

No. 20

# Spreading improvement ideas

Tips from empirical research

**Evidence scan**

May 2014

---

# Contents

---

Key points	3
1. Setting the scene	5
2. Targeting individuals	7
3. Targeting groups	11
4. Targeting wider systems	16
5. Helpful and hindering factors	21
6. Summary	26
Appendix: Identifying relevant research	29
References	30

---

Health Foundation evidence scans provide information to help those involved in improving the quality of healthcare understand what research is available on particular topics.

Evidence scans provide a rapid collation of empirical research about a topic relevant to the Health Foundation's work. Although all of the evidence is sourced and compiled systematically, they are not systematic reviews. They do not seek to summarise theoretical literature or to explore in any depth the concepts covered by the scan or those arising from it.

---

**Author**  
Dr Debra de Silva

**Organisation**  
The Evidence Centre

**Contact**  
[debra@evidencecentre.com](mailto:debra@evidencecentre.com)

---

# Key points

This evidence scan summarises empirical research about what works to spread ideas in health care in order to advance improvement.

## What has been studied?

Health care teams are constantly innovating and improving but it takes time to spread good practice throughout and between organisations. Many strategies have been tested to help share good ideas in health care. The three most commonly researched approaches for targeting individuals, groups and wider systems to act as agents for dissemination are as follows:

### Individuals

1. Providing information
2. Audit and feedback
3. Training

### Groups

1. Train-the-trainer models
2. Improvement collaboratives
3. Action research

### Wider systems

1. Campaigns
2. Social media
3. Networks

It is important to note that approaches can simultaneously seek to spread improvement via individuals, groups and wider systems.

## What works?

Based on a review of 477 studies, there is evidence that spreading good practice in local internal teams can be facilitated by targeting key individuals, providing focused and proactive training and internal marketing.

Methods that may work best for rolling out ideas to other organisations include quality improvement collaboratives, formal and informal professional networks and social media.

Approaches for rolling out ideas at national or international level include: targeting key decision makers and policy makers; networks, social media and wider communications; social marketing campaigns.

Table 1 overleaf summarises key findings about dissemination approaches examined in the scan.

## Top ten tips

Here are ten tips for spreading good practice, drawn from the empirical research:

1. Get a range of people involved in both implementation and dissemination of ideas, including clinical and managerial leaders.
2. View people as active change agents, not passive recipients.
3. Emphasise how initiatives address people's priorities.
4. Target messages differently for different audiences.
5. Provide support and training to help people understand and implement change.
6. Plan dissemination strategies from the outset.
7. Dedicate time for dissemination.
8. Dedicate funds for dissemination.
9. Make use of a wide range of approaches such as social media, opinion leaders and existing professional networks.
10. Evaluate the success of innovations and improvements, but also the extent of uptake and dissemination within teams, organisations and more broadly. The things that are measured tend to get more emphasis, so measuring dissemination may help to ensure that it is a priority.

**Table 1: Summary of key findings about dissemination approaches examined in this scan**

<b>Dissemination approach</b>	<b>Summary of key findings from the research</b>
<b>Written materials</b>	Written materials may increase awareness but are less likely to motivate behaviour change.
<b>Conferences</b>	Conferences may spark awareness, particularly in early adopters.
<b>Social media</b>	Social media has the potential to spread ideas and increase uptake, but may not be being used effectively in healthcare.
<b>Campaigns</b>	Campaigns have the potential to spread ideas and increase uptake, but evidence of longer term impacts is lacking.
<b>Change champions</b>	Change champions or opinion leaders can influence uptake, especially among clinicians.
<b>Training</b>	Training can improve the knowledge and skills of participants but the impacts depend on the format and may be short term.
<b>Train-the-trainer</b>	Train-the-trainer programmes can help to share skills but may not always improve uptake of new practices if sufficient resources are not dedicated to rollout.
<b>Action research</b>	Action research has the potential to spread practice within wider teams, but the evidence base is lacking.
<b>Collaboratives</b>	Evidence about the impact of collaboratives is mixed. They can help to improve good practice but effects may not be long-lived and may not disseminate more widely than to those taking part.
<b>Networks</b>	Ideas are spread through social and professional networks, but the exact mechanisms for this and how to harness networks effectively remains uncertain.

---

# 1. Setting the scene

The faster we can spread good ideas, the better health care will be. This evidence scan summarises practical tips, drawn from empirical research, about what works to disseminate good practice.

## Scope

Within the NHS there are many pockets of good practice and examples of successful innovation and improvement. Sometimes these good ideas are not adopted by the wider system, or take a long time to spread. This evidence scan provides examples from the published empirical literature of techniques for spreading innovation and improvement. The focus is on identifying practical things that teams and organisations can do to publicise and spread new ideas and ways of working.

The scan addresses two key questions:

- What research evidence is there about the best ways to spread health care innovations and improvement? This is covered in Chapters 1-4.
- What does the research evidence suggest contributes to the successful spread of a health care improvement or innovation? This is covered in Chapter 5.

## Common approaches

More than 22,000 articles were scanned and evidence from 477 studies is included. The appendix describes the methods used to identify relevant research. The approaches most commonly researched can be broken down into those that target individuals as agents for spread, those that focus on teams or groups as mechanisms for dissemination and those that focus on wider populations or networks (see Figure 1 overleaf).

Approaches can be used to target more than one level (such as both individuals and groups), however in simplistic terms the most commonly researched approaches for spreading good practice can be broken down as follows:

## Individuals

### Providing information

- Materials and toolkits
- Articles and conferences
- Audit and feedback
- Training
- Educational outreach visits

## Groups

### Targeting influential colleagues

- Involve leaders and teams
- Change champions

### Sharing across groups

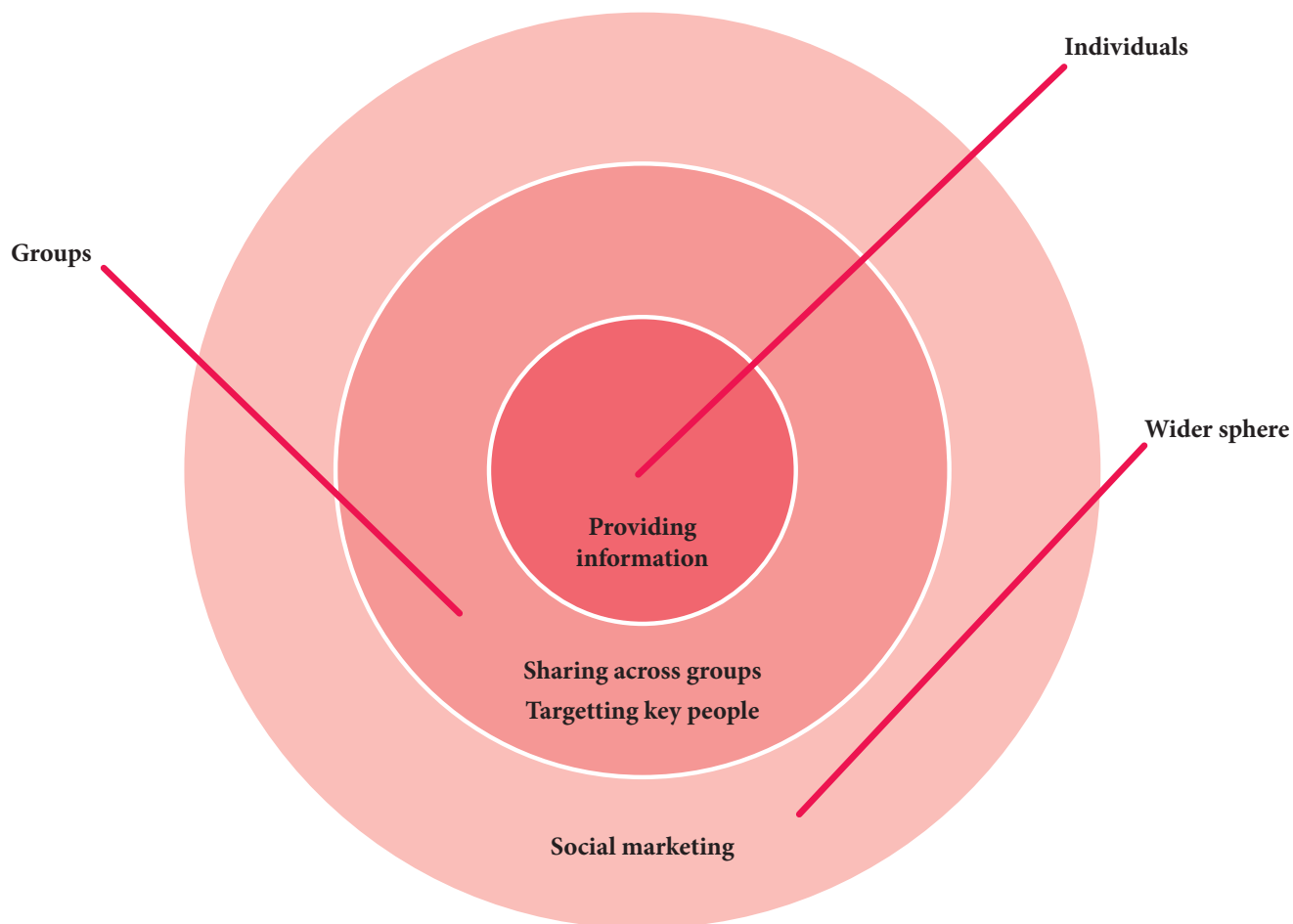
- Train-the-trainer models
- Collaboratives
- Action research

## Wider systems

### Social marketing

- Campaigns
- Social media
- Networks

**Figure 1: Levels for spreading practice**



Another way to differentiate approaches is by separating those that focus on providing information from those that focus on proactively engaging individuals and groups. In simple terms this difference is about top-down versus bottom-up or push versus pull approaches. It could also be categorised as knowledge-orientated versus behaviour-orientated approaches.<sup>1</sup> Table 2 illustrates this distinction, though it is important to emphasise that this is simplistic and that approaches can fit into more than one category.

Chapters 2–4 summarises research about the extent to which each of these approaches works to disseminate and diffuse good practice. High level themes about each approach are summarised, and tips drawn from the research evidence are provided.

**Table 2: Approaches researched for spreading good practice**

Target	Information	Engagement
<b>Individuals</b>	<ul style="list-style-type: none"> <li>– Articles</li> <li>– Conferences</li> <li>– Discussion forums</li> <li>– Training</li> </ul>	<ul style="list-style-type: none"> <li>– Champions</li> </ul>
<b>Groups</b>	<ul style="list-style-type: none"> <li>– Train-the-trainer models</li> </ul>	<ul style="list-style-type: none"> <li>– Action research</li> <li>– Involving leaders</li> <li>– Collaboratives</li> </ul>
<b>Wider sphere</b>	<ul style="list-style-type: none"> <li>– Social media</li> </ul>	<ul style="list-style-type: none"> <li>– Campaigns</li> <li>– Networks</li> <li>– Social media</li> </ul>

---

## 2. Targeting individuals

This chapter describes evidence about approaches that focus on informing or targeting individuals to act as change agents for dissemination.

### Providing materials

#### What is the approach?

A number of studies have explored ways to spread information about innovation and improvement by providing materials. Examples include guidelines, newsletters, websites, conferences and articles.<sup>2</sup> These are all different delivery mechanisms, but the focus tends to be on conveying information.

#### Example of use in practice

An example of sharing information online is the US Agency for Healthcare Research and Quality's (AHRQ) 'Health Care Innovations Exchange.' This website includes a searchable database featuring successes and failures, expert commentaries and lessons learned. The website also contains a series of tools and networking functions.<sup>3</sup>

#### Does it work?

A systematic review about printed health educational materials included 45 studies about leaflets, fliers, booklets and other health-related printed material. The review found:

*'When used alone and compared to no intervention, printed educational materials may have a small beneficial effect on professional practice outcomes. There is insufficient information to reliably estimate the effect of printed educational materials on patient outcomes, and clinical significance of the observed effect sizes is not known. The effectiveness of printed educational materials compared to other interventions, or of printed educational materials as part of a multifaceted intervention, is uncertain.'*<sup>4</sup>

However, an issue with reviews of this nature is that they may combine findings about many disparate materials – each of which may have a slightly different impact.

In fact, individual studies focused on specific informational material have drawn largely similar conclusions. Although articles, conferences, guidelines, toolkits and websites can help to make information available to a wide range of individuals,<sup>5-7</sup> research suggests that these may not spread good practice.<sup>8-18</sup> This may be because information sharing strategies tend to rely on a passive model of transferring knowledge rather than a more active exchange.<sup>19</sup> In other words, printed information and conferences may not motivate or incentivise people to change the way they work. The impact depends on the receptiveness of specific individuals or organisations and professionals' time and access to information.<sup>20,21</sup>

It is also difficult to provide details for spread within informational materials. A review of 46 studies about diabetes self-management found that journal publications contain insufficient information to allow health care teams to put these interventions into practice. The articles provided only some of the information that potential users would need to implement the initiatives, including limited details about the target population; frequency, number and duration of patient contacts; expertise and training required; intervention protocol; and the process of adapting and implementing interventions in practice settings.<sup>22</sup> Research and implementation articles are more likely to be published if they have positive findings, which means that there may be an inherent bias in the published literature.<sup>23</sup>

## Top tips

Top tips from the empirical literature for teams wishing to use printed materials to disseminate ideas include the following:

- Make evidence about improvement and innovation available in an easy to read and quickly accessible format.<sup>24,25</sup> Many professionals and teams think there is not enough evidence about good practice and this may hinder change.<sup>26</sup>
- Content is more likely to foster change if it includes information about benefits, harms and costs and is current, transparent and timely.<sup>27,28</sup>
- Present reports using a 1:3:25 page format. This provides staged access, with one page of key themes, a slightly longer executive summary and a report no longer than 25 pages.<sup>29</sup>
- Diagrams can aid understanding, especially if reinforced with educational meetings or other interpersonal contact.<sup>30</sup>
- Combining mailouts with telephone follow-up has been found to work well to disseminate good practice.<sup>31</sup>
- Using novel approaches such as art may spark interest.<sup>32</sup>
- Ensure that dissemination materials include clear implications for practice.<sup>33–35</sup>
- Make a concerted effort to disseminate information widely to stakeholders, especially where there is scope for interaction and active engagement.<sup>36–40</sup> For instance, a US study explored whether an online journal club for school nurses changed knowledge of, and intent to use, evidence in practice. Nurses said they increased their knowledge of evidence-based practice and shared new ideas with others. Success factors for this initiative were collegial connections with other nurses and connecting authors of the articles directly to participants.<sup>41</sup>
- Make information materials flexible, adaptable and co-produced with end users.<sup>42–47</sup> The more end users know about and see the benefits of new practices, the more likely they are to adopt them.<sup>48</sup> For example, in England a hospital trust worked with nurses to develop a booklet to encourage a structured approach to assessing practice. Because the booklet was developed in partnership with staff it was well received, and helped support professionals to raise standards of care.<sup>49</sup>
- Tailoring information materials to particular audiences or focusing dissemination on key stakeholders and opinion leaders may increase uptake.<sup>50,51</sup>

## Audit and feedback

### What is the approach?

Audit and feedback involves providing individual professionals or teams with summaries of their performance over a specified period of time in order to encourage reflection and improvement.<sup>52</sup>

#### Example of use in practice

A US hospital used audit and feedback as part of a behaviour change intervention to disseminate hand hygiene practices. Pilot wards were provided with education, alcohol sanitizer and ongoing audit and feedback to test the most effective strategies. The initiatives were then spread hospital-wide, with positive reinforcement and annually changing incentives. Adherence to good practice increased over a one-year period from 40% to 64%, rising to 84% after two years and being maintained at 81% after six years.<sup>53</sup>

### Does it work?

It may seem intuitive that professionals would be prompted to modify their practice if they received feedback that it was inconsistent with that of their peers or accepted guidelines, but this is not always the case.<sup>54,55</sup> Evidence suggests that audit and feedback may help to spread improvement, but the effects are generally small to moderate.<sup>56–58</sup> However even small effects may be worthwhile, particularly if audit and feedback strategies can be introduced in a cost-effective manner.<sup>59</sup>

Benefits are most likely to occur where existing practice is furthest away from desired practice, and when feedback is intensive.<sup>60</sup>

### Top tips

Top tips from empirical research for using audit and feedback include:

- Audit and feedback can be useful when trying to disseminate established good practice because there is an evidence base to compare to. This approach may work best when the known (or anticipated) level of initial adherence to guidelines or desired practice is low.<sup>61</sup>
- It can take time and money to undertake audit and feedback, so this approach may be most feasible where the costs of collecting the data are low and where routinely collected data are reliable and appropriate for use in an audit.
- Audit and feedback may usefully be combined with coaching support to spread improvement.<sup>62</sup>



# Training

## What is the approach?

Training involves providing structured educational opportunities, usually for groups. It may include lectures, workshops, teleconferences or online seminars. These approaches may be used to share new ideas and established good practice.

Training can be used to support behaviour change in both individuals and groups. While training often takes place in groups, it tends to focus on increasing the knowledge or changing the behaviour of individuals.

### Example of use in practice

Many studies have explored training clinicians in new approaches. An example is a training programme to roll out cognitive behavioural therapy for insomnia throughout a national US health maintenance organisation. 102 primary care and mental health staff took part in training to introduce them to new concepts and approaches within usual practice. Audiotapes of consultations and an audit of patient notes found that training increased competency to use good practice and there were improved symptoms and quality of life for patients.<sup>63</sup>

## Does it work?

Some suggest that peer-reviewed journal articles and websites may help to disseminate scientific evidence, but face-to-face interactions such as workshops are better for disseminating systems-level improvement information, such as fiscal implications, budgetary requirements and policy relevance.<sup>64,65</sup>

However, there is mixed evidence about the effects of group training. Many studies suggest that training can increase knowledge<sup>66-71</sup> but the extent to which this carries over into adopting good practice remains uncertain.<sup>72</sup>

Other studies suggest poor participation in training within health care and limited uptake of new approaches.<sup>73</sup> Some research suggests that self-study methods are more cost-effective than in-person training.<sup>74</sup>

A trial in Germany investigated strategies for rolling out an online quality improvement programme. One group of general practices had access to the online system, and acted as a control. Another group had access to the online system plus a training programme for GPs.

Another group also received education for the whole practice team. Training did not increase acceptance of the system, because those in all three groups were just as likely to use it. However, training was associated with more frequent use of the system and better overall quality of care as a result.<sup>75</sup>

The effects of training are likely to depend on the format, the audience and the extent of follow-up and support. The training approaches most likely to result in improvement involve active components and follow-up.

## Top tips

Top tips from empirical research to heighten the effectiveness of training for spreading innovation and improvement include the following:

- Use a variety of media to offer training (such as group sessions, documents and online modules).
- Include practical activities and problem-solving exercises to get people engaged and facilitate role-modelling. Simulation may be useful.<sup>76,77</sup>
- Demonstrate new techniques in practice to improve uptake.<sup>78</sup>
- Include follow-up support rather than solely one-off training sessions.
- Use educational sessions as one component among a wider range of dissemination strategies.<sup>79</sup>

# Educational outreach

## What is the approach?

‘Educational outreach’ or ‘academic detailing’ is a type of marketing or education, often targeting individuals rather than groups. An example is visits to doctors by pharmaceutical company representatives. Other initiatives include community events, volunteer opportunities, direct mail, advertising, online marketing and contests and awards.

### Example of use in practice

In the US, an advanced practice nurse visited nursing homes to disseminate guidelines about improving patient care. The educational outreach aimed to foster greater interaction and collaboration among key administrative, medical and nursing staff and to translate guidelines into the nursing home setting. This was supplemented with classroom and unit-based education and bedside clinical teaching.<sup>80</sup>

## Does it work?

There is mixed evidence about educational outreach or academic detailing.<sup>81</sup> The impact may be enhanced when coupled with interactive activities and peer support.<sup>82,83</sup>

Research about pharmaceutical educational outreach suggests that building good rapport with doctors, having launch meetings and emphasising the reputation of the company all influence professional behaviour. Direct mailings, advertisements in journals and giving samples, letter pads and other brand reminders were found to be less effective.<sup>84</sup>

## Top tips

Top tips about using educational outreach from empirical research include the following:

- One-to-one educational visits may work best when combined with other approaches.
- Visiting targeted stakeholders or opinion leaders to share information may be more cost-effective and time efficient than generic visits to a large number of professionals.

---

## 3. Targeting groups

This chapter describes evidence about approaches to help spread good practice by disseminating via teams or organisations.

Many of the methods used to spread good practice by targeting individuals as change agents also apply to groups. For instance, training of various sorts has been used to spread ideas throughout organisations or to motivate groups to spread change. In addition to all the methods used to target individuals outlined in chapter 2, this chapter explores methods particularly focused on dissemination to and with groups, including train-the-trainer approaches, quality improvement collaboratives and action research. The focus is on targeting groups or organisations to change their practice as a way of spreading innovation.

### Engaging teams and leaders

#### What is the approach?

Studies suggest that involving professionals and leaders throughout the development and dissemination of new ideas can speed the uptake of good practice.<sup>85</sup> This can be done in many ways, but involving clinicians and managers in steering groups and in planning rollout has been found to work well.<sup>86</sup>

#### Does it work?

While many studies espouse the value of stakeholder engagement and targeting key leaders and team members, there is less empirical evidence about exact impacts on dissemination and diffusion.<sup>87–90</sup>

However, overall trends in the evidence base are positive. For example, a systematic review found that five non-linear, interrelated components were essential for scaling up the use of good practice: assessing the landscape; innovating to fit the local context and the degree of user receptivity; developing widespread support; engaging user groups; devolving efforts for spreading innovation. These components involve engaging teams early on.<sup>91</sup>

Some research suggests that clinical leaders can be more important than managerial leaders in ensuring that good practice is adopted within teams and organisations.<sup>92</sup> However senior leaders also have an important role in providing support and infrastructure.<sup>93</sup>

Many studies have examined ways to engage teams and leaders in improvement or innovation, but this evidence scan focused explicitly on studies that explored engagement as a dissemination strategy. There was a paucity of evidence about this.

#### Example of use in practice

A primary care trust in England implemented a programme designed to spread good practice and improve the performance of health visitors and school nurses. An approach drawing on complex adaptive systems theory was used whereby change was seen as an inclusive, evolving and unpredictable process rather than one which was linear and mechanistic. By focusing on engaging clinician leaders and nurses from the outset, the programme resulted in changes in professional behaviour and service delivery as well as transformational change in the organisational structures and processes of the employing organisation. There were greater opportunities for experimentation and innovation, but also higher levels of uncertainty, responsibility, decision-making and risk management for practitioners. Being aware of the emotional impact for practitioners of adopting new practices was found to be important for facilitating accountability and creativity.<sup>94</sup>

## Top tips

Top tips about engaging teams and leaders from the literature include the following:

- When testing new approaches, take steps to involve clinical leaders early on so they can help spread the word to wider teams.<sup>95</sup>
- Take a systematic approach for developing and adapting innovations to changing situations. This may require a significant amount of time which needs to be accounted for with backfill.
- ‘Fast-tracking’ approval for some types of change can help clinical leaders feel more empowered to spread improvements locally. In order to engage leaders and teams, people need to feel that they have the authority to make decisions and implement change.<sup>96</sup>

Teams wanting to accelerate the rate of diffusion within their organisations need to identify sound innovations, find and support innovators, invest in ‘early adopters,’ make early adopter activity observable, trust and enable reinvention, create slack for change and lead by example.<sup>97</sup> The term ‘early adopter’ comes from the ‘diffusion of innovation model’<sup>98</sup> which categorises people according to the speed at which they adopt new ideas or approaches. In this view, about 13.5% of a population are early adopters who take up innovations rapidly. These people may be less risk averse and less concerned with prevailing practices than their peers and may have leadership roles.

## Change champions

### What is the approach?

Change champions, opinion leaders or change agents aim to generate buy-in to new practices.<sup>99-104</sup> There are several types of change champions: those who channel information across organisations and networks, linking with innovators, experts and practitioners; those who have particular (clinical) expertise and local credibility; and those with strategic management and political skills.<sup>105-108</sup>

Such leaders and change champions are known by many names.<sup>109</sup> They may have formal titles such as ‘diffusion fellows,’ ‘knowledge brokers’ or ‘improvement coaches’ or they may fulfil these functions in an informal capacity.<sup>110-113</sup>

### Example of use in practice

A hospital in Australia introduced 30 pain resource nurses to act as clinical champions for pain management. This role was valued by hospital staff and helped to introduce and sustain organisation-wide changes in processes, though there were no significant differences in the prescribing of pain medication for patients.<sup>114</sup>

### Does it work?

Change champions can drive the spread of good practice through demonstrating commitment to the idea, providing regular feedback and guidance to staff and stakeholders, presenting a financial ‘business case’ to the adopting organisation and many other activities. This requires a type of leadership that is consultative, facilitative and flexible.<sup>115-117</sup> Both clinical and managerial change champions are important.<sup>118-120</sup>

A systematic review of 18 studies about opinion leaders/ change champions concluded that opinion leaders alone or in combination with other interventions may promote evidence-based practice, but effectiveness varies both within and between studies. In most of the studies the role of the opinion leader was not clearly described so it was not possible to draw conclusions about how to optimise effectiveness.<sup>121</sup>

A study in Canada explored how nursing champions influence the diffusion of best practice guidelines. Surveys and interviews with more than 200 people found that the main ways that these champions supported the spread of good practice included education and mentoring; persuasion at interdisciplinary committees; and tailoring guideline implementation strategies to the organisational context.<sup>122</sup>

A randomised trial in 180 neonatal units in England examined the value of generating change champions to improve policy and practice in the care of preterm babies. One group of clinicians received a copy of a research report, slides and a position statement. Another group received the same information and were also invited to become ‘regional champions.’ These clinicians attended one or two workshops to help them support clinicians to implement research evidence locally or regionally. Neonatal units with a ‘champion’ were more likely to implement good practice. The costs of the intervention were modest so the researchers concluded that it is both feasible and cost-effective to use an active approach to disseminate good practice.<sup>123</sup>

## Top tips

Top tips from the literature when considering change agents include the following:

- Select as many high profile and highly credible people as possible to champion change, rather than relying on a small number of individuals.
- Some change champions emerge organically, but in other cases champions may need to be selected and prepared for the role.<sup>124</sup>
- Change champions or knowledge brokers may need to undertake a variety of tasks, including disseminating knowledge, role modelling, teaching, clinical problem-solving and facilitating change.<sup>125</sup>
- Opinion leaders/change champions may be particularly useful when seeking to appeal to doctors.<sup>126</sup>
- Change champions alone are unlikely to successfully spread an idea. They may need to be supported by engaged teams, promotional material and more formal spread structures.<sup>127,128</sup>

## Train-the-trainer models

### What is the approach?

Train-the-trainer models involve experienced personnel showing less-experienced people how to deliver courses, workshops and seminars. This may include a train-the-trainer workshop to disseminate ideas about content and facilitation techniques. Sometimes this is followed by observation of the new trainers so they gain feedback. The result is a pool of new trainers who can teach the material to other people.

### Example of use in practice

In England, 100 clinicians working in substance misuse received training in how to treat opioid overdoses. These clinicians then trained 119 other clinicians and 239 service users in the techniques using a 'cascade method.' A before-and-after study found a significant improvement in knowledge. However the cascade method was only modestly successful for disseminating training to a large clinician workforce. Barriers included a lack of time and limited clinician confidence.<sup>129</sup>

## Does it work?

There is mixed evidence about the success of train-the-trainer approaches. While many studies show short-term gains in knowledge and behaviour change among those taking part in training,<sup>130-141</sup> this may not always be sustained or rolled out widely to others.<sup>142-145</sup>

A cost-effectiveness analysis suggested that self-study or expert-led training were more likely to be cost-effective than train-the-trainer models when weighing up the rollout of new skills.<sup>146</sup>

A systematic review of 18 studies found that the format of train-the-trainer interventions varied widely and included didactic presentations, CD-ROMs, group discussions and role-plays. The reviewers concluded that using a blended learning approach combining different techniques may best disseminate good practice to health and social care professionals. However, they argued that further research is needed to determine the optimum blend of approaches.<sup>147</sup>

## Top tips

Top tips for using train-the-trainer models to disseminate improvement and innovation include the following:

- Carefully select people to take part in programmes rather than making them available to everyone. Trainers need to be motivated and passionate about the topic as well as having technical competence and facilitation skills.<sup>148</sup>
- Support participants to take ownership of the process and content. Research suggests that if new trainers feel a sense of ownership, wider dissemination is more likely.<sup>149</sup>
- Allow adequate time within train-the-trainer sessions to teach both theoretical and practical facilitation skills.<sup>150,151</sup>
- Provide a lot of feedback during programmes while participants are practicing their training and dissemination skills.<sup>152</sup>
- Incorporate follow-up sessions, supervision and reinforcement.<sup>153</sup>
- Observe training sessions run by those who have been educated as trainers to provide quality assurance.
- Recognise that when implemented properly, train-the-trainer programmes can be resource intensive.<sup>154</sup>



# Collaboratives

## What is the approach?

Quality improvement collaboratives involve groups of clinicians and managers coming together to share ideas and implement best practice. They may also be known as ‘improvement networks’ or ‘communities of practice’.<sup>155-159</sup> They can be undertaken within an organisation or across multiple organisations.

Although there are various models of collaboratives, most involve:

- selecting a particular topic to work on
- gaining support from clinical and quality improvement experts (either from within an organisation or using external facilitators)
- using the ‘Model for Improvement’ or rapid plan-do-study-act (PDSA) cycles to test ideas
- using data to test changes iteratively
- providing infrastructure support for data collection, analysis and reporting
- quality improvement coaching
- activities to enhance collaboration
- participation of multidisciplinary teams from multiple sites.

A systematic review found that the most common components of quality improvement collaboratives in health care included in-person learning sessions, PDSA cycles, multidisciplinary quality improvement teams and data collection for improvement.<sup>160</sup>

This approach has been widely promoted by the US Institute for Healthcare Improvement<sup>161,162</sup> and has also been tested in the UK, Europe and other parts of the world.<sup>163-165</sup>

Research about the transfer of medical technology, good practice and clinical guidelines suggests that spread is driven more by interpersonal relationships than by new evidence or available information. Spread may be inconsistent, largely unsuccessful and strongly influenced by local factors, so collaboratives aim to draw on peer support and personal relationships as well as a structured dissemination process.

## Example of use in practice

In the US, paediatric collaborative improvement networks are multi-site clinical networks that aim to help teams learn from one another, test changes to improve quality and use their collective experience and data to understand and spread what works in practice.<sup>166,167</sup>

## Does it work?

Evidence about the effectiveness of collaboratives is mixed, but some studies suggest that they can help to speed the spread of good practice,<sup>168</sup> particularly in long-term conditions and patient safety.<sup>169</sup> Some research suggests that collaboratives are particularly helpful when the topic area is rare or where there is substantial between-site variation in care and outcomes.

There is some evidence of cost-effectiveness, but improvements tend to be about processes rather than patient-level outcomes.<sup>170</sup>

A number of case studies and evaluations suggest that collaboratives and other interactive peer support mechanisms can help to spread good practice.<sup>171-179</sup> This is because social networks and personal contact may be the dominant mechanism for diffusion<sup>180</sup> since they facilitate tacit as well as explicit knowledge exchange. They can also help to develop receptive contexts, connect service providers and end users, build a coalition for change and facilitate learning and problem solving. Knowing that similar organisations have done something can motivate other organisations to get involved.<sup>181-188</sup>

Not all evidence about impacts is positive. For example, a nine-month national improvement collaborative in 22 US hospitals was designed to improve safety in high-hazard areas. Participating hospitals and other regional hospitals were contacted to determine the level of dissemination during and after the collaborative. While the participating hospital teams benefited from the collaborative, only 9% of units within participating hospitals implemented changes and only 2% of other regional hospitals benefited from rollout. After 12 months, there was no implementation within participating hospitals.

This suggests that collaboratives may have benefits for participating teams but may not always lead to wider dissemination of ideas, and that benefits may stop after the collaborative ceases. The researchers suggested that personal commitment from senior leadership,

dissemination strategies that push information to clinicians and monitoring of progress at the regional level are all needed for wider dissemination.<sup>189</sup>

A systematic review concluded:

*‘Although quality improvement collaboratives appear to have some promise in improving the process of care, there is great need for further controlled research examining the core components of these collaboratives related to patient- and provider-level outcomes.’<sup>190</sup>*

## Top tips

Things that have been found to heighten the benefits of collaboratives for spreading improvement include the following:

- Selecting a high-impact condition or topic to work on.<sup>191</sup>
- Fostering a sense of community and joint ownership.<sup>192</sup>
- Gaining facilitation support from experts in quality improvement.<sup>193</sup>
- Using coaching within collaboratives to foster change champions and target leaders.<sup>194</sup>
- Recognising the socio-adaptive aspects of change and build in activities to address these for maximum spread.<sup>195</sup>
- Building dissemination plans from the outset.
- Meeting regularly with other groups, either in person or by phone or the internet.<sup>196</sup>
- Including multidisciplinary and diverse groups.<sup>197,198</sup>
- Using routinely available data as much as possible for monitoring and evaluation.<sup>199</sup>
- Measuring the spread of initiatives and adapt techniques in line with the results.<sup>200,201</sup>
- Providing organisational support to ensure momentum and longevity without becoming too bureaucratic or hierarchical.<sup>202–204</sup> Active board-level support may be useful, but it is important to maintain a balance and not focus on a ‘top-down’ approach.

## Action research

### What is the approach?

Action research is a ‘whole systems approach’ that combines researching what works with developing and diffusing innovations. In other words, action research involves the process of actively participating in a service or system change situation while conducting research to improve the service or system. Action research may be assisted by professional researchers, but the aim remains to continually improve processes while researching them.<sup>205,206</sup>

Projects within health care education or continuing professional development may include elements of action research, including a desire to disseminate findings widely to help to spread good practice.<sup>207</sup>

### Example of use in practice

A hospital in the US used action research to spread the impact of quality improvement projects. Each project involved a project champion, medical expert, technical expert, quality improvement specialist and appropriate leaders, managers and support personnel. The team defined desired performance through consensus, established data collection and analysis procedures and prepared to launch the initiative. The execution period was divided into four phases: project launch, support, transition and maintenance. The first three phases included education, group-level feedback and individual feedback to increase performance. Data collection was an integral part of making continuous changes. Weekly audits were performed to track improvement. Dissemination was planned from the beginning so that improvement could be rolled out across the department and wider organisation.<sup>208</sup>

### Does it work?

This approach has been found to work well to disseminate good practice,<sup>209–212</sup> particularly where there is a need for a high level of adaptation in each new setting.<sup>213,214</sup> However, evidence focusing explicitly on spread is sparse.

---

## 4. Targeting wider systems

This chapter describes evidence about approaches that target wider systems or broader populations as mechanisms for dissemination.

Approaches for spreading good ideas via individuals and groups have also been used to disseminate practice across wider systems, networks and countries. For example, policy makers may be targeted to support the rollout of innovations. Additional approaches used to disseminate via wider spheres include marketing campaigns, social media and networks.

### Campaigns

#### What is the approach?

A campaigning approach uses principles of marketing to spread ideas widely.<sup>215,216</sup> This can be done within organisations (internal marketing) or across organisations.<sup>217</sup> Campaigning may also target individual behaviour change.

Campaigning and health care communications may be seen as a dissemination approach in their own right but, like other approaches, may also be used as part of multifaceted strategies. In particular, good communication may underpin approaches such as collaboratives, audit and feedback, change champions and information and training.

Campaigns may involve broad health communications or use targeted social marketing approaches. Although the terms ‘campaign’, ‘marketing’, ‘health communications’ and ‘social marketing’ are often used interchangeably within the empirical literature, it could be argued that these are not the same thing.

General health communications or campaigns use communications and marketing techniques to inform and influence individual, group and community decisions. The focus can sometimes be on doing things to benefit a specific organisation or group. In contrast, social marketing focuses on using targeted marketing approaches to influence social or health behaviours to benefit the target audience rather than the marketer. Guided by segmentation, targeting, and positioning,

the four Ps of marketing (place, price, product and promotion) are developed to produce desired responses in the target audience.<sup>218</sup>

*‘A literature review of various studies on social marketing indicated that the selection of the right product (according to the community need) at the right place, with the right strategy for promotion and at the right price yields good results.*

*However, along with technical sustainability (product, price, promotion and place), financial sustainability, institutional sustainability and market sustainability are conducive factors for the success of social marketing.’<sup>219</sup>*

*‘Social marketing uses marketing techniques to achieve a social or healthy goal... Social marketing consists of eight principles: customer orientation, insight, segmentation, behavioural goals, exchange, competition, methods mix, and is theory based.’<sup>220</sup>*

*‘The bottom-up focus of social marketing begins with an understanding of the people whose behaviours are targeted. Desired behaviour results when people perceive that they will get more value than the cost and when the resulting offer is perceived to be better than what is obtainable through alternative choices.’<sup>221</sup>*

In other words, social marketing may be a particular targeted form of campaigning, undertaken to achieve social and health benefits.

Empirical studies tend not to differentiate well between social marketing and other health care communications or campaigning approaches, which means that it is difficult to draw out the relative effectiveness of different models within health care.



The largest body of empirical research in this area has explored the value of campaigning approaches to facilitate better public health among populations.<sup>222-230</sup> There are also examples of using campaigning principles to change attitudes and behaviours among health care professionals.<sup>231</sup>

### Example of use in practice

The 100,000 Lives Campaign was run by 20 staff at the US Institute for Healthcare Improvement (IHI), with the aim of saving 100,000 lives by improving safety in hospitals. The campaign influenced practice in more than 3,000 hospitals. Rather than suggesting that teams develop their own innovations, the IHI set evidence-based goals, instructed participating hospitals how to achieve them and provided tools to help hospitals implement the changes. The programme involved disseminating information about six key action areas to senior leaders; using regular emails, newsletters, workshops and events to gain buy-in; setting up networks rather than working individually with each organisation; and planning monitoring and data collection strategies from the outset. Working with champions and thought leaders was important, as was involving local, regional, and national organisations and stakeholders from health, social care and the third sector. The message was simple, the tools distributed were easy to apply and the goal was accepted: saving lives.<sup>232</sup>

### Does it work?

Much research has espoused the benefits of campaigning for influencing public behaviour change,<sup>233-239</sup> but research about the impacts on professionals and organisations is less common.

Some suggest that a social marketing approach provides a useful framework for systematically understanding barriers to individual behaviour change and designing interventions to target professionals.<sup>240-242</sup> There is some evidence that social marketing approaches can encourage attitudinal and behaviour change among health and social care professionals.<sup>243,244</sup> Most of this evidence involves case studies of campaigns rather than robust trials.<sup>245,246</sup>

Some studies report that internal marketing within organisations can have a positive attitude on staff attitudes and job satisfaction.<sup>247-252</sup>

Systematic reviews have suggested that more robust evaluations of the impacts of campaigning approaches on professional behaviour are needed.<sup>253,254</sup> It may be particularly important to disentangle health communication/campaigns from social marketing approaches.

The Commonwealth Fund proposed a blueprint for improving the dissemination of best practices by national quality improvement campaigns. The eight key strategies suggested were:

1. Highlighting the evidence base and relative simplicity of recommended practices.
2. Aligning campaigns with the strategic goals of adopting organisations.
3. Increasing recruitment by integrating opinion leaders into the development and enrolment process.
4. Forming a coalition of credible campaign sponsors.
5. Generating a threshold of participating organisations in order to maximise network exchanges.
6. Developing practical implementation tools and guides for key stakeholder groups.
7. Creating networks to foster learning opportunities.
8. Incorporating monitoring and evaluation of goals to provide reinforcement and feedback.<sup>255</sup>

Similar strategies have been recommended for use when disseminating good practice throughout individual organisations, as well as on a larger scale.<sup>256</sup>

### Top tips

Top tips to help use campaigning to spread innovation and improvement include the following:

- Use a wide variety of different campaigning methods simultaneously or in a cumulative manner, including print, social media, in-person training and opinion leaders. The exact methods chosen need to be relevant and appropriate to the target audience, message and content, but it is important not to rely on just one dissemination method.<sup>257</sup>
- Focus on practical change. Campaigns for professionals have been found to work well when they contain practical tips so clinicians know the desired behaviour change and have tools readily available to help them do this.<sup>258</sup>
- Include a simple compelling message, use interpersonal contact, have a practical framework with an emphasis on know-how and provide resources and support.<sup>259</sup>

- Conduct market research with audience members and prospective adopters to identify how the initiative fits with their priorities and their organisation's mission.<sup>260</sup> Social media (see below) and social marketing approaches can be used as a mechanism to collect information to support change as well as a dissemination route.
- Segment audiences and target messages appropriate to each segment.<sup>261</sup> In other words, market analysis is an important component of this approach.<sup>262,263</sup>
- Pilot test messages with a sample of the target audience and make revisions before widespread rollout.<sup>264</sup>
- Build inter-organisational co-operation.<sup>265</sup> Campaigning can be costly in terms of time and funds.

## Social media

### What is the approach?

Social media are tools that people use to create and share information, often using virtual communities, networks and technologies.<sup>266</sup> Some suggest that there are seven types of social media, though the boundaries between these are blurred and many other typologies are available.<sup>267</sup> The seven types are:

- social networking sites (eg Facebook and LinkedIn)
- collaborative projects (eg Wikipedia)
- content communities (eg YouTube and Dailymotion)
- blogs and microblogs (eg Twitter)
- social news networking sites (eg Digg and Leakernet)
- virtual game worlds (eg World of Warcraft)
- virtual social worlds (eg Second Life).

In terms of spreading improvement and innovation, social media can be used as a dissemination channel and also as a way to collect feedback to support ongoing changes that may help interventions better fit with audience needs – thus ultimately increasing uptake.

As with most of the approaches described in this evidence scan, social media can be used in its own right as a strategy for sharing innovation and improvement or it may form a component of a multifaceted approach, such as a broad social marketing campaign. The approaches described are not mutually exclusive.

### Example of use in practice

Midwives set up an 'e-vent' to disseminate good practice. It used web conferencing software, with presentations scheduled every hour for a 24-hour period to allow professionals from different time zones to take part. Participation rates increased over time, with an average of 50 professionals taking part in each session. The e-vent was run on an annual basis for three years. The researchers concluded that international e-events have potential to increase access to educational materials and provide opportunities for networking.<sup>268</sup>

Various other examples demonstrate how Twitter, Facebook and other bespoke platforms can support networking and spread.<sup>269-277</sup>

### Does it work?

A number of studies have explored the value of social media such as Facebook and Twitter for supporting service users to make positive changes, for example increasing exercise or healthy eating.<sup>278</sup> Some of these studies suggest that social media can be a valuable tool for circulating information and providing peer support.<sup>279</sup> Online 'friends' are able to provide as much positive social support to try new things as family and 'in-person' friends.<sup>280</sup>

Fewer studies have examined the impacts of social media on the behaviour of health care professionals, though research is beginning to emerge in this area.<sup>281</sup>

A number of studies have examined how professionals or health care organisations use social media.<sup>282-288</sup> Research suggests that the most widely used social media formats for clinicians are online communities where professionals can read news articles, listen to experts, research new developments, network and communicate with colleagues.<sup>289,290</sup>

Using social media in medical education has been associated with improved knowledge and exam scores, attitudes and skills.<sup>291-293</sup> However, uptake in routine professional practice may be lower.<sup>294</sup>

Most surveys of professionals suggest that clinicians believe that social media can be used effectively as a marketing and educational tool.<sup>295</sup> However, some research suggests that professionals see social media as better for spreading information than for obtaining it, which may mean there are barriers to using social media to engage with people and increase the uptake of good practice.<sup>296</sup>

Discussion forums tend to be dominated by specific disciplines and organisations, rather than always fostering inter-organisational spread.<sup>297</sup>

Researchers from China examined the effectiveness of YouTube as an e-learning source for doctors about good practice and innovation in heart transplantation. Two cardiac surgeons watched all of the 1,800 videos identified and classified them as useful or misleading. Only 19% of the videos had relevant information for spreading good practice. Of these, 2% were judged to be misleading and 35% only focused on recipients' individual issues. The researchers concluded that YouTube videos have the potential to provide a substantial amount of information for professionals, but it is time-consuming to find high-quality videos. More authoritative videos by trusted sources may be required.<sup>298</sup>

Researchers from Australia examined the value of releasing journal articles through social media. Traditional publication relies on the reader searching for or 'pulling' relevant knowledge from the evidence base. Social media 'pushes' relevant knowledge out, via blogs and websites such as Facebook and Twitter. The researchers released 16 articles through blogs, Facebook, Twitter, LinkedIn and ResearchBlogging.org and compared downloads with a 'control' week. Articles disseminated using social media had three times greater readership.<sup>299</sup>

## Top tips

Top tips to consider when using social media to spread ideas include the following:

- Surveys have found that perceived ease of use and usefulness influence the extent to which professionals use social media.<sup>300</sup>
- Social media may work best when it gives professionals an opportunity to network and proactively engage with the material.<sup>301</sup> Some research suggests that organisations and professionals are focusing on using social media to disseminate information, rather than capitalising on the interactivity available to create conversations and engage with the audience.<sup>302,303</sup>
- Being attention grabbing and encouraging users to have fun is likely to garner more engagement.<sup>304</sup>
- Multiple exposure to the same message can increase the likelihood that information is shared (for example if the same approach is recommended by various blogs or if the same email message is forwarded by different stakeholders). However, there is a saturation point whereby people feel bombarded.<sup>305</sup>

- Clinicians talk to others when deciding whether social media platforms are useful, therefore promoting social media resources widely to raise awareness of the benefits could be useful.<sup>306</sup>
- Time and privacy concerns are the two barriers to using social media most commonly cited by professionals. Professionals may also have insufficient skills and knowledge about social media.<sup>307</sup> Any social media platform needs to be quick and easy to use, not require too much input and be secure.<sup>308</sup>
- It may be useful to set up short training sessions to help professionals use social media more effectively.<sup>309,310</sup>

## Networks

### What is the approach?

As well as spreading ideas through formal approaches such as collaboratives, some research has explored how existing social or professional networks can be used to disseminate or diffuse information for improvement.<sup>311</sup>

Although the terms 'dissemination' and 'diffusion' are often used interchangeably, some authors suggest there is a difference. In this view, 'dissemination' is an active term referring to steps taken to inform others of an innovation. Passive dissemination involves providing access to information, but relying on potential users to find the information themselves.

In contrast, 'diffusion' is more of a social process that may or may not occur after the dissemination of information about a new practice. Due to the newness of some practices, people may be uncertain about them. Social communication may help to resolve their uncertainty. Thus diffusion happens as a result of one-to-one or group communication among members of a social system such as a network of clinicians or managers.<sup>312</sup> While the initial dissemination of information is necessary so that individuals can learn about good practice, information alone is usually not enough to spark interest and behaviour change. Social influence helps to bridge the gap.<sup>313,314</sup>

For this reason, social or professional networks can be essential in the uptake of good practice. Networks are defined as groups of people who may work together or communicate frequently or infrequently in person or via telecommunications.<sup>315,316</sup>

### Example of use in practice

Networks may emerge organically or can be built. An example of building networks comes from Canada, where end of life care networks were set up within each health care planning region. The networks brought a wide range of organisations into contact to develop service delivery models, draw key stakeholders together towards a common vision and build collaboration across providers and settings. After networks were 'created' they continued to evolve, with some networks branching out to focus on other topics and other networks setting up formal collaboratives or improvement projects.<sup>317</sup>

### Does it work?

There is evidence that social and professional networks can spread ideas, but it is difficult to advise how to get ideas into these networks and to predict which ideas will be 'picked up'.<sup>318,319</sup>

*'The rate at which a social innovation spreads depends on three factors: the topology of the network and in particular the extent to which agents interact in small local clusters, the payoff gain of the innovation relative to the status quo, and the amount of noise.'*<sup>320</sup>

A US case study explored the value of staff networks for informal skill transfer when implementing a health promotion programme in schools. Three quarters of staff reported gaining at least one skill from the network, but only 2% of potential network connections were established. The researchers concluded that informal skill transfer in staff networks may be a useful complement to formal training, but is underutilised.<sup>321</sup>

Some studies have found that strengthening existing networks is a better way to disseminate ideas than via train-the-trainer approaches<sup>322</sup> but other research suggests that relying on networks and peer-to-peer spread can be problematic because diffusion may be haphazard.<sup>323,324</sup> Networks may not be self-creating and often rely on a prior history of collaboration and strong leadership.<sup>325-328</sup>

A systematic review of 52 studies concluded that as yet there is limited evidence available about using social network analysis as part of an intervention to support the implementation of change in health care settings.<sup>329</sup> The evidence is further complicated because studies tend to test several things at once (such as using online forums to build networks).<sup>330</sup>

### Top tips

Things that have been found to be important when using networks for spreading improvement include the following:

- Networks work best when stakeholders are close and communicate regularly to get reinforcement.<sup>331,332</sup> Geographic proximity may be a success factor.<sup>333</sup>
- The extent to which information and evidence is perceived as credible, relevant and salient depends on the degree to which the beliefs and norms of target adopters are tapped into. In other words, it is important to target messages with network characteristics in mind.<sup>334</sup>
- Explicit promotional strategies may be needed to raise awareness within networks. Passive dissemination does not tend to work well.<sup>335</sup>
- Early involvement of partners who will distribute, provide access to and refer potential adopters to an innovation or good practice increases the reach achieved.<sup>336</sup>
- Multi-sector networks may have value.<sup>337</sup>
- Strategies to evaluate progress and adapt as necessary need to be built in.<sup>338</sup>
- Senior doctors may be gatekeepers in professional networks.<sup>339,340</sup>
- Social influence within networks is not evenly or randomly distributed. A small group of influential people are looked to by large numbers of others for cues to action and inaction. Taking time to identify these opinion leaders may be a good investment.<sup>341</sup>
- Decisions about adopting new practice may be made partly on the basis of desirable status or image. Doing something new or taking part in good practice can be promoted as a means to achieve status or image.

Chapters 2-4 have explored potential strategies for disseminating improvement and innovation which target individuals, groups or wider networks. There is not enough research evidence to recommend one approach over others, but there are recurring themes in the facilitators and barriers. These are summarised in Chapter 5.



---

## 5. Helpful and hindering factors

This chapter examines factors that may help or hinder the spread of good practice. Addressing these factors can increase the likelihood of ideas spreading.

There is little comparative evidence about the most effective methods to disseminate and diffuse good practice.<sup>342</sup> While studies have explored the value of individual initiatives, they tend not to compare and contrast different approaches.<sup>343</sup> This means it is not possible to conclude that one approach is more useful than others. Furthermore, it is likely that the most effective approach will differ based on the context, the type of intervention being rolled out and the target audiences.<sup>344,345</sup>

A number of systematic reviews and compilations have examined factors that help or hinder the spread of improvement and innovation.<sup>346–353</sup>

Various blogs and online resources also address this issue.<sup>354–358</sup> These all suggest that factors associated with the innovation, the adopting individuals, organisations and wider contexts can impact on spread.<sup>359–361</sup>

*‘The organisational processes that determine whether and how ... innovations are adopted and assimilated into routine healthcare practice are dependent upon the specific innovation concerned, the different actors involved at various points in time, and the particular organisational context in which decisions are made. It is important to see ‘adoption’ and ‘assimilation’ as part of an ongoing process rather than discrete events, and as a process that comprises both ‘formal’ organisational and ‘informal’ decisions by individual users (the latter often shaped by discussions with their peers and colleagues).’<sup>362</sup>*

The findings from these reviews are not repeated here in detail. Instead the focus is on drawing out tips to spark ideas in teams developing dissemination strategies.

### Individuals

#### Get people involved

A key learning point is that clinicians and managers need to be engaged as active change agents rather than passive implementers.<sup>363</sup> Strategies that present new ideas or good practice as appealing and worthwhile to the target group and which actively engage them in implementation and rollout may be more likely to succeed.<sup>364</sup>

There may be potential resistance to spreading innovation and improvement, so it is important to consider ways to engage people in change.

*‘Scepticism and resistance exist in all staff groups, especially among medical staff. Reasons include personal reluctance to change, misunderstanding of the aims of improvement programmes, and a dislike of the methods by which programmes have been promoted. Sceptical staff can be influenced to become involved in improvement, but this usually takes time. Newly won support may be fragile, requiring ongoing evidence of benefits to be maintained.’<sup>365</sup>*

Variations in the extent to which professionals engage with new ideas may be associated with compatibility with norms, values and practices and the perceived relative advantage of change, such as impacts on patient management and work practices.<sup>366</sup>

Clearly demonstrating how initiatives address the priorities of individuals and organisations can make a difference.<sup>367</sup> Key priorities for individuals often include improving patient experience and reducing workload.<sup>368</sup>

The extent to which any change increases or reduces workload may influence the adoption of new practice. Evidence suggests that if an innovation increases workload by 10% or more this will deter adoption, and if it is perceived to reduce workplace pressure then it is more likely to be used.<sup>369–372</sup>

Some studies have found that the more senior people are within organisations, the more barriers they may identify for implementing innovations and improvement.<sup>373</sup> Research suggests that managers are most likely to support the uptake of innovations and improvement when they believe the initiative fits their workplace needs and priorities, and when they have more discretion and control over how it is implemented.<sup>374</sup>

This holds true of middle managers as well as senior management. So those seeking to disseminate good practice may need to consider the interplay between middle managers' control and discretion, their narrow focus on the performance of their own departments or units, and the extent to which staff and other resources are available for deployment.<sup>375</sup>

## Dedicate time

Both a perceived lack of time and not feeling authorised to change practice may be significant individual-level barriers to the uptake of innovation and improvement.<sup>376,377</sup> Individuals need to be given enough time and freedom to test new approaches and implement them in practice.<sup>378,379</sup>

## Invest in support

Research suggests that an individual's cognitive ability, attitudes, perceptions, behaviour, role, capacity and time all impact on the extent to which they adopt new approaches and the extent to which they use evidence in practice.<sup>380–403</sup>

People who do not feel empowered or supported to innovate or who do not have the authority to implement change may be less likely to think of new ideas or adopt good practice.<sup>404–408</sup>

Generating new ideas, putting them into practice and sustaining them may all require skills that are not traditionally within the scope of health care professionals and managers.<sup>409</sup> Ensuring that there is adequate and ongoing training and support may be a key success factor for sustaining and spreading good practice.<sup>410,411</sup> This may sometimes require external facilitation support.<sup>412</sup>

## Teams

### Get the right people involved

Studies have highlighted the importance of having the right team members on board, including a mix of managers, clinicians and others with specific roles.<sup>413</sup>

A number of case studies have described the importance of getting leaders involved when spreading innovation and improvement.<sup>414</sup> This is not about 'top down' approaches, but rather seeing senior leadership as a component of a wider dissemination strategy.

*'Broad leadership agreement gave rise to sponsorship and support that permeated the organisation. A robust social network promoted knowledge exchange and built on an existing network with a strong interest in [the topic]... A complex, hospital-based, interdisciplinary intervention in a large healthcare organisation spread rapidly due to a synergy between organisational 'push' strategies and grassroots-level pull. The combination of push and pull may be especially important when the organisational context or the practice to be spread is complex.'*<sup>415</sup>

## Measure successes

Research suggests that good practice is more likely to spread if there is clear evidence available about its effectiveness and buy-in from early adopters.<sup>416,417</sup>

*'To support implementation, policymakers should focus on expressing what can be gained locally using success stories and guidance from "early adopters".'*<sup>418</sup>

This means that when testing new ideas, it may be important to build in time and resources for evaluation to measure successes in a way that will be seen as credible by others in the health sector.<sup>419–421</sup> It is also important to measure the uptake and spread of innovation and improvement.<sup>422</sup>

## Get information 'out there'

Individual professionals and teams may have difficulty finding out about new ideas or evidence about 'what works'.<sup>423–425</sup> Although there are a wealth of websites outlining evidence relevant to health care, there may be relatively few easily and universally accessible routes to information for health professionals and managers interested in innovation – particularly regarding organisational and process innovations.<sup>426</sup>

A systematic review of more than 200 studies explored barriers and facilitators of evidence use among policy makers. The most frequently reported barriers to using evidence to shape policy and practice were poor access to good quality relevant research and a lack of timely research output. The most frequently reported facilitators were collaboration between researchers and policy makers and improved relationships and skills.<sup>427</sup>

Another systematic review of 27 studies about using structured evidence for decision-making found the most commonly investigated barriers were lack of use, lack of awareness, lack of access, lack of familiarity, lack of usefulness, lack of motivation and external barriers.<sup>428</sup> These and other reviews emphasise a need for dissemination strategies to raise awareness about good practice among both practitioners and policy makers.<sup>429</sup>

Planning a multifaceted dissemination strategy may be useful to target different audiences. Some research suggests that journal articles may help to raise awareness about ideas, but are unlikely to result in behaviour change. Conference presentations can be a more useful initial source of information for early adopters, but opinion leaders and colleagues may be more useful for spreading ideas to later adopters.<sup>430</sup>

Teams and organisations may need to build in dissemination plans from the outset in any new project and set up ways to share information regularly about changes to routine practice.<sup>431</sup> Research suggests that this is an area that is often not prioritised.<sup>432,433</sup>

An exception to this trend is the US Department of Veterans Affairs, which provides public sector health care for US military veterans. This organisation set up 'local spread' teams. Various methods were used to disseminate innovations throughout the organisation, including internal newsletters, emails, monthly meetings and in some cases a formal 'collaborative' process. Most importantly, a formal framework or campaign for spread was adopted which planned how to disseminate ideas. The Veterans Affairs system adopted the philosophy that only through centrally mandated change would improvement and innovation spread.<sup>434</sup>

## Target messages

There is evidence that one of the reasons that some innovations fail to spread is because they focus solely on practical implementation rather than thinking about why or how particular methods will bring about change. In this view, having a clear understanding of how teams, organisations and sectors operate and how they respond to new practices is an important mechanism for disseminating new ideas.<sup>435</sup>

Being clear about how improvements meet organisational targets and priorities can help.<sup>436-439</sup>

## Spend time influencing people

Many studies suggest that attention to stakeholder engagement during development and deployment ensures that new ideas are more likely to be accepted and spread.<sup>440-443</sup>

A review of 43 nursing studies developed a taxonomy of the methods used to implement change in practice. All of the methods fell into one of five categories: increasing coordination; raising awareness; persuasion via interpersonal channels; persuasion via reinforcing beliefs that behaviour will lead to desirable results; and increasing behavioural control.<sup>444</sup> All of the categories are linked to engaging stakeholders and teams. Other research also reinforces that building relationships and engaging stakeholders is an important part of spreading good practice.<sup>445,446</sup>

Research from England highlights what can happen if stakeholder engagement is not prioritised. The Department of Health invested in a three-year pilot programme of 'total quality management'. Twenty-three sites took part, ranging from departments within units to entire districts. It was estimated that the cost of the programme for an average acute unit reached £350,000 to £500,000 per year for the first two to three years. The impact appeared negligible and only two out of the 23 sites made good progress with adopting innovations and improving systematically. A lack of engagement was one of the main barriers to success. There was reportedly a generally unreceptive attitude to innovation at the time because staff felt that there was little stability within their organisations and that any new programme was just the 'latest scheme' and would soon be replaced. Another issue was that sites did not invest in training and support for change – and when they did there was limited clinical engagement.<sup>447</sup>

## Organisations

### Recognise influences

New practice within health care may primarily be adopted by an organisation. Thus a fundamental determinant of spreading practice may include the fit between the innovation and the adopting organisation's aims, structure and climate.<sup>448-451</sup>

For this reason, literature has begun to focus on the barriers and facilitators to spreading good practice at an organisational level.<sup>452-466</sup>

Things to consider about organisations include the nature of relationships and how they are built and maintained; how decisions are made and by whom; how power is acquired and used; how conflicts arise and are dealt with; and the importance placed on learning, both individually and collectively.<sup>467-470</sup>

*'The success and speed of the adoption/diffusion process depends on: the roles of senior management and clinical leadership; the generation of credible*

*supportive data; an infrastructure dedicated to translating the innovation from research into practice; the extent to which changes in organisational culture are required; and the amount of coordination needed across departments or disciplines. The translation process also depends on the characteristics and resources of the adopting organisation, and on the degree to which people believe that the innovation responds to immediate and significant pressures in their environment.*<sup>471</sup>

The structure of organisations may be important for spreading improvement ideas. Organisations may assimilate innovations more readily when they have semi-autonomous departments; avoid rigid hierarchies in favour of decentralised decision-making; and have clear lines of responsibility combined with open, multifunctional networks of co-working and information exchange – across teams and both similar and diverse departments.<sup>472–474</sup> More centralised organisations where decisions are made at the top of the hierarchy may be less quick to adopt innovations.<sup>475</sup>

Another organisational feature involves the level of connectedness between and within organisations. The more ‘connected’ the constituent parts of an organisation, the more likely good practice is to be introduced and spread.<sup>476–478</sup>

Organisational climate can also act as a facilitator or barrier due to the extent to which staff see innovation as an organisational priority, the extent of past experience with innovation, and the resources allocated.<sup>479–485</sup> Strong and supportive leadership is key to maintaining a positive organisational culture for change.<sup>486,487</sup>

Organisational and system-wide readiness for change can influence the speed of spread. This may include the fit between the existing system and the innovation, tension for change, power balances between supporters and opponents, baseline data quality, past experience with spread, leadership and management capacity, effective data capture systems and slack resources.<sup>488–491</sup>

*‘Five interactive elements appear critical... (1) Impetus to transform; (2) Leadership commitment to quality; (3) Improvement initiatives that actively engage staff in meaningful problem solving; (4) Alignment to achieve consistency of organization goals with resource allocation and actions at all levels of the organisation; and (5) Integration to bridge traditional intra-organisational boundaries among individual components.’*<sup>492</sup>

A three-year evaluation of 16 integrated care pilots in England examined the barriers and facilitators for embedding this new approach on a large scale. Many of the barriers and facilitators when attempting to integrate care were similar to those in any large-scale organisational innovation, including issues relating to leadership, organisational culture, information technology, clinician involvement and availability of resources. However, there were other factors that were particularly pertinent for embedding integrated care such as personal relationships between leaders in different organisations, the scale of planned activities, governance and finance arrangements, support for staff in new roles and organisational and staff stability.<sup>493</sup>

## Supply infrastructure

The extent to which organisations have an infrastructure for spreading innovation and improvement is important.<sup>494</sup> Spread is supported by organisation-wide systems for learning.<sup>495</sup>

Having stable funding sources has been found to be important for widespread dissemination of improvement ideas.<sup>496–499</sup> Provision of solid information technology and structures to collect and share data may also be crucial.<sup>500,501</sup>

Sharing good practice need not be costly, but it does require time and commitment. Organisations that allow staff the time to generate and apply new ideas and that provide set-up and continuation resources may be more successful.<sup>502–507</sup>

Strategies for increasing an organisation’s ability to pick up and run with new ideas include environmental scanning, effective leadership, strong formal and informal mechanisms for the exchange of knowledge, allocating time and resources to support staff, and upskilling in identifying and evaluating good practice.<sup>508–510</sup>

Organisations also need to have processes in place to sustain any changes after the initial implementation period.<sup>511</sup>

## Think about wider contexts

The wider political and market context can impact on the dissemination and diffusion of improvement initiatives.<sup>512–518</sup>

A systematic review found that:

*‘...dissemination in itself is not enough to produce improvement initiatives. Successful dissemination depends on various factors, which influence*



*the way collective actors react to performance information such as the clarity of objectives, the relationships between stakeholders, the system's governance and the available incentives... Knowledge dissemination goes beyond better communication.*<sup>519</sup>

Factors that have been found to help the implementation of complex innovations on a national scale include: strong leadership; good co-ordination between policy and operational levels; a practical approach to implementation emphasising the simplicity of interventions for potential adopters; a broad dissemination strategy which avoids direct confrontations with special interest groups; an explicit change management strategy; and early investment in training to establish a critical mass of professionals able to rapidly operationalise new approaches.<sup>520,521</sup>

This suggests that a multifaceted and coordinated approach is needed if teams wish to disperse new ideas on a large scale.

Investigations of how telemedicine became part of routine practice in England found that environmental factors played a significant role. The implementation of telemedicine services depended on having a positive link with a local or national policy level sponsor. Adoption was reliant on successful structural integration and the development of new organisational structures. The translation of telemedicine into clinical practice depended on the engagement of cohesive, cooperative groups, integration at the level of professional knowledge and the development of new procedures and protocols. This demonstrates that a simple 'linear' way of thinking about how innovations are put into practice may be insufficient. Instead there are multiple contextual, organisational and individual factors involved. Political, organisational and 'ownership' factors can be very influential.<sup>522</sup>

Researchers from the US examined how market characteristics may influence the adoption and embedding of electronic health records among community based doctors. Survey data from almost 3,000 clinicians were combined with information from databases. Environmental factors influencing the likelihood of adopting electronic records included being in a county with a higher concentration of doctors, practice size, years in practice, technology readiness and population characteristics. The researchers concluded that market forces can enable the adoption of innovations among health care clinics.<sup>523</sup>

While improvement teams cannot directly control some of these broader-level organisational and contextual factors, there are many things that local teams can do to spread the lessons learned from improvement initiatives. The final chapter summarises top tips for spreading good practice.

---

## 6. Summary

### What are the best ways to spread good practice?

This scan of 477 empirical studies suggests that there is no simple answer to the question of which methods are most effective for spreading good practice and new ideas in health care. A number of approaches have been found useful in particular contexts, but it is likely that the best dissemination and diffusion strategies will incorporate a variety of approaches.

Bearing this caveat in mind, the methods that work best for rolling out ideas in local internal teams may include targeting key individuals, providing focused and proactive training and internal marketing.

Methods that may work best for rolling out ideas to other organisations include quality improvement collaboratives, formal and informal professional networks and social media.

Approaches for rolling out ideas at national or international level include targeting key decision makers and policy makers, networks, social media and campaigns.

Table 3 on page 27 summarises the strength and direction of evidence about each of the approaches explored in the scan.

### What contributes to the spread of good practice?

The research evidence suggests that paying attention to underpinning facilitators and barriers is important, no matter which specific dissemination methods are used.

Tips based on individual, team and organisational-level facilitators and barriers include the following:

- Get a range of people involved in the initiative and dissemination from the outset.
- Make sure that clinical and managerial leaders are involved. Stakeholder analysis and market research may be useful to identify key stakeholders and opinion leaders.
- View people as active change agents rather than passive recipients of information.
- Emphasise how initiatives address the priorities of individuals and organisations.
- Target messages differently for varying audiences.
- Provide support and training to help people understand and implement change.
- Dedicate enough time for dissemination and to allow teams the freedom and power to implement change.
- Plan dissemination strategies from the outset.
- Recognise that much dissemination and diffusion takes place through word of mouth and social interactions.
- Make use of a wide range of approaches such as social media, opinion leaders and existing professional networks, rather than relying solely on approaches such as journal articles and conferences.
- Acknowledge that training alone may be unlikely to increase the uptake of new ideas or good practice, but it can help to raise awareness and be used as one component of wider ranging strategies.

- Evaluate the success of innovations and improvements, but also the extent of uptake and dissemination within teams, organisations and more broadly. The things that are measured tend to get more emphasis, so measuring dissemination may help to ensure that it is a priority.
- Recognise that organisational culture and structures are important, and target senior leaders and middle managers within organisations to help with dissemination. Senior decision makers and policy makers at regional or national level can be influenced by personal contact as well as short communications linked explicitly to priority areas.
- Include funds for dissemination within project budgets.

*‘The extent to which [an] innovation is implemented will be affected by factors in three domains: (1) intentional activities to introduce, spread, and support the innovation; (2) the attitudes and capabilities of clinic staff responsible for implementing the innovation; and (3) the context of the facility in which the innovation is being introduced.’<sup>524</sup>*

**Table 3: Evidence about researched approaches for spreading good practice**

Dissemination approach	Evidence availability	Key findings
<b>Written materials</b>	Large amount of good quality evidence	Written materials may increase awareness but are less likely to motivate behaviour change
<b>Conferences</b>	Small amount of low quality evidence	Conferences may spark awareness, particularly in early adopters
<b>Social media</b>	Small amount of low quality evidence	Social media has the potential to spread ideas and increase uptake, but may not be being used effectively in health care
<b>Campaigns</b>	Small amount of low quality evidence	Campaigns have the potential to spread ideas and increase uptake, but evidence of longer term impacts is lacking
<b>Change champions</b>	Large amount of medium quality evidence	Change champions or opinion leaders can influence uptake, especially among clinicians
<b>Training</b>	Large amount of good quality evidence	Training can improve the knowledge and skills of participants but the impacts depend on the format and may be short term
<b>Train-the-trainer</b>	Medium amount of low quality evidence	Train-the-trainer programmes can help to share skills but may not always improve uptake of new practices if sufficient resources are not dedicated to rollout
<b>Action research</b>	Small amount of low quality evidence	Action research has the potential to spread practice within wider teams, but the evidence base is lacking
<b>Collaboratives</b>	Large amount of medium quality evidence	Evidence about the impact of collaboratives is mixed. They can help to improve good practice but effects may not be long-lived and may not disseminate more widely than to those taking part
<b>Networks</b>	Medium amount of low quality evidence	Ideas are spread through social and professional networks, but the exact mechanisms for this and how to harness networks effectively remains uncertain

Some hindering factors such as limited budgets are systemic and not readily altered, but other barriers and facilitators for spreading good practice are amenable to change. It is possible for local health care teams to change the characteristics of the evidence supply such as information quantity, quality, accessibility and usability. It is also possible to link information to concrete impacts, costs, and benefits; reframe information to fit policy and practice concerns; ensure appropriate networking and training to help raise awareness and motivate action; approach key stakeholders and opinion leaders for support; and develop collaborative relationships to generate and disseminate evidence.<sup>525</sup>

Every day, NHS teams make improvements to services or processes. Spreading the word about these good practices is essential in order to reduce variations in quality and cost. Incremental and practice-driven change processes can transform care systems over time.<sup>526</sup> There are many approaches that organisations and teams can use to spread their improvements and innovations. The challenge is to build in these mechanisms as a routine part of improvement efforts and to see dissemination as being just as important as the improvement itself. This evidence scan suggests that there is no single best approach for spreading innovation and improvement, and that teams may use a wide menu of strategies simultaneously to share good practice.<sup>527</sup>

---

# Appendix: Identifying relevant research

This appendix outlines the approach used to identify studies for inclusion in the evidence scan.

## Inclusion criteria

The scan included readily available empirical research published in the UK and internationally.

To be eligible for inclusion in the review, material had to:

- be empirical research of any methodological design
- include information about methods for spreading ideas or improvement in health care
- be published as a journal article in the English language.

There were no geographic or temporal restrictions. The review excluded opinion pieces, grey literature and sources that did not contain empirical research.

The scan originally examined literature from other industries in addition to health care but there were no themes found that were not encompassed in the health care literature. Therefore, reporting was focused on evidence from health care.

## Search strategy

To identify studies for inclusion, two reviewers independently searched five bibliographic databases: Medline/Pubmed, Web of Knowledge, Science Direct, the Cochrane Library and Google Scholar.

Search terms included combinations of the following: action research; adoption; campaigns; champions; communications in healthcare; diffusion of innovation; disseminating practice; dissemination of improvement; internal marketing; key opinion leaders; knowledge diffusion; knowledge transfer; marketing; networks; presentations and conferences; publication; scale up; social marketing; social media; social network; spread; train-the-trainer; uptake and similes.

## Selection and synthesis

A total of 29,110 articles were reviewed. Of these, 477 met the inclusion criteria. Most of the articles excluded were descriptive in nature, rather than including empirical data.

No formal quality appraisal process was used because the review did not seek to exclude studies based on methodological design or quality.

Findings were extracted using a template. The studies were heterogeneous in terms of their focus, definitions, research design, size and geographic context. Quantitative synthesis was not appropriate and a narrative synthesis was undertaken, grouping the literature according to the type of approach used.

## Caveats

All of the evidence was sourced and compiled systematically, but the evidence scan is not a systematic review and does not seek to summarise every study. The aim is to draw out overarching themes about commonly researched approaches.

There are many descriptions of ways to spread ideas and practice but such descriptions were not eligible for inclusion unless they were based on published empirical research. Other approaches may be being used in practice but are not included because there is little research published about them. If a method is not mentioned this is due to a lack of readily available research rather than any judgement about the usefulness of that approach.

Few studies provide details about the exact steps taken. This means that it is difficult to draw out key success factors and groupings may not be comparing like with like.

It is also true that there are many overlaps in approaches rather than the levels or methods being mutually exclusive. For example, good health care communication may be an approach in itself but should also be part of methods such as audits and collaboratives.

It is useful to keep these points in mind when considering the research evidence about key approaches used to spread ideas and improvement in health care.

# References

- 1 Wyszewianski L, Green LA. Strategies for changing clinicians' practice patterns. A new perspective. *J Fam Pract* 2000;49(5):461-464.
- 2 Clark F, Park DJ, Burke JP. Dissemination: bringing translational research to completion. *Am J Occup Ther* 2013;67(2):185-193.
- 3 [www.innovations.ahrq.gov](http://www.innovations.ahrq.gov)
- 4 Giguère A, Légaré F, Grimshaw J, Turcotte S, Fiander M. Printed educational materials: effects on professional practice and healthcare outcomes. *Cochrane Database Syst Rev* 2012 Oct 17;10:CD004398.
- 5 Williams KS, Crichton NJ, Roe B. Disseminating research evidence. A controlled trial in continence care. *J Adv Nurs* 1997;25(4):691-698.
- 6 Hanney S, Buxton M, Green C, Coulson D, Raftery J. An assessment of the impact of the NHS Health Technology Assessment Programme. *Health Technol Assess* 2007;11(53):iii-iv, ix-xi, 1-180.
- 7 Packer C, Simpson S, Stevens A. International diffusion of new health technologies: a ten-country analysis of six health technologies. *Int J Technol Assess Health Care* 2006;22(4):419-428.
- 8 Grimshaw JM, Thomas RE, MacLennan G, Fraser C, Ramsay CR, Vale L, Whitty P, Eccles MP, Matowe L, Shirran L, Wensing M, Dijkstra R, Donaldson C. Effectiveness and efficiency of guideline dissemination and implementation strategies. *Health Technol Assess* 2004;8(6):1-72.
- 9 Grimshaw J, Eccles M, Thomas R, MacLennan G, Ramsay C, Fraser C, Vale L. Toward evidence-based quality improvement. Evidence (and its limitations) of the effectiveness of guideline dissemination and implementation strategies 1966-1998. *J Gen Intern Med* 2006;21 Suppl 2:S14-S20.
- 10 Heppe DB, Bucher-Bartelson B, Estacio RO, Krantz MJ. Impact of cardiovascular disease guideline dissemination on provider knowledge. *Am J Med Sci* 2012;343(1):56-60.
- 11 Innvaer S, Vist G, Trommald M, Oxman A. Health policy-makers' perceptions of their use of evidence: a systematic review. *J Health Serv Res Policy* 2002;7(4):239-244.
- 12 Lavis JN, Robertson D, Woodside JM, McLeod CB, Abelson J. How can research organizations more effectively transfer research knowledge to decision-makers? *Milbank Q* 2003;81(2):221-248.
- 13 Mitton C, Adair CE, McKenzie E, Patten SB, Wayne Perry B. Knowledge transfer and exchange: review and synthesis of the literature. *Milbank Q* 2007; 85(4):729-768.
- 14 Ketelaar NA, Faber MJ, Flottorp S, Rygh LH, Deane KH, Eccles MP. Public release of performance data in changing the behaviour of healthcare consumers, professionals or organisations. *Cochrane Database Syst Rev* 2011;(11):CD004538.
- 15 Shah BR, Bhattacharyya O, Yu CH, Mamdani MM, Parsons JA, Straus SE, Zwarenstein M. Effect of an educational toolkit on quality of care: a pragmatic cluster randomized trial. *PLoS Med* 2014;11(2):e1001588.
- 16 Gerhardus A, Dintios CM. The impact of HTA reports on health policy: a systematic review. *GMS Health Technol Assess* 2005;1:Doc02.
- 17 Dalheim A, Harthug S, Nilsen RM, Nortvedt MW. Factors influencing the development of evidence-based practice among nurses: a self-report survey. *BMC Health Serv Res* 2012;12:367.
- 18 Harting J, Rutten GM, Rutten ST, Kremers SP. A qualitative application of the diffusion of innovations theory to examine determinants of guideline adherence among physical therapists. *Phys Ther* 2009;89(3):221-32.
- 19 Walsh K, Kitson A, Cross W, Thoms D, Thornton A, Moss C, Campbell S, Graham I. A conversation about practice development and knowledge translation as mechanisms to align the academic and clinical contexts for the advancement of nursing practice. *Collegian* 2012;19(2):67-75.
- 20 Solberg LI, Brekke ML, Fazio CJ, Fowles J, Jacobsen DN, Kottke TE, Mosser G, O'Connor PJ, Ohnsorg KA, Rolnick SJ. Lessons from experienced guideline implementers: Attend to many factors and use multiple strategies. *Jt Comm J Qual Improv* 2000;26(4):171-188.
- 21 Williams I, McIver S, Moore D, Bryan S. The use of economic evaluation in NHS decision-making: a review and empirical investigation. *Health Technol Assess* 2008;12(7):1-175.
- 22 Leeman J, Jackson B, Sandelowski M. An evaluation of how well research reports facilitate the use of findings in practice. *J Nurs Scholarsh* 2006;38(2):171-177.
- 23 Song F, Parekh S, Hooper L, Loke YK, Ryder J, Sutton AJ, Hing C, Kwok CS, Pang C, Harvey I. Dissemination and publication of research findings: an updated review of related biases. *Health Technol Assess* 2010;14(8):1-193.



- 24 Axelsson S, Helgason AR, Lund KE, Adolfsson J. Disseminating evidence from health technology assessment: the case of tobacco prevention. *Int J Technol Assess Health Care* 2006;22(4):500-505.
- 25 Chambers D, Wilson PM, Thompson CA, Hanbury A, Farley K, Light K. Maximizing the impact of systematic reviews in health care decision making: a systematic scoping review of knowledge-translation resources. *Milbank Q* 2011;89(1):131-156.
- 26 Vasileiou K, Barnett J, Young T. The production and use of evidence in health care service innovation: a qualitative study. *Eval Health Prof* 2013;36(1):93-105.
- 27 Wallace J, Byrne C, Clarke M. Making evidence more wanted: a systematic review of facilitators to enhance the uptake of evidence from systematic reviews and meta-analyses. *Int J Evid Based Healthc* 2012;10(4):338-346.
- 28 El-Jardali F, Lavis JN, Ataya N, Jamal D, Ammar W, Raouf S. Use of health systems evidence by policymakers in eastern Mediterranean countries: views, practices, and contextual influences. *BMC Health Serv Res* 2012;12:200.
- 29 Wallace J, Byrne C, Clarke M. Making evidence more wanted: a systematic review of facilitators to enhance the uptake of evidence from systematic reviews and meta-analyses. *Int J Evid Based Healthc* 2012;10(4):338-346.
- 30 Stringer AP, Bell CE, Christley RM, Gebreab F, Tefera G, Reed K, Trawford A, Pinchbeck GL. A cluster-randomised controlled trial to compare the effectiveness of different knowledge-transfer interventions for rural working equid users in Ethiopia. *Prev Vet Med* 2011;100(2):90-9.
- 31 Johnstone E, Knight J, Gillham K, Campbell E, Nicholas C, Wiggers J. System-wide adoption of health promotion practices by schools: evaluation of a telephone and mail-based dissemination strategy in Australia. *Health Promot Int* 2006;21(3):209-218.
- 32 Bruce A, Makaroff KL, Sheilds L, Beuthin R, Molzahn A, Shermak S. Lessons learned about art-based approaches for disseminating knowledge. *Nurse Res* 2013;21(1):23-28.
- 33 Dobbins M, Jack S, Thomas H, Kothari A. Public health decision-makers' informational needs and preferences for receiving research evidence. *Worldviews Evid Based Nurs* 2007;4(3):156-163.
- 34 Fitzgerald L, Ferlie E, Hawkins C. Innovation in healthcare: how does credible evidence influence professionals? *Health Soc Care Community* 2003;11(3):219-228.
- 35 Wilkinson A, Papaioannou D, Keen C, Booth A. The role of the information specialist in supporting knowledge transfer: a public health information case study. *Health Info Libr J* 2009;26(2):118-125.
- 36 Postema T. A method to evaluate the role of stakeholder dynamics in IT based innovation adoption processes. *World Hosp Health Serv* 2010;46(2):12-15.
- 37 Bond P, French J. Implementing online tools and resources to help nurses apply evidence based care. *Nurs Times* 2010;106(1):20-22.
- 38 Sharples K, Moseley LG. Learning to learn in practice: An evaluation of a 35-day practice orientation programme. *Nurse Educ Pract* 2010;10(2):57-63.
- 39 Brewer BB, Brewer MA, Schultz AA. A collaborative approach to building the capacity for research and evidence-based practice in community hospitals. *Nurs Clin North Am* 2009;44(1):11-25.
- 40 El-Jardali F, Lavis JN, Ataya N, Jamal D. Use of health systems and policy research evidence in the health policymaking in eastern Mediterranean countries: views and practices of researchers. *Implement Sci* 2012;7:2.
- 41 Sortedahl C. Effect of online journal club on evidence-based practice knowledge, intent, and utilization in school nurses. *Worldviews Evid Based Nurs* 2012;9(2):117-125.
- 42 Berwick DM. Disseminating innovations in health care. *JAMA* 2003;289(15):1969-1975.
- 43 Fitzgerald L, Ferlie E, Wood M, Hawkins C. Interlocking interactions, the diffusion of innovations in health care. *Human Relations* 2002;55:1429-1449.
- 44 Robb G, Wells S, Goodyear-Smith F. Values add value: an online tool enhances postgraduate evidence-based practice learning. *Med Teach* 2012;34(11):e743-e750.
- 45 Moodie ST, Bagatto MP, Miller LT, Kothari A, Seewald R, Scollie SD. An integrated knowledge translation experience: use of the Network of Pediatric Audiologists of Canada to facilitate the development of the University of Western Ontario Pediatric Audiological Monitoring Protocol (UWO PedAMP v1.0). *Trends Amplif* 2011;15(1):34-56.
- 46 Moodie ST, Kothari A, Bagatto MP, Seewald R, Miller LT, Scollie SD. Knowledge translation in audiology: promoting the clinical application of best evidence. *Trends Amplif* 2011;15(1):5-22.
- 47 May F, Simpson D, Hart L, Rowett D, Perrier D. Experience with academic detailing services for quality improvement in primary care practice. *Qual Saf Health Care* 2009;18(3):225-231.
- 48 Bachyrycz A, Dodd MA, Priloutska G. Development and dissemination of a statewide system to minimize use of Potentially Inappropriate Medications (PIMs). *Med Care* 2012;50(11):993-996.
- 49 Gibbins A, Butler J. Developing a booklet to share best practice in implementing Essence of Care benchmarks. *Nurs Times* 2010;106(12):10-11.
- 50 Perrier L, Mrklas K, Lavis JN, Straus SE. Interventions encouraging the use of systematic reviews by health policymakers and managers: a systematic review. *Implement Sci* 2011;6:43.
- 51 Rohrbach LA, Ringwalt CL, Ennett ST, Vincus AA. Factors associated with adoption of evidence-based substance use prevention curricula in US school districts. *Health Educ Res* 2005;20(5):514-526.
- 52 [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0003/124419/e94296.pdf](http://www.euro.who.int/__data/assets/pdf_file/0003/124419/e94296.pdf)
- 53 Mayer J, Mooney B, Gundlapalli A, Harbarth S, Stoddard GJ, Rubin MA, Eutropius L, Brinton B, Samore MH. Dissemination and sustainability of a hospital-wide hand hygiene program emphasizing positive reinforcement. *Infect Control Hosp Epidemiol* 2011;32(1):59-66.
- 54 Davey P, Brown E, Charani E, Fenelon L, Gould IM, Holmes A, Ramsay CR, Wiffen PJ, Wilcox M. Interventions to improve antibiotic prescribing practices for hospital inpatients. *Cochrane Database Syst Rev* 2013;4:CD003543

- 55 Ivers NM, Tu K, Young J, Francis JJ, Barnsley J, Shah BR, Upshur RE, Moineddin R, Grimshaw JM, Zwarenstein M. Feedback GAP: pragmatic, cluster-randomized trial of goal setting and action plans to increase the effectiveness of audit and feedback interventions in primary care. *Implement Sci* 2013;8:142.
- 56 Ivers N, Jamtvedt G, Flottorp S, Young JM, Odgaard-Jensen J, French SD, O'Brien MA, Johansen M, Grimshaw J, Oxman AD. Audit and feedback: effects on professional practice and healthcare outcomes. *Cochrane Database Syst Rev* 2012;6:CD000259.
- 57 Andolsek KM, Nagler A, Weinerth JL. Use of an institutional template for annual program evaluation and improvement: benefits for program participation and performance. *J Grad Med Educ* 2010;2(2):160-164.
- 58 Wallace AB, Goergen SK, Schick D, Soblusky T, Jolley D. Multidetector CT dose: clinical practice improvement strategies from a successful optimization program. *J Am Coll Radiol* 2010;7(8):614-624.
- 59 Okelo SO, Butz AM, Sharma R, Diette GB, Pitts SI, King TM, Linn ST, Reuben M, Chelladurai Y, Robinson KA. Interventions to modify health care provider adherence to asthma guidelines: a systematic review. *Pediatrics* 2013;132(3):517-534.
- 60 Colquhoun HL, Brehaut JC, Sales A, Ivers N, Grimshaw J, Michie S, Carroll K, Chalifoux M, Eva KW. A systematic review of the use of theory in randomized controlled trials of audit and feedback. *Implement Sci* 2013;8:66.
- 61 Boaz A, Baeza J, Fraser A. Effective implementation of research into practice: an overview of systematic reviews of the health literature. *BMC Res Notes* 2011;4:212.
- 62 Miller WR, Sorensen JL, Selzer JA, Brigham GS. Disseminating evidence-based practices in substance abuse treatment: a review with suggestions. *J Subst Abuse Treat* 2006;31(1):25-39.
- 63 Karlin BE, Trockel M, Taylor CB, Gimeno J, Manber R. National dissemination of cognitive behavioral therapy for insomnia in veterans: therapist- and patient-level outcomes. *J Consult Clin Psychol* 2013;81(5):912-917.
- 64 Kazanjian A, Smillie K, Stephen J. Evaluating a knowledge exchange intervention in cancer survivorship care: a workshop to foster implementation of Online Support Groups. *Support Care Cancer* 2013;21(5):1429-1435.
- 65 Carroll-Scott A, Toy P, Wyn R, Zane JJ, Wallace SP. Results from the Data & Democracy initiative to enhance community-based organization data and research capacity. *Am J Public Health* 2012;102(7):1384-1391.
- 66 Riley W, Parsons H, McCoy K, Burns D, Anderson D, Lee S, Sainfort F. Introducing quality improvement methods into local public health departments: structured evaluation of a statewide pilot project. *Health Serv Res* 2009;44(5 Pt 2):1863-1879.
- 67 Thomas L, Galla C. Building a culture of safety through team training and engagement. *BMJ Qual Saf* 2013;22(5):425-434.
- 68 Clifford A, Jackson Pulver L, Richmond R, Shakeshaft A, Ivers R. Disseminating best-evidence health-care to Indigenous health-care settings and programs in Australia: identifying the gaps. *Health Promot Int* 2009;24(4):404-415.
- 69 Wei EK, Ryan CT, Dietrich AJ, Colditz GA. Improving colorectal cancer screening by targeting office systems in primary care practices: disseminating research results into clinical practice. *Arch Intern Med* 2005;165(6):661-666.
- 70 Berger B, Gerlach A, Groth S, Sladek U, Ebner K, Mühlhauser I, Steckelberg A. Competence training in evidence-based medicine for patients, patient counsellors, consumer representatives and health care professionals in Austria: a feasibility study. *Z Evid Fortbild Qual Gesundheitswes* 2013;107(1):44-52.
- 71 Pfund C, House S, Spencer K, Asquith P, Carney P, Masters KS, McGee R, Shanedling J, Vecchiarelli S, Fleming M. A research mentor training curriculum for clinical and translational researchers. *Clin Transl Sci* 2013;6(1):26-33.
- 72 Gainforth HL, Latimer-Cheung AE, Athanasopoulos P, Martin Ginis KA. Examining the effectiveness of a knowledge mobilization initiative for disseminating the physical activity guidelines for people with spinal cord injury. *Disabil Health J* 2013;6(3):260-265.
- 73 Barkun AN, Bhat M, Armstrong D, Dawes M, Donner A, Enns R, Martin J, Moayyedi P, Romagnuolo J, Stitt L. Effectiveness of disseminating consensus management recommendations for ulcer bleeding: a cluster randomized trial. *CMAJ* 2013;185(3):E156-66.
- 74 Gordon JS, Andrews JA, Lichtenstein E, Severson HH, Akers L. Disseminating a smokeless tobacco cessation intervention model to dental hygienists: a randomized comparison of personalized instruction and self-study methods. *Health Psychol* 2005;24(5):447-455.
- 75 Ruf D, Berner M, Kriston L, Lohmann M, Mundle G, Lorenz G, Niebling W, Härter M. Cluster-randomized controlled trial of dissemination strategies of an online quality improvement programme for alcohol-related disorders. *Alcohol Alcohol* 2010;45(1):70-78.
- 76 White M, Michaud G, Pachev G, Lirenman D, Kolenc A, FitzGerald JM. Randomized trial of problem-based versus didactic seminars for disseminating evidence-based guidelines on asthma management to primary care physicians. *J Contin Educ Health Prof* 2004;24(4):237-243.
- 77 Richie E, Dove C, Crowe SL, Dearment V, Manwiller J, Wallace M, Thiel DD. Utilization of simulation for the introduction of new software technology to the clinical setting. *J Patient Saf* (published online February 2014).
- 78 Baliulis G, Lipnevicius A, Sudikiene R, Lebetkevicius V, Versockas K, Lankutis K, Nogiene G, Zilinskas V, Sirvydis V, Haw MP, Tarutis V. Sustainable knowledge transfer in pediatric cardiac surgery: a team approach to shared learning. *World J Pediatr Congenit Heart Surg* 2011;2(2):225-230.
- 79 Drake RE, Becker DR, Goldman HH, Martinez RA. Best practices: the Johnson & Johnson - Dartmouth community mental health program: disseminating evidence-based practice. *Psychiatr Serv* 2006;57(3):302-304.
- 80 Lekan D, Hendrix CC, McConnell ES, White H. The Connected Learning Model for disseminating evidence-based care practices in clinical settings. *Nurse Educ Pract* 2010;10(4):243-248.



- 81 Zillich AJ, Ackermann RT, Stump TE, Ambuehl RJ, Downs SM, Holmes AM, Katz B, Inui TS. An evaluation of educational outreach to improve evidence-based prescribing in Medicaid: a cautionary tale. *J Eval Clin Pract* 2008;14(5):854-860.
- 82 Siriwardena AN, Middlemass JB, Ward K, Wilkinson C. Drivers for change in primary care of diabetes following a protected learning time educational event: interview study of practitioners. *BMC Med Educ* 2008;8:4.
- 83 Grimshaw J, Eccles M, Thomas R, MacLennan G, Ramsay C, Fraser C, Vale L. Toward evidence-based quality improvement. Evidence (and its limitations) of the effectiveness of guideline dissemination and implementation strategies 1966-1998. *J Gen Intern Med* 2006;21 Suppl 2:S14-S20.
- 84 Narendran R, Narendranathan M. Influence of pharmaceutical marketing on prescription practices of physicians. *J Indian Med Assoc* 2013;111(1):47-50.
- 85 Bradley EH, Webster TR, Baker D, Schlesinger M, Inouye SK. After adoption: sustaining the innovation. A case study of disseminating the hospital elder life program. *J Am Geriatr Soc* 2005;53(9):1455-1461.
- 86 Vingilis E, Hartford K, Schrecker T, Mitchell B, Lent B, Bishop J. Integrating knowledge generation with knowledge diffusion and utilization: a case study analysis of the Consortium for Applied Research and Evaluation in Mental Health. *Can J Public Health* 2003;94(6):468-471.
- 87 Goldstein MK, Coleman RW, Tu SW, Shankar RD, O'Connor MJ, Musen MA, Martins SB, Lavori PW, Shlipak MG, Oddone E, Advani AA, Gholami P, Hoffman BB. Translating research into practice: organizational issues in implementing automated decision support for hypertension in three medical centers. *J Am Med Inform Assoc* 2004;11(5):368-376.
- 88 Jbilou J, Landry R, Amara N, El Adlouni S. Combining communication technology utilization and organizational innovation: evidence from Canadian healthcare decision makers. *J Med Syst* 2009;33(4):275-286.
- 89 Little MA, Pokhrel P, Sussman S, Rohrbach LA. The Process of Adoption of Evidence-based Tobacco Use Prevention Programs in California Schools. *Prev Sci* (published online January 2014).
- 90 Higuchi KS, Downey A, Davies B, Bajnok I, Waggott M. Using the NHS sustainability framework to understand the activities and resource implications of Canadian nursing guideline early adopters. *J Clin Nurs* 2013;22(11-12):1707-1716.
- 91 Bradley EH, Curry LA, Taylor LA, Pallas SW, Talbert-Slagle K, Yuan C, Fox A, Minhas D, Ciccone DK, Berg D, Pérez-Escamilla R. A model for scale up of family health innovations in low-income and middle-income settings: a mixed methods study. *BMJ Open* 2012;2(4):e000987.
- 92 Øvretveit J, Andreen-Sachs M, Carlsson J, Gustafsson H, Hansson J, Keller C, Lofgren S, Mazzocato P, Tolf S, Brommels M. Implementing organisation and management innovations in Swedish healthcare: lessons from a comparison of 12 cases. *J Health Organ Manag* 2012;26(2):237-257.
- 93 Panzano PC, Sweeney HA, Seffrin B, Massatti R, Knudsen KJ. The assimilation of evidence-based healthcare innovations: a management-based perspective. *J Behav Health Serv Res* 2012;39(4):397-416.
- 94 Rowe A, Hogarth A. Use of complex adaptive systems metaphor to achieve professional and organizational change. *J Adv Nurs* 2005;51(4):396-405.
- 95 Azarmina P, Prestwich G, Rosenquist J, Singh D. Transferring disease management and health promotion programs to other countries: critical success factors. *Health Promot Int* 2008;23(4):372-379.
- 96 Øvretveit J, Andreen-Sachs M, Carlsson J, Gustafsson H, Hansson J, Keller C, Lofgren S, Mazzocato P, Tolf S, Brommels M. Implementing organisation and management innovations in Swedish healthcare: lessons from a comparison of 12 cases. *J Health Organ Manag* 2012;26(2):237-257.
- 97 Berwick DM. Disseminating innovations in health care. *JAMA* 2003;289(15):1969-1975.
- 98 Rogers EM. *Diffusion of Innovations*. New York: Free Press, 2003.
- 99 Leeman J, Baernholdt M, Sandelowski M. Developing a theory-based taxonomy of methods for implementing change in practice. *J Adv Nurs* 2007;58(2):191-200.
- 100 Williams I, Dickinson H, Robinson S, Allen C. Clinical microsystems and the NHS: a sustainable method for improvement? *J Health Organ Manag* 2009;23(1):119-132.
- 101 Sherman RO. Lessons in innovation: role transition experiences of clinical nurse leaders. *J Nurs Adm* 2010;40(12):547-554.
- 102 Shoemaker SJ, Staub-DeLong L, Wasserman M, Spranca M. Factors affecting adoption and implementation of AHRQ health literacy tools in pharmacies. *Res Social Adm Pharm* 2013;9(5):553-563.
- 103 Rantz MJ, Zwygart-Stauffacher M, Flesner M, Hicks L, Mehr D, Russell T, Minner D. Challenges of using quality improvement methods in nursing homes that "need improvement". *J Am Med Dir Assoc* 2012;13(8):732-738.
- 104 Hilz LM. The informatics nurse specialist as change agent. Application of innovation-diffusion theory. *Comput Nurs* 2000;18(6):272-278.
- 105 Fitzgerald L, Ferlie E, Wood M, Hawkins C. Interlocking interactions, the diffusion of innovations in health care. *Human Relations* 2002;55:1429-1449.
- 106 Rogers EM. *Diffusion of Innovations*. New York: Free Press, 2003.
- 107 Shapiro J, Devlin M. *Quality assurance or improvement? Driving innovation in primary care*. Birmingham: Health Services Management Centre, University of Birmingham, 2000.
- 108 Everett LQ, Sitterding MC. Transformational leadership required to design and sustain evidence-based practice: a system exemplar. *West J Nurs Res* 2011; 33(3): 398-426.
- 109 Thompson GN, Estabrooks CA, Degner LF. Clarifying the concepts in knowledge transfer: a literature review. *J Adv Nurs* 2006;53(6):691-701.
- 110 Rowley E. Protocol for a qualitative study exploring the roles of 'Diffusion Fellows' in bridging the research to practice gap in the Nottinghamshire, Derbyshire and Lincolnshire Collaboration for Leadership in Applied Health Research and Care (CLAHRC-NDL). *BMJ Open* 2012;2(1):e000604.

- 111 Ward V, Smith S, House A, Hamer S. Exploring knowledge exchange: a useful framework for practice and policy. *Soc Sci Med* 2012;74(3):297-304.
- 112 Frantsve-Hawley J, Meyer DM. The evidence-based dentistry champions: a grassroots approach to the implementation of EBD. *J Evid Based Dent Pract* 2008;8(2):64-69.
- 113 Coleman EA, Rosenbek SA, Roman SP. Disseminating evidence-based care into practice. *Popul Health Manag* 2013;16(4):227-234.
- 114 Williams AM, Toye C, Deas K, Fairclough D, Curro K, Oldham L. Evaluating the feasibility and effect of using a hospital-wide coordinated approach to introduce evidence-based changes for pain management. *Pain Manag Nurs* 2012;13(4):202-214.
- 115 Rogers EM. *Diffusion of Innovations*. New York: Free Press, 2003.
- 116 Leeman J, Baernholdt M, Sandelowski M. Developing a theory-based taxonomy of methods for implementing change in practice. *J Ad Nurs* 2007;58(2):191-200.
- 117 Bodenheimer T. *The science of spread: how care innovations become the norm*. California: California Healthcare Foundation, 2007.
- 118 Hauck S, Winsett RP, Kuric J. Leadership facilitation strategies to establish evidence-based practice in an acute care hospital. *J Adv Nurs* 2013;69(3):664-674.
- 119 Aarons GA, Sommerfeld DH. Leadership, innovation climate, and attitudes toward evidence-based practice during a statewide implementation. *J Am Acad Child Adolesc Psychiatry* 2012;51(4):423-431.
- 120 Hoens AM, Reid WD, Camp PG. Knowledge brokering: an innovative model for supporting evidence-informed practice in respiratory care. *Can Respir J* 2013;20(4):271-274.
- 121 Flodgren G, Parmelli E, Doumit G, Gattellari M, O'Brien MA, Grimshaw J, Eccles MP. Local opinion leaders: effects on professional practice and health care outcomes. *Cochrane Database Syst Rev* 2011;(8):CD000125.
- 122 Ploeg J, Skelly J, Rowan M, Edwards N, Davies B, Grinspun D, Bajnok I, Downey A. The role of nursing best practice champions in diffusing practice guidelines: a mixed methods study. *Worldviews Evid Based Nurs* 2010;7(4):238-251.
- 123 Acolet D, Allen E, Houston R, Wilkinson AR, Costeloe K, Elbourne D. Improvement in neonatal intensive care unit care: a cluster randomised controlled trial of active dissemination of information. *Arch Dis Child Fetal Neonatal Ed* 2011;96(6):F434-F439.
- 124 Locock L, Dopson S, Chambers D, Gabbay J. Understanding the role of opinion leaders in improving clinical effectiveness. *Soc Sci Med* 2001;53(6):745-757.
- 125 Gerrish K, McDonnell A, Nolan M, Guillaume L, Kirshbaum M, Tod A. The role of advanced practice nurses in knowledge brokering as a means of promoting evidence-based practice among clinical nurses. *J Adv Nurs* 2011;67(9):2004-2014.
- 126 Vedel I, Ghadi V, De Stampa M, Routelous C, Bergman H, Ankri J, Lapointe L. Diffusion of a collaborative care model in primary care: a longitudinal qualitative study. *BMC Fam Pract* 2013;14:3.
- 127 Oliver A. The Veterans Health Administration: an American success story? *Milbank Q* 2007;85(1):5-35.
- 128 Melnyk BM, Bullock T, McGrath J, Jacobson D, Kelly S, Baba L. Translating the evidence-based NICU COPE program for parents of premature infants into clinical practice: impact on nurses' evidence-based practice and lessons learned. *J Perinat Neonatal Nurs* 2010;24(1):74-80.
- 129 Mayet S, Manning V, Williams A, Loaring J, Strang J. Impact of training for healthcare professionals on how to manage an opioid overdose with naloxone: effective, but dissemination is challenging. *Int J Drug Policy* 2011;22(1):9-15.
- 130 Lloyd B, Rychetnik L, Maxwell M, Nove T. Building capacity for evidence-based practice in the health promotion workforce: evaluation of a train-the-trainer initiative in NSW. *Health Promot J Austr* 2009;20(2):151-154.
- 131 Rajapakse BN, Neeman T, Dawson AH. The effectiveness of a 'train the trainer' model of resuscitation education for rural peripheral hospital doctors in Sri Lanka. *PLoS One* 2013;8(11):e79491.
- 132 Kalisch BJ, Xie B, Ronis DL. Train-the-trainer intervention to increase nursing teamwork and decrease missed nursing care in acute care patient units. *Nurs Res* 2013;62(6):405-413.
- 133 Meissner HI, Glasgow RE, Vinson CA, Chambers D, Brownson RC, Green LW, Ammerman AS, Weiner BJ, Mittman B. The U.S. training institute for dissemination and implementation research in health. *Implement Sci* 2013;8:12.
- 134 Mac Giolla Phadraig C, Guerin S, Nunn J. Train the trainer? A randomized controlled trial of a multi-tiered oral health education programme in community-based residential services for adults with intellectual disability. *Community Dent Oral Epidemiol* 2013;41(2):182-192.
- 135 Pien LC, Taylor CA, Traboulsi E, Nielsen CA. A pilot study of a "resident educator and life-long learner" program: using a faculty train-the-trainer program. *J Grad Med Educ* 2011;3(3):332-336.
- 136 Tanabe P, Stevenson A, DeCastro L, Drawhorn L, Lanzkron S, Molokie RE, Artz N. Evaluation of a train-the-trainer workshop on sickle cell disease for ED providers. *J Emerg Nurs* 2013;39(6):539-546.
- 137 Segre LS, Brock RL, O'Hara MW, Gorman LL, Engeldinger J. Disseminating perinatal depression screening as a public health initiative: a train-the-trainer approach. *Matern Child Health J* 2011;15(6):814-821.
- 138 Meneses KD, Yarbrow CH. An evaluation of the Train the Trainer International Breast Health and Breast Cancer Education: lessons learned. *J Cancer Educ* 2008;23(4):267-271.
- 139 Nyamathi A, Vatsa M, Khakha DC, McNeese-Smith D, Leake B, Fahey JL. HIV knowledge improvement among nurses in India: using a train-the-trainer program. *J Assoc Nurses AIDS Care* 2008;19(6):443-449.
- 140 Assemi M, Mutha S, Hudmon KS. Evaluation of a train-the-trainer program for cultural competence. *Am J Pharm Educ* 2007;71(6):110.
- 141 Stratos GA, Katz S, Bergen MR, Hallenbeck J. Faculty development in end-of-life care: evaluation of a national train-the-trainer program. *Acad Med* 2006;81(11):1000-1007.
- 142 Koerner M, Wirtz M, Michaelis M, Ehrhardt H, Steger AK, Zerpies E, Bengel J. A multicentre cluster-randomized controlled study to evaluate a train-the-trainer programme for implementing internal and external participation in medical rehabilitation. *Clin Rehabil* 2014;28(1):20-35.

- 143 Körner M, Ehrhardt H, Steger AK, Bengel J. Interprofessional SDM train-the-trainer program "Fit for SDM": provider satisfaction and impact on participation. *Patient Educ Couns* 2012;89(1):122-128.
- 144 Cross W, Cerulli C, Richards H, He H, Herrmann J. Predicting dissemination of a disaster mental health "Train-the-Trainer" program. *Disaster Med Public Health Prep* 2010;4(4):339-343.
- 145 Brimmer DJ, McCleary KK, Lupton TA, Faryna KM, Hynes K, Reeves WC. A train-the-trainer education and promotion program: chronic fatigue syndrome - a diagnostic and management challenge. *BMC Med Educ* 2008;8:49.
- 146 Olmstead T, Carroll KM, Canning-Ball M, Martino S. Cost and cost-effectiveness of three strategies for training clinicians in motivational interviewing. *Drug Alcohol Depend* 2011;116(1-3):195-202.
- 147 Pearce J, Mann MK, Jones C, van Buschbach S, Olff M, Bisson JI. The most effective way of delivering a train-the-trainers program: a systematic review. *J Contin Educ Health Prof* 2012;32(3):215-226.
- 148 Chen L, Sun J, Hilliard P, Zourikian N, Hang M, Blanchette V, Poon MC, Luke K. 'Train-the-Trainer': an effective and successful model to accelerate training and improve physiotherapy services for persons with haemophilia in China. *Haemophilia* (published online November 2013).
- 149 Lee R, Scott F. Competent to care. A train-the-trainer method of teaching as a way of implementing the correct use of the 'Malnutrition Universal Screening Tool' in Norfolk: is it effective? *Proc Nutr Soc* 2009;68(3):300-305.
- 150 Williams AB, Le ST, Colby D, Thu Le TT, Pollack T, Cosimi L. Effectiveness of train-the-trainer HIV education: a model from Vietnam. *J Assoc Nurses AIDS Care* (Published online October 2013).
- 151 Levine SA, Brett B, Robinson BE, Stratos GA, Lascher SM, Granville L, Goodwin C, Dunn K, Barry PP. Practicing physician education in geriatrics: lessons learned from a train-the-trainer model. *J Am Geriatr Soc* 2007;55(8):1281-1286.
- 152 Steinhäuser J, Ledig T, Szecsenyi J, Eicher C, Engeser P, Roos M, Bungartz J, Joos S. Train the Trainer for general practice trainer - a report of the pilot within the programme Verbundweiterbildung plus. *GMS Z Med Ausbild* 2012;29(3):Doc43.
- 153 Martino S, Ball SA, Nich C, Canning-Ball M, Rounsaville BJ, Carroll KM. Teaching community program clinicians motivational interviewing using expert and train-the-trainer strategies. *Addiction* 2011;106(2):428-441.
- 154 Wijesinha SS, Kirby CN, Tasker C, Piterman L. GPs as medical educators - an Australian train-the-trainer program. *Aust Fam Physician* 2008;37(8):684-688.
- 155 Duke LJ, Unterwagner WL, Byrd DC. Establishment of a multi-state experiential pharmacy program consortium. *Am J Pharm Educ* 2008;72(3):62.
- 156 Anderson JG, Jay SJ, Hackman EM. The role of physician networks in the diffusion of clinical applications of computers. *Int J Biomed Comput* 1983;14(3):195-202.
- 157 Soper B, Yaqub O, Hinrichs S, Marjanovich S, Drabble S, Hanney S, Nolte E. CLAHRCs in practice: combined knowledge transfer and exchange strategies, cultural change, and experimentation. *J Health Serv Res Policy* 2013;18(3 Suppl):53-64.
- 158 Margolis PA, Peterson LE, Seid M. Collaborative Chronic Care Networks (C3Ns) to transform chronic illness care. *Pediatrics* 2013;131 Suppl 4:S219-S223.
- 159 Lynch M, Verner E. Building a clinical leadership community to drive improvement: a multi-case educational study to inform 21st century clinical commissioning, professional capability and patient care. *Educ Prim Care* 2013;24(1):22-28.
- 160 Nadeem E, Olin SS, Hill LC, Hoagwood KE, Horwitz SM. Understanding the components of quality improvement collaboratives: a systematic literature review. *Milbank Q* 2013;91(2):354-394.
- 161 Arling PA, Abrahamson K, Miech EJ, Inui TS, Arling G. Communication and effectiveness in a US nursing home quality-improvement collaborative. *Nurs Health Sci* (published online November 2013).
- 162 Daudelin DH, Kulick ER, D'Amore K, Lutz JS, Barrientos MT, Foell K. The Massachusetts emergency medical service stroke quality improvement collaborative, 2009-2012. *Prev Chronic Dis* 2013;10:E161.
- 163 Van Duin D, Franx G, Van Wijngaarden B, Van Der Gaag M, Van Weeghel J, Slooff C, Wensing M. Bridging the science-to-service gap in schizophrenia care in the Netherlands: the Schizophrenia Quality Improvement Collaborative. *Int J Qual Health Care* 2013;25(6):626-632.
- 164 Broughton E, Saley Z, Boucar M, Alagane D, Hill K, Marafa A, Asma Y, Sani K. Cost-effectiveness of a quality improvement collaborative for obstetric and newborn care in Niger. *Int J Health Care Qual Assur* 2013;26(3):250-261.
- 165 Carlhed R, Bellman C, Bojestig M, Bojö L, Peterson A, Lindahl B. Quality improvement in coronary care: analysis of sustainability and impact on adjacent clinical measures after a Swedish controlled, multicenter quality improvement collaborative. *J Am Heart Assoc* 2012;1(4):e000737.
- 166 Lannon CM, Peterson LE. Pediatric collaborative networks for quality improvement and research. *Acad Pediatr* 2013;13(6 Suppl):S69-S74.
- 167 Lannon CM, Peterson LE. Pediatric collaborative improvement networks: background and overview. *Pediatrics* 2013;131 Suppl 4:S189-S195.
- 168 Minkman MM, Schouten LM, Huijsman R, van Splunteren PT. Integrated care for patients with a stroke in the Netherlands: results and experiences from a national Breakthrough Collaborative Improvement project. *Int J Integr Care* 2005;5:e14.
- 169 Leff B, Spragens LH, Morano B, Powell J, Bickert T, Bond C, DeGolia P, Malone M, Glew C, McCrystle S, Allen K, Siu AL. Rapid reengineering of acute medical care for Medicare beneficiaries: the Medicare innovations collaborative. *Health Aff* 2012;31(6):1204-1215.
- 170 Broughton E, Saley Z, Boucar M, Alagane D, Hill K, Marafa A, Asma Y, Sani K. Cost-effectiveness of a quality improvement collaborative for obstetric and newborn care in Niger. *Int J Health Care Qual Assur* 2013;26(3):250-261.



- 171 Fleuren M, Wiefferink K, Paulussen T. Determinants of innovation within health care organisations: literature review and Delphi study. *Int J Qual Health Care* 2004;16(2):107-123.
- 172 Goodwin P, Peck E, Freeman T, Posaner R. *Managing Across Diverse Networks of Care: Lessons from Other Sectors*. Birmingham: National Coordinating Centre for NHS Service Delivery and Organisation R and D (NCCSDO), 2004.
- 173 Knudsen HK, Roman PM. Modeling the use of innovations in private treatment organizations: The role of absorptive capacity. *J Substance Abuse Treat* 2004;26:51-59.
- 174 Parboosingh IJ, Reed VA, Caldwell Palmer J, Bernstein HH. Enhancing practice improvement by facilitating practitioner interactivity: new roles for providers of continuing medical education. *J Contin Educ Health Prof* 2011;31(2):122-127.
- 175 Rycroft-Malone J, Wilkinson JE, Burton CR, Andrews G, Ariss S, Baker R, Dopson S, Graham I, Harvey G, Martin G, McCormack BG, Staniszevska S, Thompson C. Implementing health research through academic and clinical partnerships: a realistic evaluation of the Collaborations for Leadership in Applied Health Research and Care (CLAHRC). *Implement Sci* 2011;6:74.
- 176 Kislov R, Walshe K, Harvey G. Managing boundaries in primary care service improvement: a developmental approach to communities of practice. *Implement Sci* 2012;7:97.
- 177 Cunningham FC, Ranmuthugala G, Westbrook JI, Braithwaite J. Net benefits: assessing the effectiveness of clinical networks in Australia through qualitative methods. *Implement Sci* 2012;7:108.
- 178 Profetto-McGrath J, Smith KB, Hugo K, Taylor M, El-Hajj H. Clinical nurse specialists' use of evidence in practice: a pilot study. *Worldviews Evid Based Nurs* 2007;4(2):86-96.
- 179 Evans AM, Barklam D, Hone K, Ellis G, Whitlock J. Reducing pressure damage: care bundles and collaborative learning. *Br J Nurs* 2013;22(12):S32, S34-S38.
- 180 Greenhalgh T, Robert G, Bate P, Kyriakidou O, Macfarlane F, Peacock R. *How to Spread Good Ideas: A systematic review of the literature on diffusion, dissemination and sustainability of innovations in health service delivery and organisation*. UK: Report for the National Co-ordinating Centre for NHS Service Delivery and Organisation R & D (NCCSDO), 2004.
- 181 Greenhalgh T, Robert G, Bate P, Kyriakidou O, Macfarlane F, Peacock R. *How to Spread Good Ideas: A systematic review of the literature on diffusion, dissemination and sustainability of innovations in health service delivery and organisation*. UK: Report for the National Co-ordinating Centre for NHS Service Delivery and Organisation R & D (NCCSDO), 2004.
- 182 Grol R, Wensing M. What drives change? Barriers and incentives for achieving evidence-based practice. *Med J Aust* 2004;180:7-60.
- 183 Williams I, Dickinson H. *Knowledge for adoption: a review of the literature on knowledge-based facilitators of technology adoption in health care*. Birmingham: Health Services Management Centre, University of Birmingham, 2008.
- 184 Fitzgerald L, Ferlie E, Wood M, Hawkins C. Interlocking interactions, the diffusion of innovations in health care. *Human Relations* 2002;55:1429-1449.
- 185 Bate P, Bevan H, Robert G. *Towards a million change agents. A review of the social movements literature: implications for large scale change in the NHS*. London: NHS Modernisation Agency, 2004.
- 186 Gelijns AC, Zivin JG, Nelson RR. Uncertainty and technological change in medicine. *J Health Politics, Policy Law* 2001;26(5):913-924.
- 187 Hargadon A. *How breakthroughs happen*. US: Harvard Business School Press, 2003.
- 188 Phillips AS, Garman AN. Barriers to entrepreneurship in healthcare organisations. *J Health Human Ser Ad* 2006;28(3/4):472-483.
- 189 Mills PD, Weeks WB, Surott-Kimberly BC. A multihospital safety improvement effort and the dissemination of new knowledge. *Jt Comm J Qual Saf* 2003;29(3):124-133.
- 190 Nadeem E, Olin SS, Hill LC, Hoagwood KE, Horwitz SM. Understanding the components of quality improvement collaboratives: a systematic literature review. *Milbank Q* 2013;91(2):354-394.
- 191 Lannon CM, Peterson LE. Pediatric collaborative networks for quality improvement and research. *Acad Pediatr* 2013;13(6 Suppl):S69-S74.
- 192 Aveling EL, Martin G, Armstrong N, Banerjee J, Dixon-Woods M. Quality improvement through clinical communities: eight lessons for practice. *J Health Organ Manag* 2012;26(2):158-174.
- 193 Fitzpatrick E, Dennison BA, Welge SB, Hisgen S, Boyce PS, Waniewski PA. Development of the breastfeeding quality improvement in hospitals learning collaborative in New York state. *Breastfeed Med* 2013;8(3):263-272.
- 194 Green PL, Plsek PE. Coaching and leadership for the diffusion of innovation in health care: a different type of multi-organization improvement collaborative. *Jt Comm J Qual Improv* 2002;28(2):55-71.
- 195 Fakhri MG, George C, Edson BS, Goeschel CA, Saint S. Implementing a national program to reduce catheter-associated urinary tract infection: a quality improvement collaboration of state hospital associations, academic medical centers, professional societies, and governmental agencies. *Infect Control Hosp Epidemiol* 2013;34(10):1048-1054.
- 196 Puga F, Stevens KR, Patel DI. Adopting best practices from team science in a healthcare improvement research network: the impact on dissemination and implementation. *Nurs Res Pract* 2013;2013:814360.
- 197 Goode JV, Mott DA, Chater R. Collaborations to facilitate success of community pharmacy practice-based research networks. *J Am Pharm Assoc* 2008;48(2):153-162.
- 198 Shaw EK, Chase SM, Howard J, Nutting PA, Crabtree BF. More black box to explore: how quality improvement collaboratives shape practice change. *J Am Board Fam Med* 2012;25(2):149-157.
- 199 Khoo AL, Teng M, Lim BP, Tai HY, Lau TC. A multicenter, multidisciplinary, high-alert medication collaborative to improve patient safety: the Singapore experience. *Jt Comm J Qual Patient Saf* 2013;39(5):205-212.
- 200 Slaghuis SS, Strating MM, Bal RA, Nieboer AP. A measurement instrument for spread of quality improvement in healthcare. *Int J Qual Health Care* 2013;25(2):125-131.

- 201 Margolis PA, Peterson LE, Seid M. Collaborative Chronic Care Networks (C3Ns) to transform chronic illness care. *Pediatrics* 2013;131 Suppl 4:S219-S223.
- 202 Bate SP, Robert G. Knowledge management and communities of practice in the private sector: lessons for modernising the National Health Service in England and Wales. *Public Admin* 2002;80:643-663.
- 203 Dückers ML, Spreeuwenberg P, Wagner C, Groenewegen PP. Exploring the black box of quality improvement collaboratives: modelling relations between conditions, applied changes and outcomes. *Implement Sci* 2009;4:74.
- 204 Wiecha JL, Nelson TF, Roth BA, Glashagel J, Vaughan L. Disseminating health promotion practices in after-school programs through YMCA learning collaboratives. *Am J Health Promot* 2010;24(3):190-198.
- 205 Burns D. *Systemic Action Research: A strategy for whole system change*. Bristol: Policy Press, 2007.
- 206 Reason P, Bradbury H. *The SAGE Handbook of Action Research. Participative Inquiry and Practice. First Edition*. London: Sage, 2001.
- 207 Schmidt NA, Brown JM. Use of the innovation-decision process teaching strategy to promote evidence-based practice. *J Prof Nurs* 2007;23(3):150-156.
- 208 Hawkins CM, Alsip CN, Pryor RM, Leach AD, Larson DB. Practice policy and quality initiatives: Quality improvement and confirmation projects: facilitating rapid, measurable performance improvement. *Radiographics* 2013;33(7):e225-235.
- 209 Collet JB, Skippen PW, Mosavianpour MK, Pitfield A, Chakraborty B, Hunte G, Lindstrom R, Kissoon N, McKellin WH. Engaging pediatric intensive care unit (PICU) clinical staff to lead practice improvement: the PICU participatory action research project (PICU-PAR). *Implement Sci* 2014;9:6
- 210 Steihaug S, Lippestad JW, Isaksen H, Werner A. Development of a model for organisation of and cooperation on home-based rehabilitation - an action research project. *Disabil Rehabil* (published online June 2013).
- 211 Nyman V, Bondas T, Downe S, Berg M. Glancing beyond or being confined to routines: labour ward midwives' responses to change as a result of action research. *Midwifery* 2013;29(6):573-578.
- 212 Irimu GW, Greene A, Gathara D, Kihara H, Maina C, Mbori-Ngacha D, Zurovac D, Migiro S, English M. Factors influencing performance of health workers in the management of seriously sick children at a Kenyan tertiary hospital - participatory action research. *BMC Health Serv Res* 2014;14(1):59.
- 213 Waterman H, Marshall M, Noble J, Davies H, Walshe K, Sheaff R, Elwyn G. The role of action research in the investigation and diffusion of innovations in health care: the PRIDE project. *Qual Health Res* 2007;17(3):373-81.
- 214 Puolakka K, Haapasalo-Pesu KM, Konu A, Astedt-Kurki P, Paavilainen E. Mental health promotion in a school community by using the results from the Well-being Profile: an action research project. *Health Promot Pract* 2014;15(1):44-54.
- 215 Maibach EW, Abrams LC, Marosits M. Communication and marketing as tools to cultivate the public's health: a proposed "people and places" framework. *BMC Public Health* 2007;7:88.
- 216 Quinn GP, Ellery J, Thomas KB, Marshall R. Developing a common language for using social marketing: an analysis of Public Health literature. *Health Mark Q* 2010;27(4):334-353.
- 217 Fahey DF, Burbridge G. Application of diffusion of innovations models in hospital knowledge management systems: lessons to be learned in complex organizations. *Hosp Top* 2008;86(2):21-31.
- 218 [www.thecommunityguide.org/healthcommunication/index.html](http://www.thecommunityguide.org/healthcommunication/index.html)
- 219 Aras R. Social marketing in healthcare. *Australas Med J* 2011;4(8):418-424.
- 220 Janssen MM, Mathijssen JJ, van Bon-Martens MJ, van Oers HA, Garretsen HF. Effectiveness of alcohol prevention interventions based on the principles of social marketing: a systematic review. *Subst Abuse Treat Prev Policy* 2013;8:18.
- 221 Rothschild ML. Using social marketing to manage population health performance. *Prev Chronic Dis* 2010;7(5):A96.
- 222 Garnett BR, Buelow R, Franko DL, Becker C, Rodgers RF, Austin SB. The importance of campaign saliency as a predictor of attitude and behavior change: a pilot evaluation of social marketing campaign fat talk free week. *Health Commun* (published online December 2013).
- 223 Harris JR, Cheadle A, Hannon PA, Forehand M, Lichiello P, Mahoney E, Snyder S, Yarrow J. A framework for disseminating evidence-based health promotion practices. *Prev Chronic Dis* 2012;9:E22.
- 224 Croker KS, Ryan A, Morzenti T, Cave L, Maze-Gallman T, Ford L. Delivering prostate cancer prevention messages to the public: how the National Cancer Institute (NCI) effectively spread the word about the Prostate Cancer Prevention Trial (PCPT) results. *Urol Oncol* 2004;22(4):369-376.
- 225 Schmidt M. Social marketing and breastfeeding: a literature review. *Glob J Health Sci* 2013;5(3):82-94.
- 226 Luca NR, Suggs LS. Theory and model use in social marketing health interventions. *J Health Commun* 2013;18(1):20-40.
- 227 Wei C, Herrick A, Raymond HF, Anglemeyer A, Gerbase A, Noar SM. Social marketing interventions to increase HIV/STI testing uptake among men who have sex with men and male-to-female transgender women. *Cochrane Database Syst Rev* 2011;(9):CD009337.
- 228 Giordano TP, Rodriguez S, Zhang H, Kallen MA, Jibaja-Weiss M, Buscher AL, Arya M, Suarez-Almazor ME, Ross M. Effect of a clinic-wide social marketing campaign to improve adherence to antiretroviral therapy for HIV infection. *AIDS Behav* 2013;17(1):104-112.
- 229 Buchthal OV, Doff AL, Hsu LA, Silbanuz A, Heinrich KM, Maddock JE. Avoiding a knowledge gap in a multiethnic statewide social marketing campaign: is cultural tailoring sufficient? *J Health Commun* 2011;16(3):314-327.
- 230 Piggitt J. Turning health research into health promotion: a study of causality and 'critical insights' in a United Kingdom health campaign. *Health Policy* 2012;107(2-3):296-303.

- 231 Leeman J, Moore A, Teal R, Barrett N, Leighton A, Steckler A. Promoting community practitioners' use of evidence-based approaches to increase breast cancer screening. *Public Health Nurs* 2013;30(4):323-331.
- 232 [www.ihl.org/IHI/programs/campaign](http://www.ihl.org/IHI/programs/campaign)
- 233 Carins JE, Rundle-Thiele SR. Eating for the better: a social marketing review (2000-2012). *Public Health Nutr* 2013;1-12.
- 234 Evans-Lacko S, Malcolm E, West K, Rose D, London J, Rüsçh N, Little K, Henderson C, Thornicroft G. Influence of Time to Change's social marketing interventions on stigma in England 2009-2011. *Br J Psychiatry Suppl* 2013;55:s77-s88.
- 235 Sweat MD, Denison J, Kennedy C, Tedrow V, O'Reilly K. Effects of condom social marketing on condom use in developing countries: a systematic review and meta-analysis, 1990-2010. *Bull World Health Organ* 2012;90(8):613-622A.
- 236 Rienks J, Oliva G. Using social marketing to increase awareness of the African American infant mortality disparity. *Health Promot Pract* 2013;14(3):408-414.
- 237 Gracia-Marco L, Vicente-Rodríguez G, Borys JM, Le Bodo Y, Pettigrew S, Moreno LA. Contribution of social marketing strategies to community-based obesity prevention programmes in children. *Int J Obes* 2011;35(4):472-479.
- 238 Evans-Lacko S, Henderson C, Thornicroft G, McCrone P. Economic evaluation of the anti-stigma social marketing campaign in England 2009-2011. *Br J Psychiatry Suppl* 2013;55:s95-s101.
- 239 Gordon R, McDermott L, Stead M, Angus K. The effectiveness of social marketing interventions for health improvement: what's the evidence? *Public Health* 2006;120(12):1133-1139.
- 240 Morris ZS, Clarkson PJ. Does social marketing provide a framework for changing healthcare practice? *Health Policy* 2009;91(2):135-141.
- 241 Kohr JM, Strack RW, Newton-Ward M, Cooke CH. The use of programme planning and social marketing models by a state public health agency: a case study. *Public Health* 2008;122(3):300-306.
- 242 Pirani S, Reizes T. The Turning Point Social Marketing National Excellence Collaborative: integrating social marketing into routine public health practice. *J Public Health Manag Pract* 2005;11(2):131-138.
- 243 Leeman J, Moore A, Teal R, Barrett N, Leighton A, Steckler A. Promoting community practitioners' use of evidence-based approaches to increase breast cancer screening. *Public Health Nurs* 2013;30(4):323-331.
- 244 Conway T, Langley S. Reducing hospital associated infection: a role for social marketing. *Int J Health Care Qual Assur* 2013;26(2):118-134.
- 245 Herie M, Martin GW. Knowledge diffusion in social work: a new approach to bridging the gap. *Soc Work* 2002;47(1):85-95.
- 246 Luck J, Hagigi F, Parker LE, Yano EM, Rubenstein LV, Kirchner JE. A social marketing approach to implementing evidence-based practice in VHA QUERI: the TIDES depression collaborative care model. *Implement Sci* 2009;4:64.
- 247 Tsai Y, Wu SW. Using internal marketing to improve organizational commitment and service quality. *J Adv Nurs* 2011;67(12):2593-2604.
- 248 Huang JA, Weng RH, Lai CS, Hu JS. Perceptual market orientation gap and its impact on relationship quality and patient loyalty: the role of internal marketing. *Eval Health Prof* 2013;36(2):204-227.
- 249 Iliopoulos E, Priporas CV. The effect of internal marketing on job satisfaction in health services: a pilot study in public hospitals in Northern Greece. *BMC Health Serv Res* 2011;11:261.
- 250 Chang CS, Chang HC. Perceptions of internal marketing and organizational commitment by nurses. *J Adv Nurs* 2009;65(1):92-100.
- 251 Chang CS, Chang HH. Effects of internal marketing on nurse job satisfaction and organizational commitment: example of medical centers in Southern Taiwan. *J Nurs Res* 2007;15(4):265-274.
- 252 Karasa A, Akinci F, EsatoElu A, Parsons AL, Sarp N. An evaluation of the opinions of hospital employees regarding the contribution of internal marketing to the application of total quality management in Turkey. *Health Mark Q* 2007;24(3-4):167-187.
- 253 Janssen MM, Mathijssen JJ, van Bon-Martens MJ, van Oers HA, Garretsen HF. Effectiveness of alcohol prevention interventions based on the principles of social marketing: a systematic review. *Subst Abuse Treat Prev Policy* 2013;8:18.
- 254 Mah MW, Tam YC, Deshpande S. Social marketing analysis of 20 years of hand hygiene promotion. *Infect Control Hosp Epidemiol* 2008;29(3):262-270.
- 255 Yuan CT, Nembhard IM, Stern AF, Brush JE Jr, Krumholz HM, Bradley EH. Blueprint for the dissemination of evidence-based practices in health care. *Issue Brief* 2010;86:1-16.
- 256 Clarke CM, Persaud DD. Leading clinical handover improvement: a change strategy to implement best practices in the acute care setting. *J Patient Saf* 2011;7(1):11-18.
- 257 Cugelman B, Thelwall M, Dawes P. Online interventions for social marketing health behavior change campaigns: a meta-analysis of psychological architectures and adherence factors. *J Med Internet Res* 2011;13(1):e17.
- 258 Donaldson A, Poulos RG. Planning the diffusion of a neck-injury prevention programme among community rugby union coaches. *Br J Sports Med* 2014;48(2):151-159.
- 259 Draper B, Low LF, Withall A, Vickland V, Ward T. Translating dementia research into practice. *Int Psychogeriatr* 2009;21 Suppl 1:S72-S80.
- 260 Maibach EW, Van Duyn MA, Bloodgood B. A marketing perspective on disseminating evidence-based approaches to disease prevention and health promotion. *Prev Chronic Dis* 2006;3(3):A97.
- 261 Dearing JW, Maibach EW, Buller DB. A convergent diffusion and social marketing approach for disseminating proven approaches to physical activity promotion. *Am J Prev Med* 2006;31(4 Suppl):S11-S23.
- 262 Martin GW, Herie MA, Turner BJ, Cunningham JA. A social marketing model for disseminating research-based treatments to addictions treatment providers. *Addiction* 1998;93(11):1703-1715.
- 263 Sheau-Ting L, Mohammed AH, Weng-Wai C. What is the optimum social marketing mix to market energy conservation behaviour: an empirical study. *J Environ Manage* 2013;131:196-205.



- 264 Lindsey BJ, Hawk CW. Training community health students to develop community-requested social marketing campaigns: an innovative partnership. *Prog Community Health Partnersh* 2013;7(2):219-229.
- 265 Dearing JW, Rogers EM, Meyer G, Casey MK, Rao N, Campo S, Henderson GM. Social marketing and diffusion-based strategies for communicating with unique populations: HIV prevention in San Francisco. *J Health Commun* 1996;1(4):343-363.
- 266 Van Eperen L, Marincola FM. How scientists use social media to communicate their research. *J Transl Med* 2011;9:199.
- 267 <http://michaelhaenlein.com/Publications/> Kaplan,%20Andreas%20-%20Users%20of%20the%20world,%20unite.pdf
- 268 Stewart S, Sidebotham M, Davis D. International networking: connecting midwives through social media. *Int Nurs Rev* 2012;59(3):431-434.
- 269 Shariff AL, Fang X, Desai T. Using social media to create a professional network between physician-trainees and the American Society of Nephrology. *Adv Chronic Kidney Dis* 2013;20(4):357-363.
- 270 Grossberndt S, van den Hazel P, Bartonova A. Application of social media in the environment and health professional community. *Environ Health* 2012;11 Suppl 1:S16.
- 271 Garrett BM, Cutting R. Using social media to promote international student partnerships. *Nurse Educ Pract* 2012;12(6):340-345.
- 272 Klein M, Niebuhr V, D'Alessandro D. Innovative online faculty development utilizing the power of social media. *Acad Pediatr* 2013;13(6):564-569.
- 273 Epstein JN, Langberg JM, Lichtenstein PK, Kolb R, Simon JO. The myADHDportal.com Improvement Program: An innovative quality improvement intervention for improving the quality of ADHD care among community-based pediatricians. *Clin Pract Pediatr Psychol* 2013;1(1):55-67.
- 274 Goldstein K, Briggs M, Oleynik V, Cullen M, Jones J, Newman E, Narva A. Using digital media to promote kidney disease education. *Adv Chronic Kidney Dis* 2013;20(4):364-369.
- 275 Jaganath D, Gill HK, Cohen AC, Young SD. Harnessing Online Peer Education (HOPE): integrating C-POL and social media to train peer leaders in HIV prevention. *AIDS Care* 2012;24(5):593-600.
- 276 Wales A, Graham S, Rooney K, Crawford A. Scotland's Knowledge Network: translating knowledge into action to improve quality of care. *Scott Med J* 2012;57(4):221-224.
- 277 Jayawardena A, Boardman A, Cook T, Oprescu F, Morcuende JA. Diffusion of innovation: enhancing the dissemination of the Ponseti method in Latin America through virtual forums. *Iowa Orthop J* 2011;31:36-42.
- 278 Maher CA, Lewis LK, Ferrar K, Marshall S, De Bourdeaudhuij I, Vandelanotte C. Are health behavior change interventions that use online social networks effective? a systematic review. *J Med Internet Res* 2014;16(2):e40.
- 279 McCarroll ML, Armbruster SD, Chung JE, Kim J, McKenzie A, von Gruenigen VE. Health care and social media platforms in hospitals. *Health Commun* (published online December 2013).
- 280 Pagoto SL, Schneider KL, Oleski J, Smith B, Bauman M. The adoption and spread of a core-strengthening exercise through an online social network. *J Phys Act Health* (published online February 2013).
- 281 Holt CM, Fawcett SB, Schultz JA, Jones JA, Berkowitz B, Wolff TJ, Francisco VT, Rabinowitz PW. Disseminating online tools for building capacity among community practitioners. *J Prev Interv Community* 2013;41(3):201-211.
- 282 Cahn PS, Benjamin EJ, Shanahan CW. 'Uncrunching' time: medical schools' use of social media for faculty development. *Med Educ Online* 2013;18:20995.
- 283 Harris JK, Mueller NL, Snider D. Social media adoption in local health departments nationwide. *Am J Public Health* 2013;103(9):1700-1707.
- 284 Van de Belt TH, Berben SA, Samsom M, Engelen LJ, Schoonhoven L. Use of social media by Western European hospitals: longitudinal study. *J Med Internet Res* 2012;14(3):e61.
- 285 Apostolakis I, Koulirakis G, Berler A, Chryssanthou A, Varlamis I. Use of social media by healthcare professionals in Greece: an exploratory study. *Int J Electron Healthc* 2012;7(2):105-124.
- 286 Bermúdez-Tamayo C, Alba-Ruiz R, Jiménez-Pernett J, García Gutiérrez JF, Traver-Salcedo V, Yubraham-Sánchez D. Use of social media by Spanish hospitals: perceptions, difficulties, and success factors. *Telemed J E Health* 2013;19(2):137-45.
- 287 Cooper CP, Gelb CA, Rim SH, Hawkins NA, Rodriguez JL, Polonec L. Physicians who use social media and other internet-based communication technologies. *J Am Med Inform Assoc* 2012;19(6):960-964.
- 288 Ramanadhan S, Mendez SR, Rao M, Viswanath K. Social media use by community-based organizations conducting health promotion: a content analysis. *BMC Public Health* 2013;13:1129.
- 289 Hamm MP, Chisholm A, Shulhan J, Milne A, Scott SD, Klassen TP, Hartling L. Social media use by health care professionals and trainees: a scoping review. *Acad Med* 2013;88(9):1376-1383.
- 290 Househ M. The use of social media in healthcare: organizational, clinical, and patient perspectives. *Stud Health Technol Inform* 2013;183:244-248.
- 291 Cheston CC, Flickinger TE, Chisolm MS. Social media use in medical education: a systematic review. *Acad Med* 2013;88(6):893-901.
- 292 Hollinderbäumer A, Hartz T, Uckert F. Education 2.0 -- how has social media and Web 2.0 been integrated into medical education? A systematic literature review. *GMS Z Med Ausbild* 2013;30(1):Doc14.
- 293 Wu TT. Using smart mobile devices in social-network-based health education practice: A learning behavior analysis. *Nurse Educ Today* (Published online February 2014).
- 294 von Muhlen M, Ohno-Machado L. Reviewing social media use by clinicians. *J Am Med Inform Assoc* 2012;19(5):777-781.
- 295 Vardanian AJ, Kusnezov N, Im DD, Lee JC, Jarray R. Social media use and impact on plastic surgery practice. *Plast Reconstr Surg* 2013;131(5):1184-1193.
- 296 Keller B, Labrique A, Jain KM, Pekosz A, Levine O. Mind the gap: social media engagement by public health researchers. *J Med Internet Res* 2014;16(1):e8.

- 297 Stewart SA, Abidi SS. Applying social network analysis to understand the knowledge sharing behaviour of practitioners in a clinical online discussion forum. *J Med Internet Res* 2012;14(6):e170.
- 298 Chen HM, Hu ZK, Zheng XL, Yuan ZS, Xu ZB, Yuan LQ, Perez VA, Yuan K, Orcholski M, Liao XB. Effectiveness of YouTube as a Source of Medical Information on Heart Transplantation. *Interact J Med Res* 2013;2(2):e28.
- 299 Allen HG, Stanton TR, Di Pietro F, Moseley GL. Social media release increases dissemination of original articles in the clinical pain sciences. *PLoS One* 2013;8(7):e68914.
- 300 McGowan BS, Wasko M, Vartabedian BS, Miller RS, Freiherr DD, Abdolrasulnia M. Understanding the factors that influence the adoption and meaningful use of social media by physicians to share medical information. *J Med Internet Res* 2012;14(5):e117.
- 301 Moorhead SA, Hazlett DE, Harrison L, Carroll JK, Irwin A, Hoving C. A new dimension of health care: systematic review of the uses, benefits, and limitations of social media for health communication. *J Med Internet Res* 2013;15(4):e85.
- 302 Thackeray R, Neiger BL, Smith AK, Van Wagenen SB. Adoption and use of social media among public health departments. *BMC Public Health* 2012;12:242.
- 303 Ramanadhan S, Mendez SR, Rao M, Viswanath K. Social media use by community-based organizations conducting health promotion: a content analysis. *BMC Public Health* 2013;13:1129.
- 304 Grajales Iii FJ, Sheps S, Ho K, Novak-Lauscher H, Eysenbach G. Social media: a review and tutorial of applications in medicine and health care. *J Med Internet Res* 2014;16(2):e13.
- 305 Bao P, Shen HW, Chen W, Cheng XQ. Cumulative effect in information diffusion: empirical study on a microblogging network. *PLoS One* 2013;8(10):e76027.
- 306 Curran JA, Murphy AL, Sinclair D, McGrath P. Factors influencing rural and urban emergency clinicians' participation in an online knowledge exchange intervention. *Rural Remote Health* 2013;13(1):2175.
- 307 Antheunis ML, Bates K, Nieboer TE. Patients' and health professionals' use of social media in health care: motives, barriers and expectations. *Patient Educ Couns* 2013;92(3):426-431.
- 308 Arnett MR, Loewen JM, Romito LM. Use of social media by dental educators. *J Dent Educ* 2013;77(11):1402-1412.
- 309 George DR. "Friending Facebook?" A minicourse on the use of social media by health professionals. *J Contin Educ Health Prof* 2011;31(3):215-219.
- 310 Chew F, Grant W, Tote R. Doctors on-line: using diffusion of innovations theory to understand internet use. *Fam Med* 2004;36(9):645-650.
- 311 Valente TW, Fosados R. Diffusion of innovations and network segmentation: the part played by people in promoting health. *Sex Transm Dis* 2006;33(7 Suppl):S23-S31.
- 312 Cohen DA, Levy M, Cohen Castel O, Karkabi K. The influence of a professional physician network on clinical decision making. *Patient Educ Couns* 2013;93(3):496-503.
- 313 Dearing JW, Kreuter MW. Designing for diffusion: how can we increase uptake of cancer communication innovations? *Patient Educ Couns* 2010;81 Suppl:S100-S110.
- 314 Luque J, Tyson DM, Lee JH, Gwede C, Vadaparampil S, Noel-Thomas S, Meade C. Using social network analysis to evaluate community capacity building of a regional community cancer network. *J Community Psychol* 2010;38(5):656-668.
- 315 Norman N, Bennett C, Cowart S, Felzien M, Flores M, Flores R, Haynes C, Hernandez M, Rodriguez MP, Sanchez N, Sanchez S, Winkelman K, Winkelman S, Zittleman L, Westfall JM. Boot camp translation: a method for building a community of solution. *J Am Board Fam Med* 2013;26(3):254-263.
- 316 Kislov R, Walshe K, Harvey G. Managing boundaries in primary care service improvement: a developmental approach to communities of practice. *Implement Sci* 2012;7:97.
- 317 Dudgeon D, Vaitonis V, Seow H, King S, Angus H, Sawka C. Ontario, Canada: using networks to integrate palliative care province-wide. *J Pain Symptom Manage* 2007;33(5):640-644.
- 318 Cunningham FC, Ranmuthugala G, Westbrook JL, Braithwaite J. Net benefits: assessing the effectiveness of clinical networks in Australia through qualitative methods. *Implement Sci* 2012;7:108.
- 319 Meltzer D, Chung J, Khalili P, Marlow E, Arora V, Schumock G, Burt R. Exploring the use of social network methods in designing healthcare quality improvement teams. *Soc Sci Med* 2010;71(6):1119-1130.
- 320 Young HP. The dynamics of social innovation. *Proc Natl Acad Sci USA* 2011;108 Suppl 4:21285-21291.
- 321 Ramanadhan S, Wiecha JL, Gortmaker SL, Emmons KM, Viswanath K. Informal training in staff networks to support dissemination of health promotion programs. *Am J Health Promot* 2010;25(1):12-18.
- 322 Jippes E, Achterkamp MC, Brand PL, Kiewiet DJ, Pols J, van Engelen JM. Disseminating educational innovations in health care practice: training versus social networks. *Soc Sci Med* 2010;70(10):1509-1517.
- 323 Ryvicker M, Feldman PH, Rosati RJ, Sobolewski S, Maduro GA Jr, Schwartz T. Improving functional outcomes in home care patients: impact and challenges of disseminating a quality improvement initiative. *J Healthc Qual* 2011;33(5):28-36.
- 324 Wiemken TL, Ramirez JA, Polgreen P, Peyrani P, Carrico RM. Evaluation of the knowledge-sharing social network of hospital-based infection preventionists in Kentucky. *Am J Infect Control* 2012;40(5):440-445.
- 325 Greenhalgh T, Robert G, Bate P, Kyriakidou O, Macfarlane F, Peacock R. *How to Spread Good Ideas: A systematic review of the literature on diffusion, dissemination and sustainability of innovations in health service delivery and organisation*. UK: Report for the National Co-ordinating Centre for NHS Service Delivery and Organisation R & D (NCCSDO), 2004.
- 326 Dobbins M, Rosenbaum P, Plews N, Law M, Fysh A. Information transfer: what do decision makers want and need from researchers? *Implement Sci* 2007;2:20.
- 327 Peterson KA, Lipman PD, Lange CJ, Cohen RA, Durako S. Supporting better science in primary care: a description of practice-based research networks (PBRNs) in 2011. *J Am Board Fam Med* 2012;25(5):565-571.
- 328 Hayes H, Burge S. Creating a practice-based research network from scratch: where do I begin? *Prog Community Health Partnersh* 2012;6(3):369-380.



- 329 Chambers D, Wilson P, Thompson C, Harden M. Social network analysis in healthcare settings: a systematic scoping review. *PLoS One* 2012;7(8):e41911.
- 330 Thakur A, Yang I, Lee MY, Goel A, Ashok A, Fonkalsrud EW. Increasing social capital via local networks: analysis in the context of a surgical practice. *Am Surg* 2002;68(9):776-779.
- 331 Centola D. The spread of behavior in an online social network experiment. *Science* 2010;329(5996):1194-1197.
- 332 Keating NL, Ayanian JZ, Cleary PD, Marsden PV. Factors affecting influential discussions among physicians: a social network analysis of a primary care practice. *J Gen Intern Med* 2007;22(6):794-798.
- 333 Montanari A, Saberi A. The spread of innovations in social networks. *Proc Natl Acad Sci USA* 2010;107(47):20196-20201.
- 334 Atun RA, Kyratsis I, Jelic G, Rados-Malicbegovic D, Guroi-Urganci I. Diffusion of complex health innovations - implementation of primary health care reforms in Bosnia and Herzegovina. *Health Policy Plan* 2007;22(1):28-39.
- 335 Carljford S, Andersson A, Nilsen P, Bendtsen P, Lindberg M. The importance of organizational climate and implementation strategy at the introduction of a new working tool in primary health care. *J Eval Clin Pract* 2010;16(6):1326-1332.
- 336 Chung H, Duffy FF, Katzelnick DJ, Williams MD, Trivedi MH, Rae DS, Regier DA. Sustaining practice change one year after completion of the national depression management leadership initiative. *Psychiatr Serv* 2013;64(7):703-706.
- 337 Poole N. Using consciousness-raising principles to inform modern knowledge translation practices in women's health. *Can J Nurs Res* 2008;40(2):76-93.
- 338 Auerbach AD, Patel MS, Metlay JP, Schnipper JL, Williams MV, Robinson EJ, Kripalani S, Lindenauer PK. The Hospital Medicine Reengineering Network (HOMERuN): a learning organization focused on improving hospital care. *Acad Med* 2014;89(3):415-420.
- 339 Sibbald SL, Wathen CN, Kothari A, Day AM. Knowledge flow and exchange in interdisciplinary primary health care teams (PHCTs): an exploratory study. *J Med Libr Assoc* 2013;101(2):128-137.
- 340 Vanderveen KA, Paterniti DA, Kravitz RL, Bold RJ. Diffusion of surgical techniques in early stage breast cancer: variables related to adoption and implementation of sentinel lymph node biopsy. *Ann Surg Oncol* 2007;14(5):1662-1669.
- 341 Dearing JW, Kreuter MW. Designing for diffusion: how can we increase uptake of cancer communication innovations? *Patient Educ Couns* 2010;81 Suppl:S100-S110.
- 342 Mendel P, Meredith LS, Schoenbaum M, Sherbourne CD, Wells KB. Interventions in organizational and community context: a framework for building evidence on dissemination and implementation in health services research. *Adm Policy Ment Health* 2008;35(1-2):21-37.
- 343 McCormack L, Sheridan S, Lewis M, Boudewyns V, Melvin CL, Kistler C, Lux LJ, Cullen K, Lohr KN. Communication and dissemination strategies to facilitate the use of health-related evidence. *Evid Rep Technol Assess* 2013;(213):1-520.
- 344 Hoagwood KE, Olin SS, Horwitz S, McKay M, Cleek A, Gleacher A, Lewandowski E, Nadeem E, Acri M, Chor KH, Kuppinger A, Burton G, Weiss D, Frank S, Finnerty M, Bradbury DM, Woodlock KM, Hogan M. Scaling up evidence-based practices for children and families in New York State: toward evidence-based policies on implementation for state mental health systems. *J Clin Child Adolesc Psychol* (published online January 2014).
- 345 Fulop N, Boaden R, Hunter R, McKeivitt C, Morris S, Pursani N, Ramsay AI, Rudd AG, Tyrrell PJ, DA Wolfe C. Innovations in major system reconfiguration in England: a study of the effectiveness, acceptability and processes of implementation of two models of stroke care. *Implement Sci* 2013;8:5.
- 346 Fleuren M, Wiefferink K, Paulussen T. Determinants of innovation within health care organizations: literature review and Delphi study. *Int J Qual Health Care* 2004;16(2):107-123.
- 347 Greenhalgh T, Robert G, Bate P, Kyriakidou O, Macfarlane F, Peacock R. *How to Spread Good Ideas: A systematic review of the literature on diffusion, dissemination and sustainability of innovations in health service delivery and organisation*. UK: Report for the National Co-ordinating Centre for NHS Service Delivery and Organisation R & D (NCCSDO), 2004.
- 348 Greenhalgh T, Robert G, Macfarlane F, Bate P, Kyriakidou O. Diffusion of innovations in service organizations: systematic review and recommendations. *Milbank Q* 2004;82(4):581-629.
- 349 Ferlie E. Large-scale organizational and managerial change in health care: a review of the literature. *J Health Serv Res Policy* 1997;2(3):180-189.
- 350 Rye CB, Kimberly JR. The adoption of innovations by provider organizations in health care. *Med Care Res Rev* 2007;64(3):235-278.
- 351 Wilson PM, Petticrew M, Calnan MW, Nazareth I. Disseminating research findings: what should researchers do? A systematic scoping review of conceptual frameworks. *Implement Sci* 2010;5:91.
- 352 Davies P, Walker AE, Grimshaw JM. A systematic review of the use of theory in the design of guideline dissemination and implementation strategies and interpretation of the results of rigorous evaluations. *Implement Sci* 2010;5:14.
- 353 Pentland D, Forsyth K, Maciver D, Walsh M, Murray R, Irvine L, Sikora S. Key characteristics of knowledge transfer and exchange in healthcare: integrative literature review. *J Adv Nurs* 2011;67(7):1408-1425.
- 354 [www.newyorker.com/reporting/2013/07/29/130729fa\\_fact\\_gawande?currentPage=all](http://www.newyorker.com/reporting/2013/07/29/130729fa_fact_gawande?currentPage=all)
- 355 <http://blogs.hbr.org/2013/09/how-to-get-health-care-innovations-to-take-off/>
- 356 [www.ted.com/talks/seth\\_godin\\_on\\_sliced\\_bread?language=en](http://www.ted.com/talks/seth_godin_on_sliced_bread?language=en)
- 357 [www.inc.com/jeff-haden/how-groundbreaking-thinkers-spread-their-ideas.html](http://www.inc.com/jeff-haden/how-groundbreaking-thinkers-spread-their-ideas.html)
- 358 [www.nets.nihr.ac.uk/projects/hsdr/081201038](http://www.nets.nihr.ac.uk/projects/hsdr/081201038)
- 359 Powell BJ, McMillen JC, Proctor EK, Carpenter CR, Griffey RT, Bunger AC, Glass JE, York JL. A compilation of strategies for implementing clinical innovations in health and mental health. *Med Care Res Rev* 2012;69(2):123-157.

- 360 Dücker ML, Wagner C, Groenewegen PP. Developing and testing an instrument to measure the presence of conditions for successful implementation of quality improvement collaboratives. *BMC Health Serv Res* 2008;8:172.
- 361 Chaudoir SR, Dugan AG, Barr CH. Measuring factors affecting implementation of health innovations: a systematic review of structural, organizational, provider, patient, and innovation level measures. *Implement Sci* 2013;8:22.
- 362 Robert G, Greenhalgh T, MacFarlane F, Peacock R. Adopting and assimilating new non-pharmaceutical technologies into health care: a systematic review. *J Health Serv Res Policy* 2010;15(4):243-250.
- 363 Litjens RJ, Oude Rengerink K, Danhof NA, Kruitwagen RF, Mol BW. Does recruitment for multicenter clinical trials improve dissemination and timely implementation of their results? A survey study from the Netherlands. *Clin Trials* 2013;10(6):915-23.
- 364 Greenhalgh T, Robert G, Bate P, Kyriakidou O, Macfarlane F, Peacock R. *How to Spread Good Ideas: A systematic review of the literature on diffusion, dissemination and sustainability of innovations in health service delivery and organisation*. UK: Report for the National Co-ordinating Centre for NHS Service Delivery and Organisation R & D (NCCSDO), 2004.
- 365 Gollop R, Whitby E, Buchanan D, Ketley D. Influencing sceptical staff to become supporters of service improvement: a qualitative study of doctors' and managers' views. *Qual Saf Health Care* 2004;13(2):108-114.
- 366 Vedel I, Ghadi V, De Stampa M, Routelous C, Bergman H, Ankri J, Lapointe L. Diffusion of a collaborative care model in primary care: a longitudinal qualitative study. *BMC Fam Pract* 2013;14:3.
- 367 Greenhalgh T, Macfarlane F, Barton-Sweeney C, Woodard F. "If we build it, will it stay?" A case study of the sustainability of whole-system change in London. *Milbank Q* 2012;90(3):516-547.
- 368 Scholle SH, Asche SE, Morton S, Solberg LI, Tirodkar MA, Jaén CR. Support and strategies for change among small patient-centered medical home practices. *Ann Fam Med* 2013;11 Suppl 1:S6-S13.
- 369 Bevan H. How can we build skills to transform the healthcare system? *J Res Nurs* 2010; 15: 139-148.
- 370 Bradley EH, Webster TR, Baker D, Schlesinger M, Inouye SK, Barth MC, Lapane KL, Lipson D, Stone R, Koren MJ. Translating research into practice: speeding the adoption of innovative health care programs. *Issue Brief (Commonw Fund)*. 2004;(724):1-12.
- 371 Bradley EH, Webster TR, Baker D, Schlesinger M, Inouye SK. After adoption: sustaining the innovation. A case study of disseminating the hospital elder life program. *J Am Geriatr Soc* 2005;53(9):1455-1461.
- 372 Bradley EH, Webster TR, Schlesinger M, Baker D, Inouye SK. Patterns of diffusion of evidence-based clinical programmes: a case study of the Hospital Elder Life Program. *Qual Saf Health Care* 2006;15(5):334-338.
- 373 DiFranceisco W, Kelly JA, Otto-Salaj L, McAuliffe TL, Somlai AM, Hackl K, Heckman TG, Holtgrave DR, Rompa DJ. Factors influencing attitudes within AIDS service organizations toward the use of research-based HIV prevention interventions. *AIDS Educ Prev* 1999;11(1):72-86.
- 374 Jbilou J, Landry R, Amara N, El Adlouni S. Combining communication technology utilization and organizational innovation: evidence from Canadian healthcare decision makers. *J Med Syst* 2009;33(4):275-286.
- 375 Chuang E, Jason K, Morgan JC. Implementing complex innovations: factors influencing middle manager support. *Health Care Manage Rev* 2011;36(4):369-379.
- 376 Olfati N, Dastgiri S, Hajebrahimi S, Jahanbin H. Factors influencing evidence-based practice by Iranian general practitioners. *Int J Health Care Qual Assur* 2013;26(4):360-374.
- 377 Solomons NM, Spross JA. Evidence-based practice barriers and facilitators from a continuous quality improvement perspective: an integrative review. *J Nurs Manag* 2011;19(1):109-120.
- 378 Shaffer ST, Zarnowsky CD, Green RC, Lim ML, Holtzer BM, Ely EA. Strategies from bedside nurse perspectives in conducting evidence-based practice projects to improve care. *Nurs Clin North Am* 2013;48(2):353-361.
- 379 Soper B, Yaqub O, Hinrichs S, Marjanovich S, Drabble S, Hanney S, Nolte E. CLAHRCs in practice: combined knowledge transfer and exchange strategies, cultural change, and experimentation. *J Health Serv Res Policy* 2013;18(3 Suppl):53-64.
- 380 Grol R, Wensing M. What drives change? Barriers and incentives for achieving evidence-based practice. *Med J Aust* 2004;180:7-60.
- 381 Williams I, Dickinson H. *Knowledge for adoption: a review of the literature on knowledge-based facilitators of technology adoption in health care*. Birmingham: Health Services Management Centre, University of Birmingham, 2008.
- 382 Dalheim A, Harthug S, Nilsen RM, Nortvedt MW. Factors influencing the development of evidence-based practice among nurses: a self-report survey. *BMC Health Serv Res* 2012;12:367.
- 383 McGowan BS, Wasko M, Vartabedian BS, Miller RS, Freiherr DD, Abdolrasulnia M. Understanding the factors that influence the adoption and meaningful use of social media by physicians to share medical information. *J Med Internet Res* 2012;14(5):e117.
- 384 Chinman M, Acosta J, Ebener P, Q Burkhart, Clifford M, Corsello M, Duffey T, Hunter S, Jones M, Lahti M, Malone PS, Paddock S, Phillips A, Savell S, Scales PC, Tellett-Royce N. Establishing and evaluating the key functions of an interactive systems framework using an assets-getting to outcomes intervention. *Am J Community Psychol* 2012;50(3-4):295-310.
- 385 Kyratsis Y, Ahmad R, Holmes A. Making sense of evidence in management decisions: the role of research-based knowledge on innovation adoption and implementation in healthcare. *Implement Sci* 2012;7:22.
- 386 Omer T. Research utilization in a multicultural nursing setting in Saudi Arabia: barriers and facilitators. *J Nurs Res* 2012;20(1):66-73.
- 387 Garner BR, Hunter BD, Godley SH, Godley MD. Training and retaining staff to competently deliver an evidence-based practice: the role of staff attributes and perceptions of organizational functioning. *J Subst Abuse Treat* 2012;42(2):191-200.

- 388 Prior P, Wilkinson J, Neville S. Practice nurse use of evidence in clinical practice: a descriptive survey. *Nurs Pract NZ* 2010;26(2):14-25.
- 389 Alkhateeb FM, Doucette WR. Influences on physicians' adoption of electronic detailing (e-detailing). *Inform Health Soc Care* 2009; 34(1): 39-52.
- 390 Chummun H, Tiran D. Increasing research evidence in practice: a possible role for the consultant nurse. *J Nurs Manag* 2008;16(3):327-333.
- 391 Bridges PH, Bierema LL, Valentine T. The propensity to adopt evidence-based practice among physical therapists. *BMC Health Serv Res* 2007;7:103.
- 392 Profetto-McGrath J, Smith KB, Hugo K, Taylor M, El-Hajj H. Clinical nurse specialists' use of evidence in practice: a pilot study. *Worldviews Evid Based Nurs* 2007;4(2):86-96.
- 393 Milner M, Estabrooks CA, Myrick F. Research utilization and clinical nurse educators: A systematic review. *J Eval Clin Pract* 2006;12(6):639-655.
- 394 Kenny DJ. Nurses' use of research in practice at three US Army hospitals. *Nurs Leadersh* 2005;18(3):45-67.
- 395 Fink R, Thompson CJ, Bonnes D. Overcoming barriers and promoting the use of research in practice. *J Nurs Adm* 2005;35(3):121-129.
- 396 Hutchinson AM, Johnston L. Bridging the divide: a survey of nurses' opinions regarding barriers to, and facilitators of, research utilization in the practice setting. *J Clin Nurs* 2004;13(3):304-315.
- 397 Olade RA. Attitudes and factors affecting research utilization. *Nurs Forum* 2003;38(4):5-15.
- 398 McCleary L, Brown GT. Barriers to paediatric nurses' research utilization. *J Adv Nurs* 2003;42(4):364-372.
- 399 Brockopp DY, Brockopp G, Warden S, Wilson J, Carpenter JS, Vandever B. Barriers to change: a pain management project. *Int J Nurs Stud* 1998;35(4):226-232.
- 400 Lewis SL, Prowant BF, Cooper CL, Bonner PN. Nephrology nurses' perceptions of barriers and facilitators to using research in practice. *ANNA J* 1998;25(4):397-405.
- 401 Nilsson Kajermo K, Nordström G, Krusebrant A, Björvell H. Barriers to and facilitators of research utilization, as perceived by a group of registered nurses in Sweden. *J Adv Nurs* 1998;27(4):798-807.
- 402 Veeramah V. A study to identify the attitudes and needs of qualified staff concerning the use of research findings in clinical practice within mental health care settings. *J Adv Nurs* 1995;22(5):855-861.
- 403 Ruas SS, Assunção AA. Teleconsultations by primary care physicians of Belo Horizonte: challenges in the diffusion of innovation. *Telemed J E Health* 2013;19(5):409-414.
- 404 Schoonover H. Barriers to research utilization among registered nurses practicing in a community hospital. *J Nurses Staff Dev* 2009;25(4):199-212.
- 405 Browne AJ, Varcoe C, Smye V, Reimer-Kirkham S, Lynam MJ, Wong S. Cultural safety and the challenges of translating critically oriented knowledge in practice. *Nurs Philos* 2009;10(3):167-179.
- 406 Pizzi LT, Suh DC, Barone J, Nash DB. Factors related to physicians' adoption of electronic prescribing: results from a national survey. *Am J Med Qual* 2005;20(1):22-32.
- 407 Gerrish K, Clayton J. Promoting evidence-based practice: an organizational approach. *J Nurs Manag* 2004;12(2):114-123.
- 408 Camiah S. Utilization of nursing research in practice and application strategies to raise research awareness amongst nurse practitioners: a model for success. *J Adv Nurs* 1997;26(6):1193-1202.
- 409 Greenhalgh T, Robert G, Bate P, Kyriakidou O, Macfarlane F, Peacock R. *How to Spread Good Ideas: A systematic review of the literature on diffusion, dissemination and sustainability of innovations in health service delivery and organisation*. UK: Report for the National Co-ordinating Centre for NHS Service Delivery and Organisation R & D (NCCSDO), 2004.
- 410 Hagg HW, Workman-Germann J, Flanagan M, Suskovich D, Schachitti S, Corum C, Doebbeling BN. Implementation of systems redesign: approaches to spread and sustain adoption. In Henriksen K, Battles JB, Keyes MA, Grady ML (editors). *Advances in Patient Safety: New Directions and Alternative Approaches (Vol 2: Culture and Redesign)*. Rockville (MD): Agency for Healthcare Research and Quality (US), 2008.
- 411 Smith JL, Williams JW Jr, Owen RR, Rubenstein LV, Chaney E. Developing a national dissemination plan for collaborative care for depression: QUERI Series. *Implement Sci* 2008;3:59.
- 412 Wilson KD, Kurz RS. Bridging implementation and institutionalization within organizations: proposed employment of continuous quality improvement to further dissemination. *J Public Health Manag Pract* 2008;14(2):109-116.
- 413 Rupcic S, Tamrat T, Kachnowski S. "Think different": a qualitative assessment of commercial innovation for diabetes information technology programs. *Diabetes Technol Ther* 2012; 14(11): 1023-1029.
- 414 Strindhall M, Henriks G. How improved access to healthcare was successfully spread across Sweden. *Qual Manag Health Care* 2007;16(1):16-24.
- 415 Della Penna R, Martel H, Neuwirth EB, Rice J, Filipiski MI, Green J, Bellows J. Rapid spread of complex change: a case study in inpatient palliative care. *BMC Health Serv Res* 2009;9:245.
- 416 Kaissi A. "Learning" from other industries: lessons and challenges for health care organizations. *Health Care Manag (Frederick)* 2012;31(1):65-74.
- 417 Dücker ML, Wagner C, Vos L, Groenewegen PP. Understanding organisational development, sustainability, and diffusion of innovations within hospitals participating in a multilevel quality collaborative. *Implement Sci* 2011;6:18.
- 418 Morrow E, Robert G, Maben J, Griffiths P. Implementing large-scale quality improvement: lessons from the productive ward: releasing time to care. *Int J Health Care Qual Assur* 2012;25(4):237-253.
- 419 Perla RJ, Bradbury E, Gunther-Murphy C. Large-scale improvement initiatives in healthcare: a scan of the literature. *J Healthc Qual* 2013;35(1):30-40.
- 420 Yano EM. The role of organizational research in implementing evidence-based practice: QUERI Series. *Implement Sci* 2008;3:29.
- 421 Nolan K, Schall MW, Erb F, Nolan T. Using a framework for spread: The case of patient access in the Veterans Health Administration. *Jt Comm J Qual Patient Saf* 2005;31(6):339-347.
- 422 Donaldson NE, Rutledge DN, Ashley J. Outcomes of adoption: measuring evidence uptake by individuals and organizations. *Worldviews Evid Based Nurs* 2004;1 Suppl 1:S41-S51.



- 423 Liddell A, Adshead S, Burgess E. *Technology in the NHS: transforming the patient's experience of care*. London: Kings Fund, 2008.
- 424 Grol R, Wensing M. What drives change? Barriers and incentives for achieving evidence-based practice. *Med J Aust* 2004;180:7-60.
- 425 Health Industries Task Force. *Innovation for health: making a difference*. Report of the Strategic Implementation Group, 2007.
- 426 Grol R, Wensing M. What drives change? Barriers and incentives for achieving evidence-based practice. *Med J Aust* 2004;180:7-60.
- 427 Oliver K, Innvar S, Lorenc T, Woodman J, Thomas J. A systematic review of barriers to and facilitators of the use of evidence by policymakers. *BMC Health Serv Res* 2014;14:2.
- 428 Wallace J, Nwosu B, Clarke M. Barriers to the uptake of evidence from systematic reviews and meta-analyses: a systematic review of decision makers' perceptions. *BMJ Open* 2012;2(5),pii:e001220.
- 429 Innvaer S, Vist G, Trommald M, Oxman A. Health policy-makers' perceptions of their use of evidence: a systematic review. *J Health Serv Res Policy* 2002;7(4):239-244.
- 430 Ankem K. Influence of information sources on the adoption of uterine fibroid embolization by interventional radiologists. *J Med Libr Assoc* 2003;91(4):450-459.
- 431 Brody AA, Galvin JE. A review of interprofessional dissemination and education interventions for recognizing and managing dementia. *Gerontol Geriatr Educ* 2013;34(3):225-256.
- 432 Brownson RC, Jacobs JA, Tabak RG, Hoehner CM, Stamatakis KA. Designing for dissemination among public health researchers: findings from a national survey in the United States. *Am J Public Health* 2013;103(9):1693-1699.
- 433 Titler MG, Wilson DS, Resnick B, Shever LL. Dissemination and implementation: INQRI's potential impact. *Med Care* 2013;51(4 Suppl 2):S41-S46.
- 434 Kumar S, Ghildayal NS, Shah RN. Examining quality and efficiency of the U.S. healthcare system. *Int J Health Care Qual Assur* 2011;24(5):366-388.
- 435 Leeman J, Baernholdt M, Sandelowski M. Developing a theory-based taxonomy of methods for implementing change in practice. *J Adv Nurs* 2007;58(2):191-200.
- 436 Denis JL, Hébert Y, Langley A, Lozeau D, Trottier LH. Explaining diffusion patterns for complex health care innovations. *Health Care Manage Rev* 2002;27(3):60-73.
- 437 De Civita M, Dasgupta K. Using diffusion of innovations theory to guide diabetes management program development: an illustrative example. *J Public Health* 2007;29(3):263-268.
- 438 Helfrich CD, Weiner BJ, McKinney MM, Minasian L. Determinants of implementation effectiveness: adapting a framework for complex innovations. *Med Care Res Rev* 2007;64(3):279-303.
- 439 Zazzali JL, Sherbourne C, Hoagwood KE, Greene D, Bigley MF, Sexton TL. The adoption and implementation of an evidence based practice in child and family mental health services organizations: a pilot study of functional family therapy in New York State. *Adm Policy Ment Health* 2008;35(1-2):38-49.
- 440 Goldstein MK, Coleman RW, Tu SW, Shankar RD, O'Connor MJ, Musen MA, Martins SB, Lavori PW, Shlipak MG, Oddone E, Advani AA, Gholami P, Hoffman BB. Translating research into practice: organizational issues in implementing automated decision support for hypertension in three medical centers. *J Am Med Inform Assoc* 2004;11(5):368-376.
- 441 Jbilou J, Landry R, Amara N, El Adlouni S. Combining communication technology utilization and organizational innovation: evidence from Canadian healthcare decision makers. *J Med Syst* 2009;33(4):275-286.
- 442 Little MA, Pokhrel P, Sussman S, Rohrbach LA. The Process of Adoption of Evidence-based Tobacco Use Prevention Programs in California Schools. *Prev Sci* (published online January 2014).
- 443 Higuchi KS, Downey A, Davies B, Bajnok I, Waggott M. Using the NHS sustainability framework to understand the activities and resource implications of Canadian nursing guideline early adopters. *J Clin Nurs* 2013;22(11-12):1707-1716.
- 444 Leeman J, Baernholdt M, Sandelowski M. Developing a theory-based taxonomy of methods for implementing change in practice. *J Adv Nurs* 2007;58(2):191-200.
- 445 Carljford S, Lindberg M, Bendtsen P, Nilsen P, Andersson A. Key factors influencing adoption of an innovation in primary health care: a qualitative study based on implementation theory. *BMC Fam Pract* 2010;11:60.
- 446 Jippes E, Steinert Y, Pols J, Achterkamp MC, van Engelen JM, Brand PL. How do social networks and faculty development courses affect clinical supervisors' adoption of a medical education innovation? An exploratory study. *Acad Med* 2013;88(3):398-404.
- 447 Joss R, Kogan M. *Advancing quality: TQM in the NHS*. Open University Press, Buckingham, 1995.
- 448 Shortell SM, Kaluzny AD. *Health care management organization design and behavior*. New York: Thomson Delmar Learning, 2006.
- 449 Salge TO, Vera A. Benefiting from public sector innovation: the moderating role of customer and learning orientation. *Public Admin Rev* 2012;72(4):550-560.
- 450 Kimberly JR, Evanisko MJ. Organizational innovation: the influence of individual, organizational, and contextual factors on hospital adoption of technological and administrative innovations. *Acad Manage J* 1981;24(4):689-713.
- 451 Berta W, Teare GF, Gilbert E, Ginsburg LS, Lemieux-Charles L, Davis D, Rappolt S. The contingencies of organizational learning in long-term care: factors that affect innovation adoption. *Health Care Manage Rev* 2005;30(4):282-292.
- 452 Savitz LA, Kaluzny AD. Assessing the implementation of clinical process innovations: a cross-case comparison. *J Health Care Manag* 2000;45(6):366-370.
- 453 Greenhalgh T, Robert G, Bate P, Kyriakidou O, Macfarlane F, Peacock R. *How to Spread Good Ideas: A systematic review of the literature on diffusion, dissemination and sustainability of innovations in health service delivery and organisation*. UK: Report for the National Co-ordinating Centre for NHS Service Delivery and Organisation R & D (NCCSDO), 2004.

- 454 Williams I, Dickinson H. *Knowledge for adoption: a review of the literature on knowledge-based facilitators of technology adoption in health care*. Birmingham: Health Services Management Centre, University of Birmingham, 2008.
- 455 Berwick DM. Disseminating innovations in health care. *JAMA* 2003;289(15):1969-1975.
- 456 Fleuren M, Wiefferink K, Paulussen T. Determinants of innovation within health care organisations: literature review and Delphi study. *Int J Qual Health Care* 2004;16(2):107-123.
- 457 Buchanan D, Fitzgerald L, Ketley D, Gollop R, Jones J L, Lamont S S, Neath A, Whitby E. No going back: a review of the literature on sustaining organisational change. *Int J Manag Rev* 2005;7(3):189-205.
- 458 Helfrich CD, Weiner BJ, McKinney MM, Minasian L. Determinants of implementation effectiveness: adapting a framework for complex interventions. *Med Care Res Rev* 2007;64(3):279-303.
- 459 Rye CB, Kimberly JR. The adoption of innovations by provider organizations in health care. *Med Care Res Rev* 2007;64(3):235-278.
- 460 Urquhart R, Porter GA, Grunfeld E, Sargeant J. Exploring the interpersonal-, organization-, and system-level factors that influence the implementation and use of an innovation-synoptic reporting-in cancer care. *Implement Sci* 2012;7:12.
- 461 Omer T. Research utilization in a multicultural nursing setting in Saudi Arabia: barriers and facilitators. *J Nurs Res* 2012;20(1):66-73.
- 462 Uysal A, Temel AB, Ardahan M, Ozkahraman S. Barriers to research utilisation among nurses in Turkey. *J Clin Nurs* 2010;19(23-24):3443-3452.
- 463 Bradley EH, Webster TR, Baker D, Schlesinger M, Inouye SK. After adoption: sustaining the innovation. A case study of disseminating the hospital elder life program. *J Am Geriatr Soc* 2005;53(9):1455-1461.
- 464 Miller WL, Crabtree BF, McDaniel R, Stange KC. Understanding change in primary care practice using complexity theory. *J Fam Pract* 1998;46(5):369-376.
- 465 Ubbink DT, Guyatt GH, Vermeulen H. Framework of policy recommendations for implementation of evidence-based practice: a systematic scoping review. *BMJ Open* 2013;3(1): pii:e001881.
- 466 Länsisalmi H, Kivimäki M, Aalto P, Ruoranen R. Innovation in healthcare: a systematic review of recent research. *Nurs Sci Q* 2006;19(1):66-72, discussion 65.
- 467 Ham C, Kipping R, McLeod H, Meredith P. *Capacity, Culture and Leadership: Lessons from the Experience of Improving Access to Hospital Services*. Birmingham: University of Birmingham, 2002.
- 468 Shortell SM, Bennett CL, Byck GR. Assessing the impact of continuous quality improvement on clinical practice: What will it take to accelerate progress? *Millbank Q* 1998;76(4):593-624.
- 469 Graham P (ed.) *Mary Parker Follett Prophet of Management: A Celebration of Writings from the 1920s*. Boston: Harvard Business School Press, 1995.
- 470 Zazzali JL, Sherbourne C, Hoagwood KE, Greene D, Bigley MF, Sexton TL. The adoption and implementation of an evidence based practice in child and family mental health services organizations: a pilot study of functional family therapy in New York State. *Adm Policy Ment Health* 2008;35(1-2):38-49.
- 471 Bradley EH, Webster TR, Baker D, Schlesinger M, Inouye SK, Barth MC, Lapane KL, Lipson D, Stone R, Koren MJ. Translating research into practice: speeding the adoption of innovative health care programs. *Issue Brief* 2004;(724):1-12.
- 472 Buchanan D, Fitzgerald L, Ketley D, Gollop R, Jones J L, Lamont S S, Neath A, Whitby E. No going back: a review of the literature on sustaining organisational change. *Int J Manag Rev* 2005;7(3):189-205.
- 473 Greenhalgh T, Robert G, Bate P, Kyriakidou O, Macfarlane F, Peacock R. *How to Spread Good Ideas: A systematic review of the literature on diffusion, dissemination and sustainability of innovations in health service delivery and organisation*. UK: Report for the National Co-ordinating Centre for NHS Service Delivery and Organisation R & D (NCCSDO), 2004.
- 474 Ovretveit J. Widespread focused improvement: lessons from international health for spreading specific improvements to health services in high-income countries. *Int J Qual Health Care* 2011;23(3):239-246.
- 475 Fitzgerald L, Ferlie E, Wood M, Hawkins C. Interlocking interactions, the diffusion of innovations in health care. *Human Relations* 2002;55:1429-1449.
- 476 Rye CB, Kimberly JR. The adoption of innovations by provider organizations in health care. *Med Care Res Rev* 2007;64(3):235-278.
- 477 Fitzgerald L, Ferlie E, Wood M, Hawkins C. Interlocking interactions, the diffusion of innovations in health care. *Human Relations* 2002;55:1429-1449.
- 478 Williams I, Dickinson H. *Knowledge for adoption: a review of the literature on knowledge-based facilitators of technology adoption in health care*. Birmingham: Health Services Management Centre, University of Birmingham, 2008.
- 479 Helfrich CD, Weiner BJ, McKinney MM, Minasian L. Determinants of implementation effectiveness: adapting a framework for complex interventions. *Med Care Res Rev* 2007;64(3):279-303.
- 480 Greenhalgh T, Robert G, Bate P, Kyriakidou O, Macfarlane F, Peacock R. *How to Spread Good Ideas: A systematic review of the literature on diffusion, dissemination and sustainability of innovations in health service delivery and organisation*. UK: Report for the National Co-ordinating Centre for NHS Service Delivery and Organisation R & D (NCCSDO), 2004.
- 481 Buchanan D, Fitzgerald L, Ketley D, Gollop R, Jones J L, Lamont S S, Neath A, Whitby E. No going back: a review of the literature on sustaining organisational change. *Int J Manag Rev* 2005;7(3):189-205.
- 482 Choy I, Kitto S, Adu-Aryee N, Okrainec A. Barriers to the uptake of laparoscopic surgery in a lower-middle-income country. *Surg Endosc* 2013;27(11):4009-4015.
- 483 Curran JA, Murphy AL, Sinclair D, McGrath P. Factors influencing rural and urban emergency clinicians' participation in an online knowledge exchange intervention. *Rural Remote Health* 2013;13(1):2175.
- 484 Blake H, Lloyd S. Influencing organisational change in the NHS: lessons learned from workplace wellness initiatives in practice. *Qual Prim Care* 2008;16(6):449-455.



- 485 Bunting RF Jr. Healthcare innovation barriers: results of a survey of certified professional healthcare risk managers. *J Healthc Risk Manag* 2012;31(4):3-16.
- 486 Wright S, McSherry W. A systematic literature review of Releasing Time to Care: The Productive Ward. *J Clin Nurs* 2013;22(9-10):1361-1371.
- 487 Davis M, Balasubramanian BA, Waller E, Miller BF, Green LA, Cohen DJ. Integrating behavioral and physical health care in the real world: early lessons from advancing care together. *J Am Board Fam Med* 2013;26(5):588-602.
- 488 Greenhalgh T, Stramer K, Bratan T, Byrne E, Mohammad Y, Russell J. Introduction of shared electronic records: multi-site case study using diffusion of innovation theory. *BMJ* 2008;337:a1786.
- 489 Moreland-Russell S, Eyler A, Barbero C, Hipp JA, Walsh H. Diffusion of Complete Streets policies across US communities. *J Public Health Manag Pract* 2013;19(3 Suppl 1):S89-S96.
- 490 McCarthy M, Alexanderson K, Voss M, Conceição C, Grimaud O, Narkauskaitė L, Katreniakova Z, Saliba A, Sammut M. Impact of innovations in national public health markets in Europe. *Eur J Public Health* 2013;23 Suppl 2:25-29.
- 491 Sax H, Clack L, Touveneau S, Jantarada Fda L, Pittet D, Zingg W. Implementation of infection control best practice in intensive care units throughout Europe: a mixed-method evaluation study. *Implement Sci* 2013;8:24.
- 492 Lukas CV, Holmes SK, Cohen AB, Restuccia J, Cramer IE, Shwartz M, Charns MP. Transformational change in health care systems: an organizational model. *Health Care Manage Rev* 2007;32(4):309-320.
- 493 Ling T, Brereton L, Conklin A, Newbould J, Roland M. Barriers and facilitators to integrating care: experiences from the English Integrated Care Pilots. *Int J Integr Care* 2012;12:e129.
- 494 Ruzek JI, Rosen RC. Disseminating evidence-based treatments for PTSD in organizational settings: A high priority focus area. *Behav Res Ther* 2009;47(11):980-989.
- 495 Oborn E, Barrett M, Racko G. Knowledge translation in healthcare: Incorporating theories of learning and knowledge from the management literature. *J Health Organ Manag* 2013;27(4):412-431.
- 496 Lannon CM, Peterson LE. Pediatric collaborative networks for quality improvement and research. *Acad Pediatr* 2013;13(6 Suppl):S69-S74.
- 497 Baldwin LM, Keppel GA, Davis A, Guirguis-Blake J, Force RW, Berg AO. Developing a practice-based research network by integrating quality improvement: challenges and ingredients for success. *Clin Transl Sci* 2012;5(4):351-355.
- 498 Walshe K. Pseudoinnovation: the development and spread of healthcare quality improvement methodologies. *Int J Qual Health Care* 2009;21(3):153-159.
- 499 Weiner BJ, Helfrich CD, Savitz LA, Swiger KD. Adoption and implementation of strategies for diabetes management in primary care practices. *Am J Prev Med* 2007;33(1 Suppl):S35-S44, quiz S45-S49.
- 500 Blonstein AC, Yank V, Stafford RS, Wilson SR, Rosas LG, Ma J. Translating an evidence-based lifestyle intervention program into primary care: lessons learned. *Health Promot Pract* 2013;14(4):491-497.
- 501 Orem JN, Mafigiri DK, Marchal B, Ssengooba F, Macq J, Criel B. Research, evidence and policymaking: the perspectives of policy actors on improving uptake of evidence in health policy development and implementation in Uganda. *BMC Public Health* 2012;12:109.
- 502 Berwick DM. Disseminating innovations in health care. *JAMA* 2003;289(15):1969-1975.
- 503 Greenhalgh T, Robert G, Bate P, Kyriakidou O, Macfarlane F, Peacock R. *How to Spread Good Ideas: A systematic review of the literature on diffusion, dissemination and sustainability of innovations in health service delivery and organisation*. UK: Report for the National Co-ordinating Centre for NHS Service Delivery and Organisation R & D (NCCSDO), 2004.
- 504 Shapiro J, Devlin M. *Quality assurance or improvement? Driving innovation in primary care*. Birmingham: Health Services Management Centre, University of Birmingham, 2000.
- 505 Liddell A, Adshead S, Burgess E. *Technology in the NHS: transforming the patient's experience of care*. London: Kings Fund, 2008.
- 506 Rye CB, Kimberly JR. The adoption of innovations by provider organizations in health care. *Med Care Res Rev* 2007;64(3):235-278.
- 507 Chan GK, Barnason S, Dakin CL, Gillespie G, Kamienski MC, Stapleton S, Williams J, Juarez A, Li S. Barriers and perceived needs for understanding and using research among emergency nurses. *J Emerg Nurs* 2011;37(1):24-31.
- 508 Knudsen HK, Roman PM. Modeling the use of innovations in private treatment organizations: The role of absorptive capacity. *J Substance Abuse Treat* 2004;26:51-59.
- 509 Williams I, Dickinson H. *Knowledge for adoption: a review of the literature on knowledge-based facilitators of technology adoption in health care*. Birmingham: Health Services Management Centre, University of Birmingham, 2008.
- 510 Englund M, Robson S. Why has the acceptance of laparoscopic hysterectomy been slow? Results of an anonymous survey of Australian gynecologists. *J Minim Invasive Gynecol* 2007;14(6):724-728.
- 511 Sugarhood P, Wherton J, Procter R, Hinder S, Greenhalgh T. Technology as system innovation: a key informant interview study of the application of the diffusion of innovation model to telecare. *Disabil Rehabil Assist Technol* 2014;9(1):79-87.
- 512 Kenrick M, Luker KA. An exploration of the influence of managerial factors on research utilization in district nursing practice. *J Adv Nurs* 1996;23(4):697-704.
- 513 Mitton C, Adair CE, McKenzie E, Patten SB, Wayne Perry B. Knowledge transfer and exchange: review and synthesis of the literature. *Milbank Q* 2007;85(4):729-768.
- 514 Rubenstein LV, Chaney EF, Ober S, Felker B, Sherman SE, Lanto A, Vivell S. Using evidence-based quality improvement methods for translating depression collaborative care research into practice. *Fam Syst Health* 2010;28(2):91-113.
- 515 Burke JP, Gitlin LN. How do we change practice when we have the evidence? *Am J Occup Ther* 2012;66(5):e85-e88.
- 516 Hage E, Roo JP, van Offenbeek MA, Boonstra A. Implementation factors and their effect on e-Health service adoption in rural communities: a systematic literature review. *BMC Health Serv Res* 2013;13:19.

- 517 Livingood W, Marshall N, Peden A, Gonzalez K, Shah GH, Alexander D, Penix K, Lawrence R, Toal R, Woodhouse L. Health districts as quality improvement collaboratives and multijurisdictional entities. *J Public Health Manag Pract* 2012;18(6):561-570.
- 518 Pirkis JE, Blashki GA, Murphy AW, Hickie IB, Ciechomski L. The contribution of general practice based research to the development of national policy: case studies from Ireland and Australia. *Aust New Zealand Health Policy* 2006;3:4.
- 519 Lemire M, Demers-Payette O, Jefferson-Falardeau J. Dissemination of performance information and continuous improvement: A narrative systematic review. *J Health Organ Manag* 2013;27(4):449-478.
- 520 Atun RA, Menabde N, Saluvere K, Jesse M, Habicht J. Introducing a complex health innovation - primary health care reforms in Estonia (multimethods evaluation). *Health Policy* 2006;79(1):79-91.
- 521 Lambooj MS, Engelfriet P, Westert GP. Diffusion of innovations in health care: does the structural context determine its direction? *Int J Technol Assess Health Care* 2010;26(4):415-420.
- 522 May C, Harrison R, Finch T, MacFarlane A, Mair F, Wallace P. Understanding the normalization of telemedicine services through qualitative evaluation. *J Am Med Inform Assoc* 2003;10(6):596-604.
- 523 Abdolrasulnia M, Menachemi N, Shewchuk RM, Ginter PM, Duncan WJ, Brooks RG. Market effects on electronic health record adoption by physicians. *Health Care Manag Rev* 2008;33(3):243-252.
- 524 Lukas CV, Meterko MM, Mohr D, Seibert MN, Parlier R, Levesque O, Petzel RA. Implementation of a clinical innovation: the case of advanced clinic access in the Department of Veterans Affairs. *J Ambul Care Manage* 2008;31(2):94-108.
- 525 Jewell CJ, Bero LA. "Developing good taste in evidence": facilitators of and hindrances to evidence-informed health policymaking in state government. *Milbank Q* 2008;86(2):177-208.
- 526 Essén A, Lindblad S. Innovation as emergence in healthcare: unpacking change from within. *Soc Sci Med* 2013;93:203-211.
- 527 Scanlon DP, Beich J, Alexander JA, Christianson JB, Hasnain-Wynia R, McHugh MC, Mittler JN. The Aligning Forces for Quality initiative: background and evolution from 2005 to 2012. *Am J Manag Care* 2012;18(6 Suppl):s115-s125.

The Health Foundation is an independent charity working to improve the quality of health care in the UK.

We are here to support people working in health care practice and policy to make lasting improvements to health services.

We carry out research and in-depth policy analysis, run improvement programmes to put ideas into practice in the NHS, support and develop leaders and share evidence to encourage wider change.

We want the UK to have a health care system of the highest possible quality – safe, effective, person-centred, timely, efficient and equitable.

The Health Foundation  
90 Long Acre  
London WC2E 9RA

T 020 7257 8000  
E [info@health.org.uk](mailto:info@health.org.uk)

Registered charity number: 286967  
Registered company number: 1714937

For more information, visit:  
[www.health.org.uk](http://www.health.org.uk)

Follow us on Twitter:  
[www.twitter.com/HealthFdn](https://www.twitter.com/HealthFdn)

Sign up for our email newsletter:  
[www.health.org.uk/enewsletter](http://www.health.org.uk/enewsletter)