirty-three trials, including the nine trials recruiting over 100 subjects, reported positive findings, mostly improvement in mobility but also strength, flexibility and balance.

Comment: This review provides a clear answer (hurrah) that *rehabilitation* rather than simply *care* is relevant for older people in residential services. Whilst the long-term benefits (and harms) do need to be evaluated, Forster's findings complement those of other recent findings from Cath Sackley and others. They also pose some real challenges to what we provide for our older adults in residential care.

Reference: *Age Ageing*. 2010;39(2):169-75.

<http://ageing.oxfordjournals.org/cgi/content/abstract/39/2/169>

Delivering an evidence-based outdoor journey intervention to people with stroke: Barriers and enablers experienced by community rehabilitation teams

Authors: McCluskey A & Middleton S

Summary: These researchers sought to identify barriers and enablers, as perceived by allied health professionals, to delivering an evidence-based outdoor journey intervention for people with stroke. Data were analysed from semi-structured interviews conducted with 13 allied health professionals from two community rehabilitation teams, before and after receiving feedback from a medical record audit and attending a training workshop. Barriers to delivery of the intervention, as identified by the participants, included the social influence of people with stroke and their family, and professionals' beliefs about their capabilities. Other barriers included professionals' knowledge and skills, their role identity, availability of resources, whether professionals remembered to provide the intervention, and how they felt about delivering the intervention. Enablers to delivering the intervention included a belief that they could deliver the intervention, a willingness to expand and share professional roles, procedures that reminded them what to do, and feeling good about helping people with stroke to participate.

Comment: It is all very well if research identifies interventions that work but, what if *real* people in the *real* world (both clinicians and patients) find it difficult to deliver/engage? A number of interesting studies are addressing this translational aspect of research and this paper is useful in that it presents a fairly straightforward quality improvement approach that just about any service could (and I would argue should) engage in. Just how well any one service is delivering an intervention should not be assumed but evaluated. I know – I'm a researcher so that's my bias! But, finding out the barriers (both generic and local) to 'effective' service delivery seems a core component of providing services to me.

Reference: *BMC Health Serv Res*. 2010;10:18.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2821384/>

Cardiac rehabilitation and women: what keeps them away?

Authors: Sanderson BK et al

Summary: These researchers interviewed 131 women hospitalised with an eligible cardiac rehabilitation diagnosis, seeking to explore their perceptions about cardiac rehabilitation. Seventy-seven women were referred to cardiac rehabilitation; demographic and clinical characteristics did not differ between those who were referred and those who were not. Enrolment to cardiac rehabilitation ascertained at >60 days postdischarge revealed that 34% of the women referred to cardiac rehabilitation had enrolled. According to multivariate regression analyses, nonenrollees had lower education levels (<12 years) than did enrollees, and women who enrolled were more likely to give the highest score for "likely to attend CR" during the interview compared with nonenrollees ($p < 0.05$).

Comment: When I worked in Edinburgh, colleagues undertook one of the early studies that identified gender differences in cardiac rehabilitation uptake (Skelton et al., *Clinical Rehabilitation*, 1994;8;41-7). Other than this clearly indicating my age (yes – 1994 is now more than 15 years ago), the current paper identifies that a gender difference in *referral* as well as *uptake* persists, which is intriguing but, more so, disappointing. The authors propose some of the reasons why women fail to access such services. The first is that 40% were not referred (now that is a real barrier to access) but just how information is provided about the role of cardiac rehabilitation is clearly key. In addition, one imagines that other factors to consider would include how to get around the cost of travelling to attend and, understanding the competing demands in peoples' lives, which can get in the way of prioritisation of their own health.

Reference: *J Cardiopulm Rehabil Prev*. 2010;30(1):12-21.

<http://tinyurl.com/ybrnmpge>



Independent commentary by Professor Kath McPherson, Professor of Rehabilitation (Laura Fergusson Chair) at the Health and Rehabilitation Research Centre, AUT University in Auckland.

Kath has been at AUT since 2004 and has been building a research, teaching and consultancy programme focused on improving interventions and outcomes for people experiencing disability.

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To examine the impact of resource facilitation (RF) on return to work, participation in home and community activities, and depression

Authors: Trexler LE et al

Summary: This US-based study reports outcomes for 22 people with acquired brain injury (mean age 43 years; mean 13.3 years of education) who were randomly assigned to either resource facilitation (RF) services or standard care. All participants received standard follow-up services over a 6-month period, but the 11 participants in the RF group were also assigned a resource facilitator to assist them in returning to work. Participation increased significantly for both groups over the treatment period, but the interaction between groups and time showed that the improvement was significantly greater for the RF participants than it was for controls. At 6 months post-enrolment, 64% of the RF group was employed compared with 36% of the control group ($p < 0.0001$). No significant between-group differences were seen for measures of depression.

Comment: I was intrigued at what Resource Facilitation might be and, by the end of the abstract I was actually no clearer really (that always frustrates me). In the full paper the authors refer to Connors and the Brain Injury Association of America; 2001 who state "Resource facilitation (RF) (is) defined as "a partnership that helps people and communities choose, get and keep information, services and supports to make informed choices and meet their goals". The funny thing is, the authors equate this approach to the concept of 'co-ordination' and in doing so, refer to some of our own work (Fadyl & McPherson; J Head Trauma Rehabil. 2009;24:195-212). I'm not sure Resource Facilitation is a better name.... but maybe the emphasis on 'empowering' communities and mobilising the individual's internal resources as well as those that are external is better captured. Perhaps Resource Facilitators will be a new name for case managers in the future!

Reference: J Head Trauma Rehabil. 2010 Mar 9. [Epub ahead of print]

<http://tinyurl.com/ydd4j8y>

Economic impact of disease and injury: counting what matters

Authors: Chisholm D et al

Summary: These researchers discuss how economic impact studies in health might be improved, so that the estimates are meaningful and can better assist decision makers. In the guidance that they provide for anyone undertaking such studies, the researchers outline key features of their recommendations. They pose four conceptual questions that underpin the purpose and reference point of such studies, as well as their scope and perspective. They argue that researchers must first identify the quantity of interest associated with these questions and the counterfactual implied by the question, before finalising the estimation method.

Comment: Two good reasons for referring to this paper are that: a) it addresses just some of the issues we have touched on here about the relative cost and benefit of providing and funding services and b) it's free on the BMJ site so everyone can get the whole paper. (Google Scholar will often provide full publications too). It's a reminder that economic evaluations are only as good as the ability to measure the inputs, outputs and outcomes of interest. Cost is only one of the factors that needs to be measured (cheaper is not always better but then again – neither is more expensive necessarily better either!) and so when you read/hear cost related to outputs/outcomes – the key question is – are those relevant and well measured. It's a useful and easy read about economic evaluations.

Reference: BMJ. 2010;340:c924.

http://www.bmj.com/cgi/content/citation/340/mar02_1/c924

VINTAGE PAPER

Rehabilitation of the cardiac patient

Authors: Katz LN et al

Summary: This panel discussion between cardiac physicians outlines factors involved in the rehabilitation of the cardiac patient, such as vocational evaluation and guidance, physiological capacity for work, suitable employment, the patient's attitude towards employment and how this is influenced by the patient's private physician or cardiologist, and the importance of considering psychological factors that may impact upon a patient's willingness and ability to go back into employment.

Comment: Every now and again, most of us wish we learned more from our past and – this paper is one of those moments. It captures the complexity of rehabilitation (both for professionals and for patients) and uses words that seem oft forgot in relation to what makes a 'good' service: one where the staff need to be skilled, sympathetic, and 'psychosomatically oriented and scientifically trained' (although the latter appeared to be an attribute required only by the cardiologist in 1958)! Even more impressive is the suggestion that 'it requires the instillation of hope that he/she will attain within the limits of his body – and more than he expects – his birthright to happiness of the full life and gainful occupation in a job that is interesting and challenging'. Explicit reference here to 'hope' about the future and participation in meaningful activity as legitimate aims of rehabilitation and hence – legitimate outcomes.

Reference: Circulation. 1958;17(1):114-26.

<http://circ.ahajournals.org/cgi/reprint/17/1/114>

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