

Evidence:

Summary of 'Do changes to patient- provider relationships improve quality and save money?'

*Summary of a review of evidence about value
improvements made by changing communication,
collaboration and support for self-care*

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Health Foundation commentary

This review of the evidence about how involving patients more in their care can improve quality and save costs is timely: the NHS in England is grappling with the twin challenges of implementing the Health and Social Care Act 2012 and the financial constraints on health service budgets that looks set to continue well beyond 2015. The Act has at its heart new duties for the health service to fully involve patients in decisions about their treatment and care. In seeking to implement this, managers and clinicians will also need to understand the possible impact on the costs of care as well as the benefits of delivering services differently. It is therefore critical that there is more understanding of the likely costs and benefits that may result from the implementation of policies to advance approaches such as shared decision making and self management support.

The Health Foundation wants to understand better whether changes which aim to improve quality can also achieve better value. This is the third evidence review in a series which has specifically sought out information on the costs and benefits of initiatives to improve services. The first two reviews were also carried out by Dr John Øvretveit. *Does improving quality save money?* considered very broadly approaches to improving safety, reducing waste and improving patient experience and the extent to which there was evidence that these save costs. The report was influential in highlighting the lack of such evidence and stimulating debate on the need for more research into the costs and value of improvement interventions at a time of reduced budgets and increasing demand on health services.

Does clinical coordination improve quality and save money? looked more specifically at changes to the organisation of patient care which can improve continuity of care and also increase value of care by reducing waste and duplication.

We are also committed to a programme of work concerned with changing the relationships between healthcare providers and patients, as we believe that this is vital to ensuring a better experience of using healthcare services and better outcomes: it is surely better to spend money on services that patients value than it is to spend money on services that they don't want, don't use or use ineffectively. We were therefore pleased to support the third review in this series; to examine the extent to which the published evidence on a wide range of approaches to changing patient-provider relationships supports the assertion that these approaches can both improve quality and save money. This review therefore also complements our other reviews of evidence in this field: *Helping people help themselves*, looking at the evidence for the effectiveness of self-management support, and *Helping people share decision making*, examining the evidence for shared decision making in improving people's experience of care.

The findings report on a field of scientific knowledge about patient-provider relationships and support for self care which is in its early stages, with a preponderance of conceptual literature over empirical studies. Although there is a growing body of literature about patient-provider relations, little of it has studied the impact on costs. Even where

costs are considered, these are often limited to the immediate intervention cost, rather than any assessment of return on investment in relation to the longer term costs of care. Nevertheless there are empirical studies which do provide evidence about how poor communication and lack of information impact adversely on patient care and also provide some evidence of effective interventions to improve communication and care.

The Health Foundation has published a number of reviews of the evidence about the effects of changing the relationships between patients and service providers, through improved communication and collaborative approaches such as shared decision making and supported self-management. The emerging picture is one that emphasises the importance of such interventions being considered as part of re-design to care pathways and changing models of clinical practice rather than as 'add-ons' to current models of care.

As with previous work in this series, a major finding is of the lack of research which has considered the cost implications of implementing interventions that aim to change the relationship. The review gives a clear message for researchers on the need to look further into how poor communication and inequitable relationships between patients and healthcare professionals add to the costs of healthcare provision. Research is needed which provides greater specificity in the descriptions of the interventions being studied, the underpinning logic models and how changes in the relationship improves quality and impacts upon costs. This needs to consider the different stakeholders and account for those costs over time, in particular, considering how effective implementation of an intervention links to the later experience and outcomes of a patient's care.

The report highlights where there are gaps in the evidence and where new research could provide valuable knowledge that could help decision-makers and practitioners to make evidence-based decisions about interventions which have the most likelihood of improving quality and saving costs.

We cannot make change without considering the resource implications. This message is particularly relevant at a time when UK healthcare and others are facing significant constraints on finance. The challenge is to prioritise the use of resources to provide high value healthcare. This is particularly relevant at a time when many providers and patient groups are exploring ways to enable patients to be more independent and take a greater part in their own care.

The Health Foundation will use the findings of this review to inform our thinking about future research into the benefits, effectiveness and cost effectiveness of approaches to changing relationships between patients and providers.

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Preface

Patients often experience relationships with nurses, doctors and providers that are more typical of the last century, and sometimes of the one before. Professionals and healthcare organisations have not changed as fast as other industries in the way they relate to patients. As a patient, I sometimes think this is a good thing, as not all changes in banks, travel and other services have been for the good. But in health services, many patients find the way their providers relate to them is frustrating, sometimes demeaning, and occasionally harmful to their health. This is not what most providers want. But many find their work situation prevents them from relating to patients in ways that would benefit the patient more. Some do not have the skills, and a few do not know they do not have the skills.

Research shows widespread problems in communication, collaboration and lack of support for self-care. Research also shows there are effective changes that can be made, but knowing which changes to make is only part of the solution. Giving more time for patient questions or education often means seeing fewer patients, even if it saves time in the long run. A change will need time and resources to carry out – will the new way take up more time and resources than we use at present? What stands between the knowing, and making a real difference for patients, is belief in the value of the change and our ability to make the change, and then working to implement the change.

This is why this report considers the cost of making the change and the costs of the new way of working. It compares these two costs with the cost of sub-optimal relationships at present – both the resources wasted and the needless suffering caused to patients.

We cannot afford to ignore the relationship between quality and costs. To do so leaves quality improvement as an enthusiast movement rather than an integral part of professional and organisational practice. The work of improving quality consumes resources. These resources could be used in other ways that may be more effective for patients. It is both an ethical and a business imperative to consider how much time and money a quality improvement costs and the consequences of using health resources in this way rather than another. This review advocates looking at whether quality really does improve, but also at whether resources are used more efficiently as a result of the improvement, and at the cost of the change.

This report is part of a programme of research which asserts that more progress will be made if we consider both the resource and the quality implications of proposed improvements. Bringing quality and resources together makes a unity of purpose more likely, which is necessary for the type of changes being considered here; changes in relationships which are central to our working and life experiences.

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Chapter 1

Introduction

1.1 Introduction

Do any of these new ways of working use fewer resources? Are any better for patients? Does the cost of the change pay for itself? These are the three questions answered by this review of the evidence. In addition, the report gives a method that health service personnel can use to make their own local estimates from the available evidence.

Two previous reviews on the topic of value improvement have found evidence of patient problems that were caused partly or wholly by care-givers' and patients' incomplete communication and collaboration (Øvretveit 2009, 2011a). They also found research that evaluated interventions to change how providers relate to patients and support self-care. They were not able to examine in detail whether, in addition to improving quality, any resources were saved (that is, whether the changes were 'value improvements').

Managers and implementers can use the review to help answer three questions:

- Do any of the problems listed exist in our services? If so, how significant are they, and what are the consequences of not taking action about them?
- Could we improve quality and reduce costs in our services by implementing any of the solutions? If so, how much return on our investment might we expect and by when?

- If we were to implement any of these solutions, where would the investment of money and time come from and what would we not do, or do less of, to pay for this investment?

1.2 Objectives and questions

The purpose was to answer the question: 'Do changes to patient-provider relationships improve quality and save money?'

The review searched for and presented evidence that reached a threshold level of certainty to answer these sub-questions:

1. Is there a problem? Is there any good evidence of sub-optimal relationships?
2. What are the solutions? Which changes to improve relationships have been described in empirical research?
3. Is there good evidence of relationship-changing interventions which improve quality and could save money, or which may cost more than they save?

An initial search found little high-certainty evidence of interventions achieving both quality improvement and resource savings. However, there was research that could be helpful in deciding whether or how to make such changes.

Thus, a fourth sub-question was added to make use of research to enable better informed decisions:

4. What does research suggest about which interventions are likely to, or may possibly, improve quality and save money, and what is the evidence or reasoning supporting this?

To answer this last question, a method was developed for estimating, from available evidence, whether an intervention could be one type of value improvement that achieves a quality and cost return on investment (Q+C ROI), if it is carried out in a local, routine healthcare setting. This method can be used by healthcare personnel and is described later.

1.3 What are the main findings of the review?

1. Research shows evidence of sub-optimal patient-provider communication and collaboration of different types.
 - An example is when doctors fail to give patients information about treatment side effects or ignore patients' advanced care plans.
2. Some may result in avoidable harm to patients or high costs to different parties.
 - An example is that between 35-50% of medications dispensed are not being used by patients, a proportion of which is due to the patient's misunderstanding.
3. There is evidence of sub-optimal support to patients who can and want to do more to care for their health condition, with the right help.
 - An example is a patient with asthma or COPD (chronic obstructive pulmonary disease) not receiving education and access to an informed helper which could have prevented their emergency hospital admission. Another example is a provider misrecognising when a patient's capacity or circumstances make it difficult for them to care for themselves.
4. Research shows the effects of different improvements to address these problems.
 - An example is giving patients a checklist before a consultation to improve communication and their understanding.
5. Often the effect-outcomes of 'improvements' relate to provider behaviour and it is not certain whether patient outcomes are better.
 - An example is physician communication training that results in changes in physician skills. However, the impact on patients' knowledge or health might not be known.
6. There is a small amount of research into the cost of such improvements, and the possible savings, but almost no empirical data about the cash impact on provider budgets. Resource savings are not cash-money savings in budgets. Often the spender does not save.
 - An example is a diabetes self-care support programme that required an initial high investment for the health system and for each patient. A marginal return on investment materialised for each patient after five years. Many patients left the provider over a 10-year period, resulting in a net loss to the provider, but possible savings to other providers.
7. The report recommends that providers and purchasers consider a set of interventions that research suggests may both improve quality and save more resources than they cost to implement.

For example:

 - Investing in a system to send text messages to patients' mobile phones to remind them of an appointment in a few days' time. This is liked by most patients, reduces non-attendance and is relatively low cost in proportion to the likely savings.
 - Certain post-hospital discharge self-care support programmes for older people with congestive heart failure have been found to save health system costs after programme cost is taken into account.
8. It recommends to 'consider these' because:
 - the improvement may only be for a specific intervention in a larger category of interventions (for example, only a few specific self-care support interventions are effective and fewer still are likely to result in a Q+C ROI),
 - research rarely provides certain evidence of Q+C ROI – most recommendations are based on available evidence combined with estimates,
 - the returns may take too long to materialise as cash in a budget,
 - a provider often does not make the savings, but someone else may,

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- much depends on how cost-effectively the change is made and many providers or health systems do not have the change experience or infrastructures – a local estimate will need to be made.
9. ‘No evidence’ or ‘not listed’ does not mean that an intervention or programme may not be a value improvement.
- It may mean there is no research, or that the evidence did not reach the evidence threshold and criteria required by this review. Also, this limited review may have missed some studies. It may also mean that a study found higher patient value did result, but also higher costs: the review only presents value improvements for which there is both a quality and cost return on investment to a health system.
10. Health service personnel and other decision makers can use the Q+C ROI method used in this and other value improvement reviews to make their own local estimates, prioritise improvements and manage projects for returns.

Chapter 2

Value improvement review methods

Given the objectives and the diverse literature on the subject, a management research review method was used to carry out a search and perform a timely synthesis of the many types of evidence needed to answer the questions. This used databases of published research, already completed evidence reviews, and the author's existing knowledge of the research on the subject, in an iterative approach to combine different sources and types of evidence (Greenhalgh *at al* 2004; Greenhalgh and Peacock 2005; Øvretveit 2003, 2005a,b, 2009, 2010, 2011a,b).

2.1 Steps of the method

The steps were as follows.

1. Broad scan. Define the objectives and search terms for the review; find and note the literature on the subject.
2. Narrow the focus on previous reviews. Identify and select previous reviews and assess these for answers to the review questions.
3. Open up inclusion. Bring in high-quality individual studies in order to provide additional evidence to answer the review questions, noting the strength of evidence of the findings and assigning a grade score (see page 11 for how the evidence was graded).
4. Open inclusion more widely. Add other research (of acceptable evidence strength) to fill in the evidence for the questions, noting that the evidence at this level is weaker, and using a snowball approach to identify relevant studies (Greenhalgh and Peacock 2005).

5. Review and synthesise. Combine the evidence in order to answer the questions, noting the degree of certainty (through the grading system). Identify unanswered questions and priorities for research and provide any recommendations that are supported by the evidence.
6. Make a Q+C ROI value improvement estimate to indicate the likely or possible quality and cost return on investment if the intervention is carried out in a local, routine healthcare setting (this step is summarised later in this chapter).

The search terms used and databases searched were selected to identify reviews and primary studies that were relevant to the questions and capable of producing evidence reaching a grade E4 threshold or above. The method is described in more detail in the full review report (Øvretveit 2012).

Research selected and evidence grading

The research findings reported were either:

- problems: associations between the occurrence of sub-optimal communication/collaboration/self-care and indicators of cost and quality,
- or
- solutions: associations between interventions to improve communication/collaboration/support for self-care, and indicators of cost and quality.

The degree of certainty of the findings of a study were categorised as strong, moderate, limited and low strength of evidence (categories E1, E2, E3, E4).

For findings about ‘problems’, the review tried to apply this evidence rating to how certain we can be that the problem reported (for example, patient dissatisfaction, or adverse drug event) was caused partly or wholly by under-performance in communication, collaboration or support for self-care, rather than by something else. This proved to be impossible so this scheme was not used for part one of the findings.

For findings about the effects of ‘solutions’, the grade refers to how certain we can be that these effects (for example, a change in provider behaviour, better treatment adherence, or reduction in waste) are due partly or wholly to the ‘solution’ and not to something else.

The assessment was made in terms of consistency of findings across studies and how well the research design was able to exclude influences, other than the problem or the solution, on the variables studied.

Evidence grading system

E1 Strong evidence of results

Consistent findings of results in two or more high-quality randomised controlled trials (RCTs) (for example, from a systematic review).

E2 Moderate evidence

Consistent findings of results in two or more scientific studies of acceptable quality (for example, from one RCT and other studies, or from two or more non-randomised controlled trials, or from two or more certain before-after designs with no control).

E3 Limited evidence

Only one study giving results, or inconsistent findings of results of several studies. Studies reporting only informants’ perceptions of results are graded E3 if they were collected and analysed according to accepted scientific methods for gathering perception assessments, show a consistent pattern and use an appropriate design.

E4 Very low strength of evidence

Any estimate of effect is very uncertain. One or more study with severe limitations or expert opinions using a standard consensus process.

2.2 Value improvement estimation method

‘No strong evidence’ is a frequent conclusion from systematic reviews of research. This is especially so for reviews of evaluations of social interventions, but it need not and should not end there. Such conclusions do not mean the research that has been done and the theories that do exist cannot be used to inform action in routine healthcare.

The evidence from this review’s search did not allow definitive statements about changes that would result in a value improvement. However, the search findings could be used as a basis for estimating whether an intervention might result in a value improvement giving a higher quality and waste/cost reduction (Q+C ROI).

What is a value improvement?

A value improvement is a change that both improves quality and the use of resources. Not all value improvements save money. Some cost more but are judged to be worth it. Some new pharmaceuticals use more resources but the quality for the patient is significantly higher – that is, high cost-effectiveness.

This review considers one type of value improvement: one that improves or maintains quality but also saves resources – a ‘saving value improvement’. An example could be training for clinicians to communicate with patients that results in less use of health resources and improved satisfaction and clinical outcomes, where the cost of the training is paid for by the resources saved. Another example is restricting or stopping the use of a treatment method or other activity that has been proved ineffective for certain patients, where the savings are more than the cost of the de-implementation programme.

This summary document only lists those interventions estimated as likely or possibly giving a three-year Q+C ROI in an integrated health system – where the fourth and subsequent years would see savings. This health system perspective is taken, rather than that of an individual provider, because the resources expended by a provider may not be returned to that provider because another provider may make the savings. This perspective is taken assuming that the system can redistribute the costs and savings across providers.

A three-year time scale is adopted because all interventions require resources to be implemented, and these have to be ‘paid for’ by services using fewer resources in later years. Three years is a reasonable time to allow for savings to start after ‘paying off’ the initial investment, but also probably the maximum time for many investors to see some return. If a longer timescale were used then the more likely a return on investment if the provider or health system has a stable patient population. Thus, the list of ‘saving value improvements’ in the findings would be shorter if a two- or one-year return on investment was used and longer for a five-year period.

The Q+C ROI value improvement estimation method

The method used to make ‘saving value improvement’ estimates can also be used by health service personnel. It was carried as follows.

Problems: waste and costs

1. For studies with evidence of problems, select those that quantify the problems. Use these to estimate the possible waste or cost to a provider or health system (or other stakeholder), showing the basis for the estimate and the limitations. If possible, give a range estimate – that is, ‘unlikely that this would cost a provider less than... or more than...’

Solutions: their cost, and likely savings (or loss)

2. For intervention studies, exclude those with inadequate evidence of quality improvements. These are those for which evidence is not sufficiently strong, or there is strong evidence of no improvement, for intermediate outcomes such as patient experience/satisfaction and effective care practices/process, or for final outcomes.
3. Identify studies with acceptable evidence of quality improvement and also some evidence of resources or cost, and include and summarise these in the review. These are the studies presented in the ‘Findings 2 – solutions’ section of the main report.

4. For studies with evidence of quality improvements only, identify whether they provide any data that would allow some estimate of the resources used for the intervention, and/or resources saved (for example, number of emergency department visits, physician office visits, hospital days or lengths of stay, medications supplied, or other consumable or equipment costs). Then make an estimate of the extra time saved or spent at year one after starting the investment, and years three and five. These are the studies presented in the section ‘Findings 3 – value improvements that save’ of the main report.

Differences from cost-effectiveness and business case analysis

A Q+C ROI analysis is different to a business case analysis, but it can be a core part of such an analysis. A business case analysis starts from the strategic objectives of the organisation and its business plan, and then shows how an investment can contribute to this. A Q+C ROI estimate could be used to show how the intervention contributes to the business strategy, and how it represents a better use of resources than other potential investments.

The definitions of ‘cost-effectiveness’ and ‘cost and quality return on investment’ describe different cost-results relationships. If a treatment costs less than £30,000 and results in one year of perfect extra life, then the UK’s National Institute for Health and Clinical Excellence (NICE) judges it cost-effective for the NHS (Devlin and Parkin 2004). Cost and quality return on investment is whether an intervention’s cost to a health system results in savings that mean zero net cost to that system within three years, while it also returns equal- or higher-quality on one or more quality outcome measures.

Chapter 3

Findings

3.1 A limited amount of high-certainty empirical evidence

There is a sizeable body of research about different aspects of individual patient's relationships with individual providers and with health service organisations. However, to answer the questions this review selected only studies reporting:

- empirical evidence of problems or sub-optimal relationships in communication, collaboration or self-care support,
- empirical evidence of the quality and/or cost outcomes of interventions or changes to services intended to improve communication, collaboration or self-care support.

The review then made a further selection by considering only those studies that reached a certain strength of evidence, as assessed by the grading method used in this review – for example, published in peer-reviewed scientific journals, using a research design and methods that are considered to provide evidence of an acceptable degree of certainty, or a number of lower-graded studies that show a consistent pattern of evidence.

Thus, the research presented is almost only from a quantitative experimental paradigm that describes associations between variables. This type of research rarely theorises about the possible causal chain or influence pathways, nor seeks to explicate underlying principles that can be reproduced in different contexts. At best, it aims to tease out the most impactful components in multi-component interventions, that is, those components that appear to have the largest effect.

A systematic review with a high threshold of evidence usually stops at this point and reports tentatively held conclusions, the limitations of the evidence and the need for more and better research. This review departed from this convention in two respects. First, it noted 'suggestive' studies (that is, lower than grade E2 for quality and cost evidence) with weak evidence at present but high significance for patient benefit and costs. Second, it took the evidence reported in the E1-E4 graded studies and made plausible estimates about possible costs and savings where the study had not made these calculations. However, much research is from other countries with different financial and regulatory systems, and thus the following lists of problems and solutions are suggestions for consideration and will require local return on investment estimation.

3.2 Problems – evidence of lower quality and higher cost

The details of evidence and studies are provided in the full review report (Øvretveit, 2012). The search revealed evidence of three types of sub-optimal patient-provider relations and some evidence that these are associated with both suffering and waste.

Communication

Sub-optimal communication issues reported include:

- individual providers failing to create an environment and relationship that allows effective communication of all types with the patient.

- patients withholding information from a provider.
- individual providers failing to provide information to the patient – especially about medications and other treatments – in a form they can understand.
- hospitals and other facilities failing to provide summary information to patients who are leaving about the treatments provided in the facility and necessary after-care.
- websites or other sources on the internet providing misleading or incorrect information to patients (weak evidence).

Collaboration

Sub-optimal collaboration issues reported include:

- patient safety, for example, lack of collaboration to confirm identity, confirm site of surgery or reconcile medications at transitions, where collaboration has been shown to reduce harm to patients.
- non-attendance for scheduled appointments.
- ‘overly-short’ consultations and frequently-changing providers.
- failure to ensure patient understanding of treatment and to motivate patients that results in treatment non-adherence or miss-adherence.
- imbalanced decision making with under-involvement and miss-involvement of patients in treatment and other decisions.
- in agreeing appropriate pain relief and providing support for palliative care alternatives.
- in managing end-of-life care – especially when providers and patients do not collaborate appropriately to make care plans and draft advance directives or these are ignored.

Support for self-care

Sub-optimal support for self-care issues reported include:

- Under- or over-emphasis of the patient’s role in managing their illness.
- lack of understanding and failure to provide the different types of self-care support that different patients need at different times in different situations (flexible matching).

There are other types of sub-optimal patient-provider relationships, but this review’s search found little certain research evidence about the suffering and waste they may cause. In many studies the strength of evidence was not possible to grade using the grading scheme selected – thus this scheme was used only for the intervention solutions described later. Only studies giving evidence of reasonably widespread problems are noted (the review author’s subjective judgement).

3.3 Solutions – evidence of value improvements giving savings

The problems described in 3.2 are deficiencies only if we assume that things could be otherwise. Sub-optimal events can become more optimal by using ‘solutions’ or interventions.

Part 2 of the review lists evidence of interventions that have been found to be effective for improving quality and reducing waste, or show great potential to reduce waste. Part 3 used this evidence to make estimates about whether the cost of the intervention may be paid for by any cumulative savings over a three-year period for an integrated health system (a three-year Q+C ROI). The summary of solutions that now follows is taken from Part 3.

‘Likely’ and ‘possible’ saving value improvements are listed for communication, collaboration and support for self-care interventions, as well as some ‘likely to cost more than they save’.

- Likely saving value improvements are those interventions where there is adequate evidence of both improved quality and lower costs and the costs of implementing the intervention (the investment) are likely to be paid for by lower costs within three years.
- Possible saving value improvements are those where the certainty of both higher quality and lower costs from the research is less strong. However, either the intervention is low cost, and thus savings are possible, or there is high plausibility from the available evidence of higher quality and savings. Some of interventions in this group have a high evidence rating (for example, E1). This may only refer to the strength of evidence about improved quality; the evidence of cost-savings may be weaker.

The warning has been made before in this report: these are indications only. Local estimates will need to be made because results depend on local implementation and context factors such as financing arrangements. Also, no evidence may mean there is no research, or the research is poor. In some reviews it can also mean that research found no effects or no savings.

Communications value improvements

These are changes that give more appropriate information, or increase understanding, and may save resources three years or less after the start of the investment:

None are 'likely', but some are 'possible' value improvements

No likely value improvements were found. This means that this review did not find research into communications interventions that reported strong evidence of both improved quality and less use of resources.

However, there was some evidence of improved quality and/or less use of resources that may cover the cost of the intervention for the following:

- Providing information: appropriate written and oral information prior to consultation or treatment, or post-treatment, if the information is matched to the patient's needs and abilities (E1 Griffin *at al* 2004; E3 Johansson *at al* 2005; E1 Coulter and Ellins 2007; E1 Johnson *at al* 2003).
- Patient writes concerns before consultation: an intervention to enable patients to write a note of their concerns before a clinical consultation (E1 Griffin *at al* 2004).
- Mobile phone text messaging: to give patients reminders about a scheduled healthcare appointment (to reduce non-attendance; E1 Car *at al* 2008), to communicate results of medical investigations (E1 Gurol-Urganci *at al* 2008) and feedback on treatment success, especially for patients with chronic illnesses (E4 de Jongh *at al* 2008).
- Mailed and telephone reminders: to reduce non-attendance, or move non-attenders to the bottom of the waiting list (E2 Can *at al* 2003; E1 George

- and Rubin 2003; E3 Reekie and Devlin 1998; E4 Moser 1994; E3 Quattlebaum *at al* 1991; E2 Bech 2005).
- Enable question asking: specific appropriate interventions to enable patients from low-income ethnic minority groups to ask their doctors more and better questions and to recognise the importance of asking questions in decision making (E3 Deen *at al* 2011).
- Training doctors: a specific intervention using role playing, feedback and small group discussions to improve patient communication skills (E1 Haskard Zolnieriek and DiMatteo 2009).
- Visual feedback: to patients of their medical imaging results for those who smoke, or who are at risk of UV-related skin cancer (E1 Hollands *at al* 2010).
- Offering patient email access: to physicians or specialist nurses for specific patients for specific purposes (E3 Car and Sheikh 2004; E3 Gagnon *at al* 2009).
- Patient internet sites: specific systems established by the patient's provider or their health system, with patient access and ability to comment on personal health information – test results, problem summaries, medication lists and side effects (E4 Weingart *at al* 2008).
- Patient-directed record tools: interventions to enable selected patients to use internet-based personal health record systems (PHRs) to create their own medical record and health diaries (E4 Archer *at al* 2011).

Likely to cost more than they save

- Training without practice and feedback: educational interventions for providers in patient communication or collaboration skills that use only oral presentations, without skill practice and feedback (E1 Berkhof *at al* 2011).
- Email access for all: offering all patients email communication direct to their physicians (E3 Katz *at al* 2003, but recent unpublished Kaiser Permanente (USA) data questions this, for email to primary care doctors).

Collaboration value improvements

These are changes that enable patients and providers to work better together to improve a patient's health, and can save resources. Again, only specific interventions evaluated in a study are likely to or could possibly have these results. These results should not be expected from a whole category of interventions, such as all patient decision aids. The estimates are that they can save resources within three years or less after the start of the investment:

Medication-related – 'likely' value improvements

- Simplifying dosing: increases medication adherence and is a low-cost intervention (E1 Haynes *at al* 2005). Further downstream impact from increased adherence also affecting health and cost outcomes is likely but unproven and dependent on the effectiveness of the treatment for which adherence has increased.
- 'Calendar packaging': ideally with education and reminder strategies, to improve medication adherence (E1 Zedler *at al* 2011).

Medication-related – 'possible' value improvements

- Medication reconciliation: interventions to enable patients and providers together to check the accuracy of their prescribed medications, when moving from one provider or unit to another (E3 Varkey *at al* 2007). Evidence is weak but assumptions about the costs of the intervention suggest that the potential Q+C ROI is high.
- Incentives for treatment compliance: for low-income patients with tuberculosis (E1 Giuffrida *at al* 1997).
- Patient reinforcement and reminding: for increasing adherence to lipid-lowering medications (which can reduce risks of heart disease or stroke), or simplification of the drug regimen or patient information, and education for this purpose (E1 Schedlbauer *at al* 2010).

Patient role and participation – 'likely' value improvements

- Some decision aids: to help patients choose between treatments or decline to use a treatment (E2 Kennedy *at al* 2002).

Patient role and participation – 'possible' value improvements

- Patient activation for safety: low-cost specific interventions to enable patients to speak up about known safety risks – for example, signs in rooms and staff wearing reminder buttons (E4 Waterman *at al* 2006; E4 Spath (ed.) 2004; E4 Hinkin 2002).
- Combined intervention for physicians and specific patient groups: an intervention to improve physicians' communication skills and activate patients to participate in their care, for patients from low-income or ethnic minority groups (E3 Cooper *at al* 2011).
- Specific interventions to improve patient participation in health consultations: these use patient-directed coaching, educational materials and feedback to providers of patient-reported outcome measures, or specific communication skills training (E1 Haywood *at al* 2006).
- Access to rapid response team: allowing patients or relatives to call a hospital rapid response team in specific situations (E4 De Vita *at al* 2010; E4 NPSF 2007; E4 Odell *at al* 2010; E4 Dean *at al* 2008).
- Palliative care alternatives: patient and/or family and provider collaboration to provide palliative care as an alternative to other treatments that may not be wanted by the patient (E3 Morrison *at al* 2008; E3 Back *at al* 2005; E3 Brumley *at al* 2007; E3 Elsayem *at al* 2008).
- End-of-life home-based care: interventions to enable patient/family-provider collaboration to give home-based care at the end of life (E1 Shepperd *at al* 2011).
- Advanced directives or advanced care planning support programme: with independently-regulated experts facilitating patients to prepare advanced directives (E3 Molloy *at al* 2000).

'Likely' to cost more than they save

- Some safety recommendations: providing poorly-selected safety recommendations to patients may reduce quality by raising anxiety, increase waste through the cost of preparing and providing the information and through triggering patient concerns that unnecessarily interrupt healthcare routines (E4 Weingart *at al* 2009).

- Training without workplace change to allow training to be practised: training physicians in shared decision making without other changes to the context of their practice (E3 Towle and Godolphin 2009).

Support for self-care

These are changes to enable patients better to care for themselves by providing information, education, access to experts by telephone or internet and other support. This may then mean that a patient makes less, or more appropriate, use of a provider's services or other resources such as medications.

'Likely' value improvements

Research evidence, and reasoning from intermediate outcomes, suggests that the following are likely to both improve quality and save resources three years or less after the start of the investment:

- Self-care for chronic illness: most types of self-care programmes for patients with chronic illnesses, but only if selected patients are those with the highest risk of avoidable admission and with the desire and capacity for self-care (E4 Lorig *at al* 2001). The selection and matching to the type of programme appears to be more important than the particular programme used.
- Versions of lay-led self-care teaching: some applications of the UK Expert Patient Programme of lay-led self-care teaching, with selected patients being those with the highest risk of avoidable admission (E3 Richardson *at al* 2008). Peer-facilitated self-management education for patients with heart disease, lung disease, stroke or arthritis (E4 Lorig *at al* 1999). This intervention was the model for the UK lay-led Expert Patient Programme.

Some self-management programmes for patients with specific diseases:

- Asthma: some interventions for asthma patients' self management (E3 Downs *at al* 2006; E3 Krishna 2003).
- Type 2 diabetes: group-based educational programmes for people with type 2 diabetes mellitus (E1 Deakin *at al* 2005).

- Congestive heart failure: post-hospital discharge self-care support programmes for older people with congestive heart failure (E1 Phillips *at al* 2004).
- Ulcerative colitis: self-management training and follow-up on request, for patients with ulcerative colitis (E3 Rogers *at al* (no year given)).
- Osteoarthritis: group discussions and education for patients with osteoarthritis (E4 Groess 2000).

'Possible' value improvements

- Inflammatory bowel disease: a 'possible' value improvement to be considered is a multiple component intervention for people with inflammatory bowel disease, including training for hospital specialists to provide a patient-centred approach to care (E3 Kennedy *at al* 2003).

'Likely' to cost more than they save

- Osteoarthritis: one type of osteoarthritis self-management programme (E1 Chodosh *at al* 2005).

Chapter 4

Limitations of the review and the evidence

The limitations to the review need to be emphasised. The findings are not definitive statements of the only changes that will both improve quality and save money. Rather, they are indications of which changes decision makers could consider first and they show a way of thinking about how to improve quality when there is extreme pressure on time and resources.

The first limitation concerns the evidence from the research to answer the review questions. There is a growing body of research into patient–provider relations. For example, the Picker website lists ‘124 systematic and high-quality narrative reviews that evaluated various initiatives designed to educate and support people with long-term conditions’ (Picker 2011). However, the certainty and generalisability of the evidence of whether these initiatives save resources as well as improve quality is limited. Evidence from these intervention studies is often about intermediate outcomes and not about downstream patient and cost outcomes resulting from the interventions – possible longer-term outcomes are important for assessing a return on investment that can take at least three years to pay back.

Second, the search and selection of studies was not comprehensive and some studies could have been missed. Much of the literature had already been reviewed and the search was primarily to supplement these reviews by examining the reviews and primary studies for evidence of costs of the interventions and resource savings.

Third, the economic perspective taken is that of a healthcare provider system over three years. It does not consider wider social costs and savings, or those of patients and their informal carers or other stakeholders. Also, more interventions might be included if the return on investment could be longer than three years.

Fourth, generalisability of the findings from this review is limited. Most of the evidence is of a specific intervention or change carried out in one setting, often for one type of patient group. Whether the same intervention would produce the same outcomes elsewhere or for other patients is unknown, especially in another country. Reviews and multi-centre studies may give more generalisable findings if the same intervention has been studied in different settings for different patients. But it is difficult to know the kind of results to expect in our own service with our patients. This is not least because it may not be possible to implement the change in the same way as in the research and because our health system may be different.

Thus, research and the evidence can help practical improvements but can be misleading if local decision makers do not recognise the limitations and make their own assessments. These limitations are, in one sense, good news for researchers because actionable evidence of the type considered here is much needed. But they also present researchers with the challenge to be more innovative in their research methods and in their collaborative research practices, in order to provide the information that decision makers need and communicate it in more usable formats.

Chapter 5

Practical implications

5.1 Potential savings

The review sought to make the most of the research that was available, but also to avoid making misleading statements not justified by the evidence. It did this by grading the certainty of the research. It also emphasised that findings may not be generalisable, and instead only applicable to specific interventions described in the primary studies – not to general categories of interventions, such as communications training.

The review drew on assumptions of likely causal relations between the problem and the waste and costs for providers, payers, patients and society. The most uncertain and most difficult to generalise of the findings were the estimates about the costs of making and sustaining an improvement and the savings in subsequent years, if any.

It is important to bear in mind that:

- some problems do not have solutions invented yet; we do not know how easily some could be to solve,
- some problems have solution ideas, but no one has tested them,
- some solutions have been tried, but not adequately evaluated: we have reports of the change, but there is weak evidence of effectiveness or evidence only of a change to process of care and not to patient or cost outcomes,
- some solutions have been evaluated and proven to be ineffective, or high cost relative to the savings,
- some solutions are effective and low cost, but may be difficult to implement or high cost in some services – for example, expensive computer

upgrades may be needed in some services to implement IT supported communications with patients.

5.2 Conditions for savings value improvements

Changes will be needed to financial and regulatory arrangements and implementation infrastructures will need to be built if significant value improvement is to be carried out in most countries. This is one conclusion that follows from this review and the two previous value improvement savings reviews, each of which found disincentives and obstacles preventing providers from making changes that could improve quality and reduce waste. Each also found there was a lack of support infrastructures to provide expertise and project management to make the changes. Both research and experience suggests that the following related conditions are needed to accelerate widespread value improvement change efforts in healthcare:

- measure quality as well as resources or costs,
- purchase by value not volume (made possible with measures of quality and resources),
- create competition and collaboration to support value improvement,
- prevent special interest capture of regulatory and other institutions,
- provide and reward investment for value improvement, including investment in implementation infrastructures and schemes for spreading costs and savings fairly between different stakeholders.

5.3 Actions for operational managers of health systems or provider services

The research evidence shows what to expect from an intervention, but each service will be different. The impact could be plus or minus 50%, or more, of that shown in the research. Research has identified some of the types of quality problems to look for that could be reduced at a cost lower than that of the quality problem. However, providers will need to get and use data from their service about the size of each problem, the wasted time and the financial cost of the problem to the service.

When reports claim, ‘waste costs of...’ or ‘potential savings from...’, then be sceptical and ask:

- *‘Where is the evidence and how strong is it?’*
- *‘Has a solution been developed?’*
- *‘How effective is the solution, and how much does it cost?’*

- *‘What would be different in my service for my patients and providers?’*

Calculating one’s own estimates is especially important for assessing the likely spend cost of the solution. The result is likely to be different from that of the service cited in the study. Much will depend on whether the service already has experience of making changes of this type and an infrastructure and skills to implement change, such as project management support. Each service will need a slightly different solution, which will need to be implemented in a slightly different way, and will use more or less resources than those at the study site.

The checklist in figure 1 gives guidance for answering the second question: ‘Could we improve quality and reduce costs in our service by implementing any of the solutions?’ More detailed guidance is provided in an appendix to the US Government Accountability Office (GAO) 2011 report (GAO 2011).

Figure 1: Checklist for assessing whether to act on an evaluation

Assessing the research

- **Intervention and context description:** Were enough specific intervention details given to be reasonably able to replicate it locally, and of the context to assess if any special conditions are needed to implement it?
- **Sample:** Which people or organisations were measured to get data about outcomes? Was the sample large enough and appropriate for the research objectives? If there was a comparison sample, was it a fair comparison?
- **Outcome measures:** Are the measures direct indications of the most important impacts of the intervention, or of intermediate or final outcomes? Are they measures of the costs of the changed service relative to the unchanged service, or to a comparison service? Or are they measures of visits or lengths of stay, where we have to guess the money value of any savings?
- **Attribution certainty:** Which other influences might explain any changes in the observed outcomes? Are these considered or controlled for by comparisons or randomisation? How likely is it that the intervention or something else caused the outcomes reported in the study?

Assessing the local relevance

- **Different likely outcomes:** How similar and different are your people or organisations to those in the study for whom outcomes were measured? Will the outcomes be greater or less for your people or organisations?
- **Resources:** Considering the resources they had to implement the intervention in the study, do you need more or less resources to implement something similar?
- **Context:** How is your context similar and different in ways that may affect ease and cost of implementation, future running costs and savings? Context includes features of the local facility, health system, funding and regulation that will affect implementation, availability of investment resources and operational funding payments.

5.4 Actions for researchers

The findings of this review have implications for researchers. Possibly the most important is the need to provide more evidence about the cost-consequences of problems, the 'spend costs' of interventions and the savings or increased costs for different stakeholders. Also, to go beyond reports of associations between variables and address causality, using theory of how interventions or problems link to later downstream events.

Priorities for future research

The criteria for choosing the list in figure 1 (previous page) are that it is likely the research will more than pay for itself if it provides actionable findings and that the interventions already show promise for significantly reducing avoidable suffering and healthcare resource use:

- Many prevention and health promotion interventions.
- Matching information and provider decision-support style to patient preferences and needs and selecting patients for self-care in terms of their desire and ability.
- Specific communication interventions.
 - Telemedicine, 'smart home technologies', and direct email or telephone access to physician or specialist nurse for specific patients at specific times.
- Specific collaboration interventions.
 - To enable better matching as noted above; interventions to promote patient actions to reduce risks of harm from healthcare; advanced care planning or advanced directive programmes (including ethics and regulation aspects); patient-provider contracts and patient incentives; intervention to assist decisions about entering long-term care; and end-of-life structured multidisciplinary care planning methods (clinical pathways).
- Specific self-care interventions.
 - Self-management education interventions for people with COPD or arthritis; and why do certain interventions to improve self-management in some patients not change self-management behaviours, but do reduce use of healthcare?

5.5 Actions for research funders

The priorities for future research will not be addressed unless research funders are willing to invest in research, and in research that is likely to produce a return on investment in terms of yielding actionable knowledge. The gaps in the research described in the full report, and those noted above, present attractive opportunities for research funders and researchers to be at the forefront of a new field. The opportunities include:

- providing practical, useful ways to conceptualise and measure different patient and provider relations and different patient-centred and patient-activation approaches,
- providing empirical data about the size and consequences of different types of sub-optimal relations,
- providing data about effectiveness and costs of interventions, and savings or losses.

Funders can also encourage research that will make up for the lack of theory about the links between changes to patient-provider relations and intermediate and final outcomes. Research to address the lack of descriptions and evaluations of programmes that spread effective approaches for improving communication, collaboration and self-care, and the context conditions necessary for success, should also be encouraged.

Some gaps in knowledge can be reduced through better RCTs. Many gaps require new research methods that are more suited to understanding relationships between people and behaviour in social systems, and for quantifying resource use, waste and savings.

Innovation in research and research funding is required to provide practical answers; both to stimulate action and to help actors in the field – who are already making changes – to make better-informed decisions.

5.6 Actions for regulators

The evidence is that sub-optimal communication, coordination and self-care is costly in terms of unnecessary suffering and wasted resources. It is part of a regulator's mission to act on this evidence in order to protect patients and help reduce costs for purchasers and providers. Regulators have a powerful influence and a key leadership role in stimulating improvements.

The research suggests specific actions that regulators can take, which include:

- developing measurable process-of-care standards for key aspects of patient-provider communication and collaboration known to be essential,
- setting safety and quality goals that target the communication and collaboration problems shown in the research,
- developing and using appropriate indicators to highlight performance in key aspects of communication, collaboration and providing self-care support,
- creating and assessing standards for advanced directive and advanced care planning that prevent abuse and ensure compliance with ethical and clinical best practice.

Regulators' influence on providers has both good and unanticipated negative consequences. Regulators sometimes underestimate the costs of compliance. For this reason, collaboration with providers and other stakeholders is necessary to develop standards, methods and indicators, and for pilot testing.

5.7 Actions for purchasers

When purchasers pay for the consequences of problems caused by sub-optimal communications, collaboration or self-care they are wasting money that could be used for other patients. The challenge is knowing which problems cause the most suffering and waste and which are resolvable at a cost proportionate to the likely savings.

This review offers some indications, but the practical challenge is to gather details of the specific services and patients covered and then set local purchaser strategies to address these. This will include:

- identifying those patients most likely to benefit from improvements in services where the cost savings also are high,
- selecting provider performance indicators that can be used to track the indicators and outcomes most influenced by the improvements needed,
- revising payment systems to avoid penalties and give incentives for effective actions – especially for providing self-care support – so as to pay for investments in changes and for sustaining them in a changed service,
- sharing costs and savings – either through a purchaser venture capital fund or by outsourcing, to a cost and savings sharing agent, the tasks of agreeing a project, monitoring expenditure and savings, and sharing the resulting savings or costs.

Chapter 6

Conclusion

The review summarised here considered certain types of research into relationships between a patient and the one or more health professionals paid to help them. It found evidence that certain relationships can help a patient regain or maintain their health. Some can harm them or miss opportunities to heal and help. It also found evidence that sub-optimal relationships commonly resulted in wasted time and resources. The good news is that we can do something about this: some interventions can reduce the waste, make better use of resources and improve quality for patients.

This report is not proposing that investments that improve care, but cost more, should not be made. Rather, that those that improve care and save resources are more likely to be carried out at this time. It sought evidence of changes that may produce a resource return on investment greater than the resources needed to make the change, and that improve or maintain quality within three years. It did so for two reasons: first, research can help us choose changes that are more likely to be effective. Second, at a time when change will not be easy, evidence of quality, and cost returns greater than the investment, can motivate and unite different parties. Unity will be needed to carry out changes to this central aspect of healthcare: how patients and providers relate.

The review identified interventions ‘likely’ or ‘possibly’ resulting in value improvements within three years in an integrated health system. It suggests interventions to consider, but personnel will need to make their own local estimates, using the Q+C ROI method and their own local data, to calculate the problem cost and spend costs, given their implementation capacity.

While the research evidence has its limitations, it is clear that there is substantial room for improvement in many aspects of the way providers relate to patients. In some cases we do not need research evidence to see that some interventions could improve quality and save resources. For some, evidence of impact is weak but reasoning suggests significant savings are possible.

Although resource savings are possible, it is not clear whether a local provider will save money. Providers using their own investment resources to implement a change might not realise cash in their budgets that pays the cost to make the change and the cost of operating the new way of working. Even less clear is where the investment resources and the will to make the change would come from. This is especially so if the provider making the change does not see a return or loses income under a payment system that pays only for volume. New payment systems, social investment capital and implementation infrastructures will also be needed.

At a challenging time, this research gives us hope and motivation. By using the best evidence and reasoning to identify changes that improve quality and save resources, we can unite the efforts of clinicians, managers, funders and patients to make the changes that will benefit all.

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