

Full title of project

Reducing Care Utilisation through Self-management Interventions (RECURSIVE): a quantitative review of self-management support to reduce utilisation without compromising outcomes

Aims

To conduct a quantitative systematic review to identify those models of self-management support associated with significant reductions in health services utilisation (including admissions) without compromising outcomes

To make recommendations for service commissioners and research funding bodies on delivery of self-management support and future research priorities

Background

The global burden of disease is shifting to long-term conditions,¹ and there is worldwide interest in the development of models of service delivery to manage the needs of this patient group.² The influential Wanless report suggested that the future costs of health care were dependent on 'how well people become fully engaged with their own health'.³ NHS policy envisages care for long-term conditions based around three tiers: *case management* for patients with multiple, complex conditions; *disease management* for patients at some risk, through guideline-based programmes in primary care;^{4,5} and *self-management support* for low risk patients (70-80% of those with long-term conditions). Self-management has been defined as 'the care taken by individuals towards their own health and well being: it comprises the actions they take to lead a healthy lifestyle; to meet their social, emotional and psychological needs; to care for their long-term condition; and to prevent further illness or accidents'.⁶

Self-management support in England is provided through a number of different models,⁷ such as increasing access to health information,⁸ deployment of assistive technologies,^{9,10} facilitation of community based skills-training and support networks,¹¹ and through interventions led by health professionals.¹² However, the impact of self-management support has been restricted by a number of factors, such as limited engagement from patients and professionals,¹³ lack of reach into marginalised groups, and a lack of integration with other long-term condition initiatives.¹⁴

The global financial crisis has meant that even greater focus is being placed on efficiency in health care delivery. The Quality, Innovation, Productivity and Prevention (QIPP) initiative in the NHS is designed to identify efficiencies through service redesign. Increasing adoption of self-management is a major focus of the programme.¹⁵ Although self-management support has been highlighted as having a significant contribution to make to efficiency, there are uncertainties about the scale of that contribution. Initial reports of major effects of self-management support on health care utilisation¹⁶ have not always been replicated,¹⁷ and the fact that the impact of some interventions is on

outcomes such as self-efficacy has led to controversy about the importance of those outcomes to patients, professionals and commissioners.^{18,19}

Economic analysis in health services is based on the principle of *opportunity cost* i.e. any one use of resources involves a 'cost' associated with the lost potential from alternative uses. From an economic perspective, efficiency involves maximising outcomes for a given cost or alternatively, minimising costs for a given level of outcome. However, many health care interventions traditionally improve outcomes and increase costs, and the decision-maker is then faced with an issue of what is called 'allocative efficiency': additional resources are required to provide the new service, which incurs an opportunity cost for other groups of patients.²⁰

The financial pressures faced by health systems means that there is increasing interest in interventions that are described as 'technically efficient', where an intervention is *less costly and at least as effective as current treatments*.²⁰ The SDO brief aims to identify interventions that are 'technically efficient'.

Despite a developing evidence base, there is a lack of clarity concerning the optimal ways of delivering self-management support to incorporate policy-makers' concerns with efficiency. Coulter and colleagues identified 46 reviews of self-management interventions,²¹ but even with this large evidence base, they still reported that 'Despite the large number of studies..., the evidence base still has large gaps. Long term outcomes, cost effectiveness, the comparative effectiveness of different...strategies, and which components of complex interventions provide the greatest benefit have not been adequately evaluated.'⁸

There has been insufficient synthesis of quantitative data on outcomes and utilisation. Although a number of reviews (including Cochrane reviews) have conducted meta-analyses of self-management including utilisation outcomes,²²⁻²⁴ these have a number of limitations: many reviews avoid quantification of effects^{25,26} for reasons that are not always justified²⁷; reviews are often restricted to a single condition or a discrete type of intervention, which means that findings are not integrated and decision-makers are not able to compare and contrast a range of models; reviews often do not explore associations between the content of interventions and particular outcomes;⁴ reviews often treat outcomes and costs separately, and rarely have an explicit focus on *joint* effects on outcomes and costs. This makes it difficult for decision-makers to identify technically efficient interventions to reduce admission rates and other costs, without compromising patient outcomes, in line with the SDO brief.

We propose a review that will overcome these identified limitations in the published literature and provide optimal guidance for commissioners. This review will link with the work proposed by Professor Taylor and collaborators at Queen Mary's University of London and the University of Edinburgh (hereafter 'QMUL study') to provide a comprehensive overview of the evidence for commissioners.

Need

The proposed research addresses a major health need in the NHS. The burden of long-term conditions on patients, their families, and the NHS is significant and meeting the health needs of patients with long-term conditions is likely to remain a crucial factor in service planning in the future. Making improvements to the delivery of health care for patients with long-term conditions has the potential to make a significant contribution to health and well-being.

Complementing this focus on patient outcomes, the current global financial situation means that the NHS is faced with an urgent need to deliver high quality services to patients in an efficient manner which makes the best use of current resources. The Quality, Innovation, Productivity and Prevention (QIPP) initiative in the NHS is designed to identify efficiencies through service redesign. Increasing use of self-management is a major focus of the programme because of its potential to help patients manage their condition, make better use of available NHS support, and avoid interventions that are burdensome for patients and costly for the NHS.

The Department of Health is committed to providing NHS managers and clinical staff with support to enhance quality, productivity and efficiency. The NHS evidence site (<http://www.library.nhs.uk/qipp/>) includes examples drawing on both systematic reviews and case studies. There is clearly expressed need among managers and clinical staff for assistance in getting the most out of NHS investment.

However, despite a significant body of evidence on the effects of self-management support, major 'knowledge gaps' remain. The existing data are not available in a form to support decision-making about commissioning services to meet aims of quality and efficiency in the current financial climate. Many previous reviews have focussed on a single long-term condition, or a discrete type of intervention, which has made it difficult for decision-makers to get an effective overview of this area and make evidence-based decisions between different types of interventions. The focus of much research has often been on intermediate outcomes (such as self-efficacy) or clinical outcomes, and the effects of interventions on health care utilisation seen as secondary.

In recent years, there has been significant investment by a number of research funders in studies to explore the role of various forms of self-management support, including studies of the Expert Patients Programme and assistive technologies through the Whole System Demonstrators. The current research team has made a significant contribution to this evidence base. A new synthesis of the evidence is thus timely, allowing existing and new data to be reanalysed with a focus on maximising efficiency while maintaining high quality care and good outcomes for patients.

Methods

The SDO brief requires evidence of effectiveness of validated self-management support at an organisational level *to reduce hospitalisation rates and costs, without compromising patient outcomes*. To meet this precise brief, we restrict our quantitative systematic review to the much smaller subset of studies of self-management support that report quantitative data on health care utilisation (including, but not restricted to, hospital admissions) *and* patient outcomes, as these are the only studies that can answer the questions posed by the brief.

For the purposes of the review, we define a self-management support intervention as one primarily designed to develop the abilities of patients to undertake management of health conditions through education, training and support to develop patient knowledge, skills or psychological and social resources. We include all formats and delivery methods (group or individual, face to face or remote, professional or peer led). In line with the SDO brief, we will include interventions across the pyramid of care for long-term conditions, ranging from self-management through monitoring in primary care to more intensive support (such as case management) for older people with complex needs. We will exclude interventions where the self-management component is only a minor component of the intervention, and we will distinguish studies where self-management is the primary intervention from those where the effects of self-management support cannot be distinguished from broader interventions for long-term conditions. We will describe and justify all inclusions and exclusions clearly in the study report.

We will structure our review on the typology of self management interventions to be developed in Phase 1 of the QMUL study, so that the two reviews complement each other, but will consider self management interventions outside the typology if we identify relevant economic evidence.

We restrict the review to long-term conditions. There is no definitive list of such conditions, and we adopt the generic definition of a long-term condition as ‘one that can not be cured but can be managed through medication and/or therapy.’ This will include common conditions such as diabetes, asthma, coronary heart disease, as well as rarer disorders and mental health conditions such as depression, anxiety and psychosis. Again, we will structure our review on the typology and exemplar conditions to be developed by the QMUL study, so that the reviews complement each other, but will consider conditions outside the typology if we identify relevant evidence.

We will begin the process of identifying studies by checking published reviews, including those identified by the QMUL study in Phase 2. Reviews from the Cochrane Database of Systematic Reviews are likely to be particularly useful because of the high level of detail available on individual studies within these reviews which will ease identification of studies with data on utilisation and patient outcomes.

A previous review of the economics of self-management conducted by members of our team identified 39 economic evaluations of self-management support interventions of

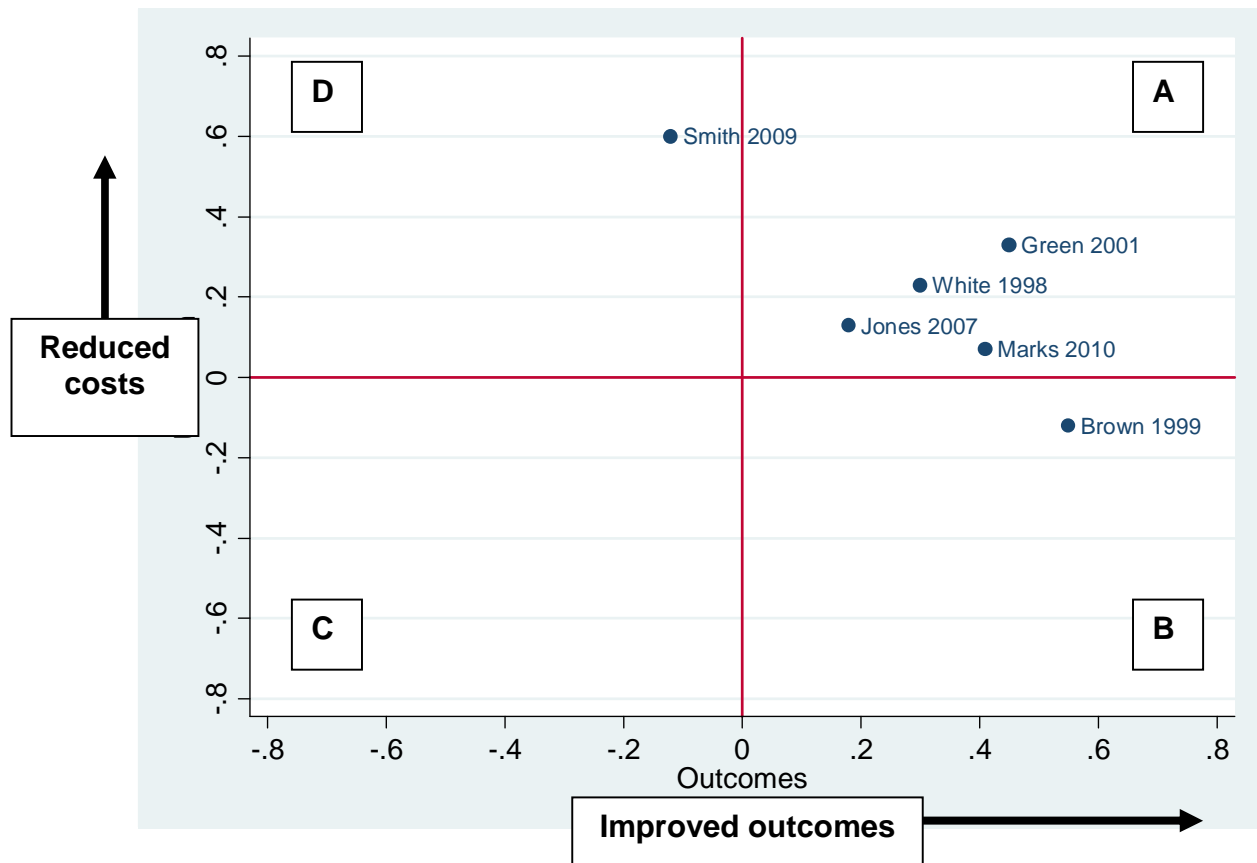
which 22 were randomised controlled trials.²⁸ We will conduct an update of searches for this earlier review of the economics of self-management. We will update these searches to 2012 and expand them to increase their sensitivity to a broader range of measures of utilisation beyond formal cost effectiveness analyses, as many studies report health care utilisation measures without a full cost effectiveness analysis.¹⁶ The search will include MEDLINE, EMBASE, PsycINFO, the Cochrane Library, together with specialist economic databases such as NHS Economic Evaluation Database, Health Economic Evaluations Database, and the Health Technology Assessment database. We have used these complementary approaches (i.e. examining published reviews, updated with primary searches of the literature) in previous work.^{29,30} We will include UK and non-UK studies and will seek translations of studies where relevant. Our focus will be on randomised controlled trials.

We will extract data to assist in the quality assessment of primary studies according to the Cochrane risk of bias tool.³¹ We will extract data on the effect of self-management interventions on core types of health care utilisation (hospital visits and admissions, primary care visits, medication use, other health care use, other costs including patient costs), as well as data on total costs, cost-effectiveness, cost-utility, and patient well-being and health outcomes. We will apply standardised measures of effect (such as the standardised mean difference) so that the results of different self-management interventions can be compared by decision-makers to assess their relative value. All data extraction will be conducted by 2 members of the research team working independently, with disagreements dealt with via discussion.

We will conduct meta-analyses pooling data relating to particular models of self-management support where the models, populations and study contexts are sufficiently similar to make such analyses appropriate and interpretable.²⁷ We will explore statistical heterogeneity thoroughly in such analyses through use of appropriate statistics such as I^2 .³²

The primary analysis will consider the ability of models of self-management to reduce hospitalisation rates and costs, without compromising patient outcomes. We will present the results using a modification of the *permutation matrix*,³³ plotting the effect of interventions (together with their associated confidence intervals) on utilisation and outcomes simultaneously and placing them in the relevant quadrants of the matrix depending on the pattern of outcomes (see Figure 1). This will enable the research team and commissioners to identify interventions that have a variety of relevant patterns of effects. For example, the modified permutation matrix can be used to identify models of self-management that reduce costs without compromising health outcomes (quadrant A), those that reduce costs at some reduction in outcomes (quadrant D), and those that increase costs and outcomes (quadrant B). Our primary analysis will be on hospital admissions and costs, but we will repeat this analysis for all major types of costs (e.g. inpatients, outpatients, primary care, community care, out-of pocket expenditure), as well as total costs. We have experience of this type of analysis in mental health.³⁴

Figure 1 Example permutation plot showing effects on utilisation and outcomes



We will explore the characteristics of models of self-management showing favourable patterns of outcomes in the matrix through narrative review or through formal meta-regression techniques³⁵ if the data are amenable. Characteristics will include those of the population (e.g. type of long-term condition, age, gender, deprivation and multimorbidity), the intervention (e.g. skillmix, intervention content, and delivery method) and the study context (e.g. geographical location, type of health system, date of study). We have conducted this type of analysis in a variety of contexts, including self-management.^{29,30,35}

Finally, we will extract published data on the 'reach' of each model of self-management support, defined via the RE-AIM framework (<http://re-aim.org/>), in terms of the 'percentage and risk characteristics of persons who receive or are affected by a policy or program'.^{36,37}

Contribution to collective research effort and research utilisation

We will seek to publish extensively in conventional academic journals, to complement the study report made available through the NIHR SDO website and appropriate University locations.

We will ensure that our patient and public involvement and NHS manager representatives feed into our plans for dissemination. We will ask that they advise us on the most effective methods of presenting information to inform patient and professionals and provide a tool to support effective decision-making in the NHS, also taking into account published evidence on effective dissemination of systematic review evidence, such as highlighting the importance of context and the use of 'graded entry' to the data.³⁸

We will ensure that our findings inform NHS Evidence work relating to QIPP (<http://www.library.nhs.uk/qipp/>), and that the main quantitative review is delivered to a standard that will enable it to be abstracted by the Database of Abstracts of Reviews of Effects (DARE).

Plan of investigation and timetable

The project will take 12 months.

Months 1-9 will involve the searches, data extraction and analyses for the quantitative systematic review. Months 10-12 will involve the synthesis of findings across the reviews and the writing of the final report. We propose to begin our study slightly after the beginning of the QMUL study, so that we can benefit from their original work on exemplar conditions, self management interventions, and their initial searches.

Approval by ethics committees

The project is a secondary synthesis of data and ethical approvals are not required.

Project management

PB will function as principal investigator for the project, and will set up a project management group and associated advisory groups.

The project management group will involve all study investigators and research staff and will be responsible for the delivery of the project to deadline. The project management group will meet 6 times through the lifetime of the project (using a combination of face to face meetings and teleconferences) to discuss emerging findings and problem solve issues as they arise.

We will invite patient and public involvement representatives from the PRIMER group at the University of Manchester, and NHS management representatives, who will be funded to attend the QMUL study Phase 1 Advisory Group workshop. They can then feed into

the project management group for the current study, and participate in the QMUL stakeholder conference at the end of the project.

Service users/public involvement

We will collaborate with the PRIMER patient and public involvement group, developed by the NIHR School for Primary Care Research (www.nspcr.ac.uk/The_University_of_Manchester_National_Primary_Care_Patient_and_Public_Involvement_Forum.htm) at the University of Manchester. PRIMER is a group of patient and public representatives who provide input to a range of projects at the University of Manchester, including existing projects on self-management of long-term conditions. We have already provided a project outline to members of the PRIMER group via email and have received useful comments on the scope and presentation of the project.

We have included funds for travel and reimbursement of time (in line with INVOLVE recommendations - <http://www.invo.org.uk/pdfs/PaymentGuideWEB240510.pdf>).

Expertise and justification of support required

Our research group has the full range of multidisciplinary skills required for this synthesis. PB is a Reader in Health Services Research and is highly experienced in systematic reviews and meta-analysis, reviewing for the Cochrane collaboration and publishing a number of highly cited reviews on complex interventions in long-term conditions. He has also been a member of the Self-Management theme at the Health Sciences Research Group, University of Manchester for a number of years and is closely involved in the evaluations of the Expert Patient Programme, Whole Systems Demonstrators (assistive technologies), the WISE model of self management support, and the evaluation of care plans in long-term conditions (CAPITOL project).

GR is a Senior Research Fellow and health economist in the Team for Economic Evaluation and Health Technology Assessment in the Centre for Health Economics, University of York. He has extensive experience in cost-effectiveness analyses in long-term conditions and has already conducted an earlier systematic review of the effect of self-management support on economic outcomes.

EM is a Reader in Primary Care and previous Harkness Fellow who is Director of the e-Health Unit at University College London. She has extensive experience in the assessment of assistive technology in supporting patient self-management and has several published Cochrane reviews in this area. Together with AR and AK, she has also conducted work on theories of implementation, and can advise on both reviews.

AR is a Professor of the Sociology of Health Care and an expert on patient experience and health policy in self-management. She leads the Self-Management theme at the Health Sciences Research Group, University of Manchester and the Patient Theme of the

Greater Manchester CLAHRC which is focussed on self management in vascular conditions.

AK is a Senior Research Fellow with a background in nursing and health service research who has conducted many large scale randomised controlled trials in self-management support. She led the national evaluation of the Expert Patients Programme and is completing the evaluation of the WISE model of self management support with 40 practices and several thousand patients in Salford. She also has extensive experience of qualitative work in self-management.

SN is currently Dean of the School of Community and Health Science at City University and a Professor in Psychology who has published reviews of self-management in long-term conditions, and currently leads the Department of Health funded trial of telehealth and telecare technology for patients with long-term conditions and social care needs (The Whole System Demonstrator trial). He has significant expertise in all areas of patient behaviour change.

We are seeking funds for a full time Research Fellow to act as project manager and lead reviewer. We have also requested 20% FTE funding for the principal investigator to manage the project and provide regular expert advice on all aspects of the review process. The principal investigator will also lead on the final study synthesis. All other applicants are funded for time to attend meetings and provide comments on ongoing drafts of the review. Given the short timescale for the review, we have also requested funding for 10% of a secretary in Manchester and London to provide assistance with the extensive literature search and document retrieval task, as well as organizing meetings of the project management and advisory groups. Additional funds have been requested for photocopying and ordering inter-library loans to support the review process, and for funds to support travel for PPI and NHS manager representatives. Specialist expertise in electronic database searching will be provided under contract by the team at the Centre for Reviews and Dissemination at the University of York, which will allow for 20 days of input from a specialist librarian.

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