Literature Review of the Effectiveness of Clinicians as Improvement Leaders following Training in Improvement and Large Scale Change

JAMES MAHON, Associate Consultant
CHRIS BARTLETT, Consultant
SARAH DICKINSON, Research Assistant
JULIE GLANVILLE, Associate Director

APRIL 2015
Contents

Abbreviation List

Executive Summary

Four-page Summary

Acknowledgements & contacts

Section 1: Introduction and Objectives

Section 2: Methods
2.1 Eligibility Criteria
2.2 Virtual Reference Group
2.3 Search Strategy
2.4 Study Selection
2.5 Data Extraction and Quality Assessment
2.6 Data Synthesis

Section 3: Results
3.1 Studies Identified and Selected
3.2 Included Studies
3.3 Results

Section 4: Discussion
4.1 Summary of Evidence Against Themes
4.2 Research Gaps
4.3 Available Evidence
4.4 Conclusions

References

Appendices:

Appendix A: Review Methods
Appendix B: Search Strategies
Appendix C: Data Extraction of Included Studies
Appendix D: Excluded Studies

All reasonable precautions have been taken by YHEC to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall YHEC be liable for damages arising from its use.
# Abbreviation List

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCG</td>
<td>Clinical Commissioning Group</td>
</tr>
<tr>
<td>GP</td>
<td>General Practitioner</td>
</tr>
<tr>
<td>HF</td>
<td>Health Foundation</td>
</tr>
<tr>
<td>HEE</td>
<td>Health Education England</td>
</tr>
<tr>
<td>NR</td>
<td>Not Reported</td>
</tr>
<tr>
<td>NHS IQ</td>
<td>National Health Service Improving Quality</td>
</tr>
<tr>
<td>QI</td>
<td>Quality Improvement</td>
</tr>
<tr>
<td>VRG</td>
<td>Virtual Reference Group</td>
</tr>
</tbody>
</table>
Executive Summary

OBJECTIVE

The objective of this literature review was to assess the effectiveness of health care practitioners directly involved in patient care (e.g. doctors, nurses or allied health professions) as improvement leaders after receiving training in improvement and large scale change.

METHODOLOGY

A literature review was undertaken to formally identify, select and data extract relevant reports. Eleven bibliographic databases and the webpages of relevant authors and organisations were searched. A reviewer assessed the studies for relevance and quality and then extracted data. The data were summarized.

RESULTS

The search was undertaken in October 2014 and identified seven studies that evaluated the impact of leadership programmes on clinician leadership of change or quality improvement projects. Six of the studies were of UK based leadership training programmes and one was an evaluation of a collaborative-like mentoring project from the USA.

DISCUSSION

Whilst it is not possible from the evidence to say which programmes are the most successful, the available evidence suggests that the most useful aspects are (1) to use real world multi agency change projects as learning tools, (2) to use mentoring and (3) to achieve learning linked to individual aims. Whether training in change management, leadership or quality improvement is online or in the classroom does not seem to be important.

The evidence is consistent that training can be effective in enabling clinicians to become leaders, but it is also consistent in showing that training is not enough. Identifying the right people for training is important: identifying individuals with a desire to lead but also with existing personal attributes to make them an effective leader is important. There is also a need for a culture of support for change, for leaders to be successful. This support seems to need to be provided as both tangible metrics (such as giving clinicians the time to lead change projects outside of their ‘day job’) but also in the form of more intangible support and encouragement from senior management to enable others within the organisation to follow the lead of the clinician undertaking the change or quality improvement (QI) project.

Although the available evidence was limited against this study’s original research questions, it does provide some evidence on the development of future programmes. It also identified the need to ensure that the right people for training are identified and then appropriately supported both during and after training by the organisation in which they operate. The evidence also pointed to areas for future research. Firstly, into the features of supporting collaboratives and networks that enable clinicians to lead. Secondly, research into the links between clinician characteristics, training and support that result in effective leadership.
OBJECTIVE

The objective of this literature review was to assess the effectiveness of health care practitioners directly involved in patient care (e.g. doctors, nurses and allied health professions) as improvement leaders after receiving training in improvement and large scale change. This review is intended to inform current and future work by NHS Improving Quality (NHS IQ) and other organisations to support clinicians in leading improvement.

METHODOLOGY

A literature review was undertaken to formally identify, select and data extract relevant reports. Eleven bibliographic databases and the webpages of relevant authors and organisations were searched. A reviewer assessed the studies for relevance and quality and extracted data. The data were summarized.

RESULTS

The search was undertaken in October 2014. Eight thousand four hundred and twenty-two records from the bibliographic databases and 91 records from other sources were identified. After de-duplication and assessment for relevance, 136 full documents were obtained. These were assessed in detail for relevance to the review questions.

Included Studies

Seven studies met the inclusion criteria and provided evidence relevant to the review questions: six were based in the UK. No studies were identified that evaluated the impact of networks on clinicians leading change or improvement programmes.

Four of the six UK studies were of Fellowship programmes that provided clinicians with a minimum of 12 months away from their post to develop change and quality improvement leadership skills through a combination of active participation in a change or quality improvement project, mentoring and formal training and development. With the exception of the NHS London Darzi Fellowship Programme, the programmes were aimed at middle ranking clinicians and above. The Darzi Fellowship appears to have been aimed at junior clinicians, to create leaders of the future.

The fifth UK study was an evaluation of the NHS Leadership Academy Practice Leaders' Programme (PLP). The PLP worked with a team undergoing a change or quality improvement project by using active learning sets on leadership and change management coupled with coaching sessions for individuals and facilitated workshops.

The sixth UK study was an evaluation of a large scale Alzheimer's Scotland ‘Dementia Champions’ programme to improve the quality of dementia care. This was achieved by the recruitment and training of 14 regional Dementia Nurse Consultants to effect strategic change with over 300 Dementia Champions acting as local operation change agents. Information on training was limited. The Nurse Consultants undertook a 12 month bespoke training programme. The Dementia Champions received a six month, predominantly online, training course with five one-day face to face training sessions in groups. Training, for the Champions at least, was on change management but also on how to improve care for patients with dementia.
One US study evaluated a mentoring and toolkit programme (‘Mentored Implementation’) for quality improvement teams at the Society of Hospital Medicine.

**Quality Assessment**

Five of the six evaluations of UK programmes were independent of the organisation or individuals delivering the programme. The exception was the evaluation of the PLP. One evaluation (Lynch) was published in a peer-reviewed journal.

The evaluation of the US Mentoring Implementation programme does not appear to have been undertaken independently. It was published in a peer-reviewed journal.

With the exception of the US study, the evaluation methodologies were well reported. The conclusions drawn in two studies seemed to be opinion rather than based on the evidence gathered, but in the other five studies conclusions were largely linked to the study findings.

The most significant methodological weaknesses were in the time scale of each evaluation and the lack of counterfactuals.

**Leadership outcomes**

The leadership outcomes reported were mostly based upon qualitative outcomes reported by programme participants.

The evaluation of UK Fellowship programmes all reported that clinicians who completed the programmes had reported personal development in leadership skills and confidence. Specifically, an evaluation of the Darzi Fellowships showed that the impact of the Fellowships was far reaching, but the six areas of impact reported were all short term and were behavioural self-reported outcomes, including:

- Growth in self-understanding and personal skills;
- Increased knowledge and understanding of the organisation and system context of change;
- Enhanced understanding and skills in working with others;
- Change management, service improvement and capacity building knowledge, understanding and skills;
- Changed beliefs and values;
- Some revised career aspirations.

**Factors that make clinicians effective improvement leaders**

There was limited evaluation evidence on how the training content, other programmes or external factors made clinicians effective improvement leaders.

**Barriers and enablers/facilitators to clinicians having an impact within a department/organisation/the health system**

It was reported that following the Health Foundation Leadership Programme, there were some barriers for organisations to enable their clinicians to become Fellows. In dementia care, the key enablers that resulted in participants being more likely to succeed in effecting change were:

- Pre-existing knowledge, skills, contacts and experience;
- Level of seniority of the trainee;
Commitment, passion and enthusiasm;
Sufficient dedicated time and resource.

Barriers were reported as the converse of these enablers and programme participants were less likely to succeed in effecting change if there was a lack of engagement, lack of positive attitude to change and lack of support from colleagues.

**Factors associated with some clinicians having greater success in integrating improvement science into their work**

With the exception of the Darzi Fellowships, the evaluations of the other Fellowship programmes reported factors associated with participants integrating what they had learned into their roles after completion of the fellowship.

**Impact of supporting clinicians to lead improvement**

Evidence of the impact of supporting clinicians to lead improvement was limited. No evaluations were identified that explored how networks support clinicians to lead and the impact this had. Examples were cited of Fellows who completed the Health Foundation fellowships programme and went on to lead and drive quality improvement projects.

**Methodologies, best practices and critical success factors for supporting clinicians to lead improvement and/or large scale change**

The UK studies reported the following programme methods and success factors in supporting clinicians to lead change:

- moral and intellectual support, including a supportive trust culture, peer support and a network of support;
- a committed and learning-oriented Medical Director;
- working on “ambitious but appropriate” live projects;
- high quality mentoring learning programme that targets transformational change;
- multidisciplinary learning with exposure to different clinicians and parts of the healthcare system;
- combining workplace and external learning and integrating learning with work;
- aligning the tools with individual aims;
- ongoing monitoring and adaptation addressing programme issues;
- giving people the time away from their existing roles to develop skills;
- informal networking;
- coaching and action learning;
- choosing projects for learning where outcomes can be easily measured;
- ensuring everyone involved in a learning project has realistic expectations;
- learning sets should be experiential and allow for group feedback;
- provide opportunity for learning networks to continue after the programme.

**DISCUSSION**

This report has focussed on robust, long-term evaluation evidence on the impact of leadership programmes on clinician leadership of change or quality improvement projects. Overall the evidence was limited in three ways:

- None of the evaluations were long enough to assess the sustained impact of the programmes on leadership outcomes and, therefore, the impact on other areas of interest of this review;
• There was an absence of a counterfactual which, coupled with the self-selecting nature of participants who may already want to become leaders, particularly in Fellowship programmes, means that it is difficult to attribute any effects seen to the programme;
• Studies failed to link elements of the programmes with leadership outcomes and instead focused on changes in participants’ self-perceived leadership skills and behaviours.

In addition, there was an absence of evaluation evidence on support networks and collaboratives outside of a poor quality evaluation of a collaborative-like mentoring project in the USA.

Whilst it is not possible from the evidence to say which programmes are the most successful, the available evidence suggests that the most useful aspects are (1) to use real world multi agency change projects as learning tools, (2) to use mentoring and (3) to achieve learning linked to individual aims. Whether training in change management, leadership or quality improvement is online or in the classroom does not seem to be important.

The evidence is consistent that training can be effective in enabling clinicians to become leaders, but it is also consistent in showing that training is not enough. Identifying the right people for training is important: identifying individuals with a desire to lead but also with existing personal attributes to make them an effective leader is important. There is also a need for a culture of support for change, for leaders to be successful. This support seems to need to be provided as both tangible metrics (such as giving clinicians the time to lead change projects outside of their ‘day job’) but also in the form of more intangible support and encouragement from senior management to enable others within the organisation to follow the lead of the clinician undertaking the change or quality improvement (QI) project.

Although the available evidence was limited against this study’s original research questions, it does provide some evidence on the development of future programmes. It also identified the need to ensure that the right people for training are identified and then appropriately supported both during and after training by the organisation in which they operate. The evidence also pointed to areas for future research. Firstly, into the features of supporting collaboratives and networks that enables clinicians to lead. Secondly, research into the links between clinician characteristics, training and support that result in effective leadership.
Acknowledgements & contacts

We are grateful for the assistance of Felix Mukoro and Jon Hannah, both at NHS IQ.

We are also grateful to the members of the Virtual Reference Group (VRG) convened to support this project for their contributions, including Alan Cribb, Frances Cunningham, Ian Curran, Mike Dent, Laura Johnson, Ian Kirkpatrick, Liz Maddocks-Brown, Martin Marshall and Patrick Mitchell.

For more information or discussion about this study please contact:
- The Improvement Capability Team Lead: Dr Grace Sweeney, Senior Manager, Research and Evaluation, NHS IQ (Grace.Sweeney@nhsiq.nhs.uk)
- The Study Lead: Dr Felix Mukoro, Research & Evaluation Lead, NHS IQ (Felix.Mukoro@nhsiq.nhs.uk)
Section 1: Introduction and Objectives

NHS Improving Quality (NHS IQ) commissioned a literature review on the effectiveness of clinicians as improvement leaders after receiving training in improvement and large scale change.

Effective training of clinicians as improvement leaders is an important aspect of the current NHS agenda of delivering continuous improvement (8-10). NHS IQ commissioned a programme of research on the effectiveness of trained clinicians as improvement leaders to inform all NHS IQ current and future work with clinicians and to design a programme of support to clinicians in leading improvement.

The objectives of this review were:

1. To identify current knowledge and research evidence in relation to what makes it more likely clinicians will be effective as improvement leaders after being trained in improvement and large scale change;
2. To identify gaps in current knowledge and research activity;
3. To obtain input on these issues through the support of a reference group of experts in the field;
4. To set out strategies and recommendations to optimise adoption of findings.

In addressing the primary research question (Objective 1), the review considered the following questions:

- What are the most successful programmes designed to support clinicians in achieving or driving quality improvement or large scale change within their organisation, e.g. a hierarchy of factors for training to succeed?
- What are the relationships between theory and evidence in relation to the effectiveness of training clinicians to achieve improvement and large scale change within their organisation?
- What methodological issues may be important to consider in future commissioning?
- How far does the current policy context of the NHS in England affect clinicians’ engagement in the improvement agenda?
- What are the research gaps?
- What further research should be commissioned in this area?
This review was informed by a review protocol and involved an extensive search to identify studies. To identify relevant evidence, this review required a clear definition of the studies to be included. The eligibility criteria used to identify and select studies are detailed in Section 2.1. Following study selection, data on the key questions were extracted from eligible studies and summarised.

### 2.1 ELIGIBILITY CRITERIA

Studies were considered eligible for the review if they reported evaluations that specifically reported the impact of an initiative on the ability of clinicians to lead quality improvement or large scale change programmes (see Section A.1 in Appendix A). ‘Clinician’ was defined as a health care practitioner directly involved in patient care including doctors, nurses and allied health professions.

### 2.2 VIRTUAL REFERENCE GROUP

A VRG of nine experts in the field were invited to inform the development and conduct of the review. Further details can be found in Section A.2 of Appendix A.

### 2.3 SEARCH STRATEGY

The literature search was designed to identify studies on the effectiveness of quality improvement training initiatives for clinicians that evaluated the impact of the training on leadership of change and/or improvement.

The literature search was conducted in a range of eleven relevant bibliographic databases and other information sources containing both published and grey literature. Key publications were also identified by the research team, NHS IQ, the VRG and citation searches on key identified publications.

The full details of the search are provided in Sections A.3 and A.4 of Appendix A.

### 2.4 STUDY SELECTION

Records retrieved by the searches were rapidly assessed and categorised according to relevance in meeting the review eligibility criteria, based on information in the title and
abstract (see Table A.1 in Appendix A). Further details can be found in Section A.5 of Appendix A.

Where there were several interim evaluations of a programme only the final evaluation was included, unless the interim evaluation included information absent in the final evaluation.

Eligible studies were evaluations that specifically reported the impact of an initiative on the ability of clinicians to lead quality improvement or large scale change programmes.

Evaluation was interpreted to mean “any activity to elicit evidence on the effectiveness of an intervention”. Study conclusions had to follow from evidence gathered by the evaluation, rather than just by author opinion. The outcome also had to be evidenced from primary research conducted after clinicians had returned to post after training or support.

The inclusion criteria for the outcomes of interest were strictly applied. Unless a study provided evidence specifically on clinicians' ability to lead change or quality improvement projects following a leadership intervention, then the study was excluded.

2.5 DATA EXTRACTION AND QUALITY ASSESSMENT

Data relating to the key themes were extracted from the studies into MS Excel. These data were summarised and are presented in Section 3. Elements that were included as a part of the extracted data can be found in Section A.6 of Appendix A.

Strengths and weaknesses in each study were assessed using the following criteria:

- How independent were the evaluators from the organisation delivering the programme?
- Was the evaluation published in a peer-reviewed journal?
- Was the evidence gathered directly from participants?
- Were the conclusions linked to evidence?

2.6 DATA SYNTHESIS

Data, themes and issues were summarised and stratified as far as possible by study design to help answer the review questions (Section A.7 of Appendix A).
Section 3: Results

3.1 STUDIES IDENTIFIED AND SELECTED

The search was undertaken in October 2014 and retrieved 8422 records (see Table A.3 in Appendix A). Once duplicates had been removed, 4979 records remained for assessment. One-hundred and twenty-one additional records were identified through other means. After de-duplication, a further 4930 records were rejected based on assessing their relevance from information in the title and abstract. One hundred and sixty-eight full documents were obtained and assessed in detail for relevance to the review questions. Figure A.2 in Appendix A contains the study selection progress chart.

3.2 INCLUDED STUDIES

Seven reports (1-7) were selected as relevant to the review. The detailed data extraction of these reports is provided in Appendix C. The list of 168 documents reviewed and then excluded, with reasons for exclusion, is provided in Appendix D.

Table 3.1 details the programmes evaluated in each relevant study and Table 3.2 describes the method of evaluation.
### Table 3.1: Details of the six evaluated programmes

<table>
<thead>
<tr>
<th>Study</th>
<th>Country; Year Published; Source</th>
<th>Organisation; Programme name</th>
<th>Programme Description</th>
</tr>
</thead>
</table>
| Ellison (1) | UK; 2014; Research Team | Alzheimer's Scotland; Dementia Champions | Dementia Nurse Consultants - This post is designed to provide a strategic leadership to push through changes to improve dementia care. Information on the training provided was limited beyond it being described as “a year long, bespoke, person-centred leadership development programme”.

Dementia Champions - The aim was to develop operational staff as change agents to support Dementia Nurse Consultants who provided strategic leadership for change. The nurses received a blended learning course over six months. Training included five contact days with a range of online learning. Each learner had a personal tutor and had three written assignments to complete a change activity in their workplace. As well as being directed at understanding the complexity of dementia, legal implications and a range of interventions that can be used to raise the quality of life of dementia patients, a primary learning goal of the programme was to:

“Understand and implement leadership and change agent skills and knowledge to enhance and improve the care of the person with dementia in every area of their influence, utilising existing and developing quality improvement systems”.

| Hardacre (2) | UK; 2011; Research Team | The HF; The HF Leadership Programme focusing on: Leaders for Change; HF Leadership Fellows; Quality Improvement Fellowships. | Harkness/HF Fellowships: Fellows spend a year in the USA examining its healthcare system and learning more about an aspect of policy with relevance to the UK.

Clinician Scientist Fellowships: Five year funding for a clinician to pursue academic research alongside a programme of leadership development involving ten days per year of bespoke leadership training.

Leaders for Change: One-year programme for middle and senior healthcare professionals with a leading role in service improvement to gain skills and knowledge in implementing and managing change. The scheme includes a work based improvement project, action learning sets, a set modular and bespoke personal development programme, mentoring and e-learning.

HF Leadership Fellowships: A coaching programme for two days per month for 22 months for middle level healthcare professionals. Scheme components were monthly one-to-one coaching sessions, action learning sets, seminars and workshops.

Quality Improvement Fellowships: Designed for a small number of senior clinical leaders to promote quality improvement nationally and to build organisational capacity to increase performance levels. Fellows spend one year out of their normal posts to learn the theory and practice of quality... |
<table>
<thead>
<tr>
<th>Study</th>
<th>Country; Year Published; Source</th>
<th>Organisation; Programme name</th>
<th>Programme Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lynch (3)</td>
<td>UK; 2013; MEDLINE</td>
<td>NHS Leadership Academy; The Practice Leaders Programme (PLP)</td>
<td>The aim of the PLP was to enhance leadership skills within a local health community. A local area was supported through a change or quality improvement programme through six separate multi-professional, active learning sets and coaching sessions provided to each individual that was part of the project. Learning sets were modified for the needs of each of the areas, but each programme covered theory behind leadership and change management. Facilitated group workshops were held so individuals could discuss their project and use the group to help arrive at solutions.</td>
</tr>
<tr>
<td>Matrix (4)</td>
<td>UK; 2008; Research Team</td>
<td>NHS Institute for Innovation and Improvement; NHS Institute Fellowship Scheme</td>
<td>The scheme involved a senior clinician taking 12 months away from their existing work role and being placed on a quality improvement project elsewhere in the NHS. Four participants went through the scheme up to the point of evaluation. All were experienced clinicians who all appear to have already led change or improvement programmes. The programme included:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- A range of formal development activities agreed between the Fellow, Institute and academic supervisors and an NHS mentor to ensure the Fellow has a good understanding of improvement science;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Completion of an innovation or improvement project relevant to the NHS;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Identifying, establishing and maintaining links with key people in the NHS and beyond, working in similar/comparable areas of innovation/improvement;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Establish a range of formal links within the Institute;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Make at least one formal visit to the Institute for Healthcare Improvement in Boston, USA;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Write a formal report on the personal and organisational implications arising from their project;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Undertake dissemination activities as agreed with their supervisors - including peer-reviewed publication where appropriate;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Maintenance of an agreed level of contact with a named lead at their host employing organisation;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Become a member of the Learning team for the period of the Fellowship, and also become affiliated to one of the Institute work streams (e.g. a priority programme work stream) and encouraged to link and learn from the specialist teams.</td>
</tr>
<tr>
<td>Study</td>
<td>Country; Year Published; Source</td>
<td>Organisation; Programme name</td>
<td>Programme Description</td>
</tr>
<tr>
<td>-------</td>
<td>---------------------------------</td>
<td>-----------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Maynard (5)</td>
<td>USA; 2012; MEDLINE</td>
<td>Society of Hospital Medicine; Mentored Implementation</td>
<td>Delivery of quality improvement support through &quot;Resource Rooms&quot; in which experts had reviewed existing evidence and produced toolkits that also documented their own experience of leading improvement projects. Toolkits produced in three areas: care transition, venous thromboembolism, glycaemic control. To aid a quality improvement programme to utilise the Resource Rooms and to successfully complete a Quality Improvement (QI) project. A clinician with expertise in the relevant QI project mentored QI teams through the project. This &quot;Mentored Implementation (MI)&quot; was designed to provide &quot;just in time&quot; solutions drawing on the mentors’ experience and to provide a “voice outside authority” to give goals for the team to meet before they came again. MI components were phone calls, webinars, training, web-based support and site visits. A central data centre for monitoring performance was also provided.</td>
</tr>
</tbody>
</table>
| Stoll (6) | UK; 2010; Research Team | NHS London using courses provided by the Centre for Innovation in Health Management at the University of Leeds and the Kings Fund with the University of Manchester; NHS London Darzi Fellowships Leadership Programme | Fellows were taken on a 12 month “out of programme” experience from their own specialty and are mentored by a Medical or Clinical Director. The Fellowship consisted of working on three live projects that looked at the following elements that were seen as essential to sustainable change:  
- Service change management;  
- Quality/safety improvement or clinical governance;  
- Supporting capacity building within the Trust for training and generic skills.  
In addition to the live projects, the Universities of Leeds and Manchester and the Kings Fund provided 24 days of structured learning which included: classroom based teaching, action learning sets, coaching and advice surgeries, stakeholder events and accreditation of the qualification. A web-based community to facilitate collaborative working was also established and there was a dedicated project manager to support Fellows. |
<table>
<thead>
<tr>
<th>Study</th>
<th>Country; Year Published; Source</th>
<th>Organisation; Programme name</th>
<th>Programme Description</th>
</tr>
</thead>
</table>
| Walmsley (7) | UK; 2008; Research Team | The HF; The HF Leadership Programme including: • Harkness/HF Fellowships; • Clinician Scientist Fellowships; • Leaders for Change; • HF Leadership Fellows; • Quality Improvement Fellowships. | *Harkness/HF Fellowships:* Fellows spend a year in the USA examining its healthcare system and learning more about an aspect of policy with relevance to the UK.  

*Clinician Scientist Fellowships:* Five year funding for a clinician to pursue academic research alongside a programme of leadership development involving ten days per year of bespoke leadership training.  

*Leaders for Change:* One year programme for middle and senior healthcare professionals with a leading role in service improvement to gain skills and knowledge in implementing and managing change. The scheme includes a work based improvement project, action learning sets, a set modular and bespoke personal development programme, mentoring and e-learning.  

*HF Leadership Fellows:* A coaching programme for two days per month for 22 months for middle level healthcare professionals. Scheme components were monthly one-to-one coaching sessions, action learning sets, seminars and workshops.  

*Quality Improvement Fellowships:* Designed for a small number of senior clinical leaders to promote quality improvement nationally and to build organisational capacity to increase performance levels. Fellows spend one year out of their normal posts to learn the theory and practice of quality improvement. This includes:  

- Assessment of leadership potential;  
- Participation in the IHI’s Breakthrough Series College and the clinical effectiveness programme at the Harvard School of Public Health;  
- Mentored experience in an improvement project;  
- Strategic planning and review sessions on how to help integrate learning back into their original posts. |
### Table 3.2: Evaluation methodologies used in the six studies

<table>
<thead>
<tr>
<th>Study</th>
<th>Evaluation period</th>
<th>Number of participants in the evaluation</th>
<th>Evaluation methodology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ellison (1)</td>
<td>2013 - 2014</td>
<td>In depth interviews with 30 Dementia Champions with survey completed by 108 Champions</td>
<td>Interviews, case studies and surveys of course participants, senior management and strategic stakeholders</td>
</tr>
<tr>
<td>Hardacre (2)</td>
<td>2003 - 2007</td>
<td>Not reported</td>
<td>Semi-structured interviews (which commenced in October 2008) and surveys (commencement date not outlined) with course participants and with stakeholders of improvement projects. The retrospective evaluation of the overall findings across all programmes was designed to establish whether specific leadership behaviours could be linked to quality improvement work and then whether these behaviours had been enacted by individuals who had been on the HF programmes.</td>
</tr>
<tr>
<td>Lynch (3)</td>
<td>2008 - 2012</td>
<td>48 GPs, management and social care staff</td>
<td>Focus groups and participant reflective accounts to identify themes. Timeframes were not specified but it was a retrospective evaluation. It was a stated aim of the evaluation to identify changes in participants' leadership skills and practice as a result of involvement in the programme.</td>
</tr>
<tr>
<td>Matrix (4)</td>
<td>2006</td>
<td>4</td>
<td>A Theory of Change approach was adopted with construction of a logic model with the team delivering the programme. Outcomes for learners were ascertained through case studies with clinicians who had been through the programme. The timeframes of this prospective evaluation were not specified.</td>
</tr>
<tr>
<td>Maynard (5)</td>
<td>From 2004</td>
<td>The programme was delivered to 300 hospital improvement teams. Two appear to have been evaluated.</td>
<td>It is unclear how or when the evaluation was conducted: it appears to have been a pilot study that was evaluated with a retrospective survey.</td>
</tr>
<tr>
<td>Stoll (6)</td>
<td>2009 - 2010</td>
<td>39</td>
<td>A retrospective review of programme documents and data, interviews with designers and deliverers of the programme, Fellows and Managing Directors and stakeholders. Evaluation timeframes are not specified but the report. Review of the Fellows’ final poster presentations.</td>
</tr>
<tr>
<td>Walmsley (7)</td>
<td>2003 - 2007</td>
<td>Not reported</td>
<td>A retrospective review of individual scheme evaluations conducted by the HF or independent evaluators up to 2006, augmented by further interviews with facilitators, participants and sponsors (all post-2006).</td>
</tr>
</tbody>
</table>
The seven studies covered programmes from six organisations with two studies reporting evaluations on the individual Fellowship programmes of the HF (2, 7).

Six of the studies were undertaken in the UK (1-4, 6, 7). One study was undertaken in the USA and was an evaluation of a mentoring and toolkit programme for quality improvement teams in the USA (5).

Four of the six UK studies (2, 4, 6, 7) were of Fellowship programmes that provided clinicians with a minimum of 12 months away from their post to develop change and quality improvement leadership skills through a combination of active participation in a change or quality improvement project, mentoring and formal training and development. With the exception of the NHS London Darzi Fellowship Programme, the Fellowship programmes were aimed at least at middle ranking clinicians. The Darzi Fellowship appears to have been aimed at junior clinicians to create leaders of the future.

Of the other two UK studies, Lynch (2013) (3), was an evaluation of the Practice Leaders Programme (PLP) organised by the NHS Leadership Academy. In contrast to the Fellowship programmes, the PLP worked with a team undergoing a change or quality improvement project by using active learning sets on leadership and change management coupled with coaching sessions and facilitated workshops.

The final UK study (1) was an evaluation of a large scale programme in Scotland to improve the quality of dementia care through the recruitment and training of 14 regional Dementia Nurse Consultants to effect strategic change with over 300 Dementia Champions acting as local operation change agents. Information on training was limited. The Nurse Consultants undertook a 12 month bespoke training programme. The Dementia Champions received a six month predominantly online training course with five one-day face to face training sessions in groups. Training, for the Champions at least, was not just on change management but largely on how to improve care for patients specifically with dementia.

### 3.2.1 Quality assessment

Five of the six evaluations of the UK programmes were independent of the organisation or individuals delivering the programme. The exception was the evaluation of the PLP (3). One of the six UK evaluations, Lynch, was published in a peer-reviewed journal. The evaluation of the US based Mentoring Implementation (5) programme also appears to have been undertaken internally, rather than independently, although it was published in a peer-reviewed journal.

With the exception of Maynard (5), the evaluation methodologies were well reported. The conclusions drawn in Maynard (5) and Lynch (3) seemed to be opinion rather than linked to the evidence gathered, but in the remaining studies the conclusions were, with some exceptions, linked to the study findings.

The two largest methodological weaknesses were in the time scale of each evaluation and the lack of counterfactuals.
Whilst the studies all reported evidence gathered post programme and after the participants had returned to their previous roles, none could be considered truly long-term. If we had applied a definition for long-term in the exclusion criteria to be “a period long enough to see the change in leadership engagement was sustained and making tangible impact” then it is likely that no studies would have been included in this review. This is acknowledged most notably by Walmsley (7), who stated in reference to evidence on sustainability of outcomes:

“Five years on from the first intakes of leadership cohorts into the Foundation’s schemes is too early to ascertain the sustainability of the investment. The Kellogg Foundation estimates seven to ten years as a reasonable length of time to evaluate impact on organisations or systems from leadership development.”

Creation of a counterfactual cohort is likely to be difficult for the leadership programmes considered\(^1\). The absence of such a group, however, is problematic to understanding the impact of programmes, especially where individuals on programmes have self-selected and so may have been more likely to be the types of individuals who would have been successful leaders anyway. Hardacre (2) attempted to establish a qualitative counterfactual through workshops but this was not successful. The only counterfactual available, therefore, is from the views of the participants themselves. This may be prone to bias.

### 3.2.2 Data extraction

Data were extracted from studies where they reported on the following areas where leadership programmes had impacted on clinicians:

* Leadership outcomes (however measured);
* Factors identified that make clinicians effective improvement leaders;
* Barriers and enablers/facilitators to clinicians having an impact within a department/organisation/health system;
* Factors associated with some clinicians having greater success in integrating improvement science into their work;
* Impact of supporting clinicians to lead improvement;
* Methodologies, best practices and critical success factors for supporting clinicians to lead improvement and/or large scale change.

Evidence available from the included studies on each of these areas is shown in Table 3.3.

\(^1\) One study by Carek (11) did include a counterfactual. Carek looked at whether including quality improvement training for family medicine graduates in the USA made it more likely that they undertook quality improvement activities shortly after graduation. This was achieved by looking at participation in activities by graduates before and after the introduction of quality improvement training as part of the medical degree. The study found such training did not change the likelihood of a clinician participating in quality improvement. However, the study had serious methodological flaws, not least of which was the fact that it was based on a before and after sample with the before (no training) sample having a longer period to engage in quality improvement activities by at least a year. Also, the study did not look at whether the graduates led quality improvement but rather whether they ‘participated’ and it did not address any of the research questions in this study.
Table 3.3: Evidence available on the review questions, from each of the included studies

<table>
<thead>
<tr>
<th>Question</th>
<th>Ellison (1)</th>
<th>Matrix (4)</th>
<th>Lynch (3)</th>
<th>Stoll (6)</th>
<th>Walmsley (7)</th>
<th>Hardacre (2)</th>
<th>Maynard (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership outcomes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Factors that make clinicians effective improvement leaders</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Barriers and enablers to clinicians having an impact within a department</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Factors associated with some clinicians having greater success integrating improvement science in their work</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Impact of supporting clinicians to lead improvement</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Methodologies, best practice and critical success factors for supporting clinicians to lead improvement or large scale change</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

3.3 RESULTS

Detailed data extraction is provided in Appendix C. The key findings are summarised below.

3.3.1 Leadership outcomes

The leadership outcomes reported were mostly based upon qualitative outcomes reported by programme participants.

The evaluation of Fellowship programmes delivered by various UK organisations all reported that clinicians who completed the programmes had reported personal development in leadership skills and confidence. All studies reported that some of those who had completed the programmes had moved into positions of influence or taken on change or quality improvement projects. However, without a counterfactual, the changes were ascertained from participants’ views.

Hardacre (2) in its evaluation of the HF Fellowship programmes, learned that findings were limited to self-reported statements of personal change brought about by the programmes. Users reported “feeling empowered” to lead change and being more confident and motivated to lead change.
Similarly, Stoll’s (6) evaluation of the Darzi Fellowships showed that the impact of the Fellowships was far reaching, but the six areas of impact reported were all short term and with behavioural self-reported outcomes. These included:

- Growth in self-understanding and personal skills;
- Increased knowledge and understanding of the organisation and system context of change;
- Enhanced understanding and skills in working with others;
- Change management, service improvement and capacity building knowledge, understanding and skills;
- Changed beliefs and values;
- Some revised career aspirations.

Lynch (3) drew no overall conclusions on the impact of the Leadership Academy’s PLP on the leadership of those involved, beyond stating that some General Practitioners (GPs) who were on the programme now hold executive roles in Clinical Commissioning Groups (CCGs). The following quotations were provided showing how one participant in the programme reported impacts on their ability to lead change:

“The programme has had a significant impact on me, personally and professionally; it has changed the way I approach my role as a GP and the way I interact with my colleagues. It has empowered me to effect change in a system in which I had come to feel I had little, if any, sphere of influence.”

“Professionally I use the skills and theory from this programme daily. When implementing change I have become aware of models of improvement, change management and neurolinguistics of leadership. I try and use this when making even small changes in my professional capacity. I think this makes the changes I make more structured, hopefully more useful and sustainable.”

Maynard (5) was the only report which provided statistical data on leadership outcomes linked to its programme: 93% of participants in one collaborative stated that the "Collaborative improved my skills in leadership and quality improvement". Little detail was provided on the evaluation methodology so it is difficult to place value on this single reported finding.

Ellison (1) did not directly state that the finding was about leadership, but did conclude that despite the size of the task at hand and the small scale of the programme, a significant amount of change and improvement work had been started that could not have been achieved without the two change roles, for which training had been provided. As the roles were explicitly about leading change, it can be inferred from this finding that the programme participants were leaders in that change. What is more difficult to infer is that leadership was due to training and support offered rather than the skills of the individual clinicians.
3.3.2 Factors identified that make clinicians effective improvement leaders

Although the studies all reported programme content that programme participants found useful, there was limited evaluation evidence (as opposed to authors’ opinions) on how the training content, other programmes or external factors made clinicians effective improvement leaders.

3.3.3 Barriers and enablers/facilitators to clinicians having an impact within a department/organisation/the health system

Of the Fellowship programme evaluations, only Walmsley (7) reported evaluation evidence on the enablers and barriers to clinicians having an impact. This was limited by the fact that the evaluations were not of organisational impact and as such the findings are suggestive rather than robust.

Walmsley (7) reported that there was some reluctance for organisations to allow their clinicians to become Fellows. Contractual issues and normal career progression paths may also restrict the influence of a Fellow. Similarly, it reported that organisational capacity and willingness to support Fellows during and post award was variable. Failure to support Fellows was reported to be due to a perceived threat by more senior managers or a lack of time.

Outside of Fellowship programmes, Maynard (5) reported that barriers to clinician impact were a lack of support from local leadership, the constant proliferation of new guidelines and an environment that does not structure investment in quality improvement. As the study and programme were undertaken in the USA, it is a matter of conjecture as to how valid these barriers would be to a UK setting.

Of all the evaluations, as an impact evaluation looking specifically at the impact on patients and processes of the introduction of strategic and operational change agents, Ellison had significant findings on barriers and enablers to the agents being effective (1). The evaluation was wider than just the training received and the training received was about patient care as well as managing change. The evaluation is also about a very specific patient cohort and care pathway. Taking these things into account, the key enablers that resulted in the change agents being able to have an impact on the care pathway were reported as being largely similar to those reported elsewhere, namely that participants were more likely to succeed in effecting change through:

- Pre-existing knowledge, skills, contacts and experience;
- Level of seniority of the trainee;
- Commitment, passion and enthusiasm;
- Sufficient dedicated time and resource.

Aside from barriers being reported as the opposite of these enablers, it was reported that the programme participants were less likely to succeed in effecting change if there was a lack of
engagement, lack of positive attitude to change and lack of support from colleagues and other professionals.

3.3.4 Factors associated with some clinicians having greater success in integrating improvement science into their work

With the exception of the Darzi Fellowships, the evaluations of the other Fellowship programmes reported factors associated with participants integrating what they had learned into their roles after completion of the fellowship.

In the Matrix (4) evaluation of the NHS Institute Leadership Fellowship programme, it was concluded that for Fellows and other interviewees to achieve the intended objectives of the Fellowship Scheme, post-scheme employers need to be sympathetic to Service Improvement (SI) practice.

For the HF Fellowships, Walmsley (7) found that Fellowships that prioritise research did not have enough time to develop competencies around influencing and political astuteness to allow the Fellows to become successful influencers of policy. There was little evidence that clinicians and managers on the Harkness Fellowship, in particular, could use their knowledge unless they changed careers.

3.3.5 Impact of supporting clinicians to lead improvement

Evidence of the impact of supporting clinicians to lead improvement was limited. Although literature reviews were found through the search on networks and collaboratives (12-14), no evaluations were identified which explored how networks support clinicians to lead and the impact this has.

There was little available evidence from the included studies. In the Walmsley (7) study of HF fellowships, several examples were cited of Fellows who completed the programme and went on to lead and drive quality improvement projects. For example, one Fellow introduced a “one stop shop” for minor surgery. Walmsley did conclude that the most important personal attributes for sustainable improvement and tangible impact are responsive and nimble leadership that is able to adapt and respond to changing and unpredictable circumstances. However, this conclusion seemed to be based upon the views of stakeholders in quality improvement projects, rather than necessarily being derived from evaluator evidence from the experience of the participants of the Fellowship programme.

The “Mentoring Implementation” programme reported in Maynard (5) is the closest to a collaborative of the programmes in the included studies. Although it is methodologically weak, the evaluation did report that several mentees have become “champions of change” in their own institutions. Whether this was due to the support provided by the programme is unclear.
Regarding the impact of supporting clinicians, Hardacre (2) concluded that:

“Participants’ perceptions about the personal benefits they obtained from their programme tended to be greater than those about organisational or service benefit.”

3.3.6 Methodologies, best practices and critical success factors for supporting clinicians to lead improvement and/or large scale change

Each of the six UK studies reported programme methodology and success factors in supporting clinicians to lead change.

With respect to the Fellowship programmes, Matrix (4) reported that Fellows would require both “moral and intellectual support” to act as change agents.

Stoll (6) concluded from the evaluation of the Darzi Fellowships from the first year that the following factors were needed to make the project work well:

- Committed and learning-oriented Medical Director;
- Supportive Trust culture;
- Working on “ambitious but appropriate” live projects;
- High quality mentoring learning programme that targets transformational change;
- Combining workplace and external learning;
- Network of support;
- Ongoing monitoring and adaptation addressing programme issues.

For the HF Fellowships, Walmsley (7) stated that evidence was unequivocal across programmes that multidisciplinary learning with exposure to different clinicians and parts of the healthcare system, was of paramount importance in a leadership programme.

The authors concluded that the evidence demonstrated that the method for leadership development is not as important as aligning the tools with individual aims, giving people the time away from their existing roles to develop skills and providing peer support. This is comparable to the findings of Hardacre (2) who reported that the Fellowship programme content that was most important for programme participants was the academic input, informal networking, coaching and action learning.

In the evaluation of the PLP, Lynch (3) made several recommendations on how a learning project can result in individuals becoming successful change leaders:

- Integrate learning with work;
- Choose projects for learning where outcomes can be easily measured;
- Ensure everyone involved in a learning project has realistic expectations;
- Learning sets should be experiential and allow for group feedback;
- Provide opportunity for learning networks to continue after the programme.
Unfortunately it is not clear if these recommendations are based on evidence or author opinion.

Beyond the barriers/enablers outlined previously, Ellison (1) stated that participants were most effective when they were supported properly to develop the knowledge and skills required for the roles both during and after training.
Section 4: Discussion

This report has focussed on robust, long term evaluation evidence on the impact of leadership programmes on clinician leadership of change or quality improvement projects. Overall the evidence was limited in three ways:

- None of the evaluations were long enough to assess the sustained impact of the programmes on leadership outcomes and, therefore, the impact on other areas of interest of this review;
- There was an absence of a counterfactual which, coupled with the self-selecting nature of participants who may already want to become leaders, particularly in Fellowship programmes, means that it is difficult to attribute any effects seen to the programme;
- Studies failed to link elements of the programmes with leadership outcomes and instead focused on changes in participants' self-perceived leadership skills and behaviours.

In addition, there was an absence of evaluation evidence on support networks and collaboratives outside of a poor quality evaluation of a collaborative-like mentoring project in the USA.

4.1 SUMMARY OF EVIDENCE AGAINST THEMES

This review sought evidence on the following questions:

- What are the most successful programmes designed to support clinicians in achieving or driving quality improvement or large scale change within their organisation, e.g. a hierarchy of factors for training to succeed?
- What are the relationships between theory and evidence in relation to the effectiveness of training clinicians to achieve improvement and large scale change within their organisation?
- What methodological issues may be important to consider in future commissioning?
- How far does the current policy context of the NHS in England affect clinicians’ engagement in the improvement agenda?
- What are the research gaps?
- What further research should be commissioned in this area?

Outside of gaps in research, the available evidence to answer these questions was limited. However, there are several key themes that emerged as being consistent across the included evaluations that should be of interest to future leadership programmes and also might help to ensure that clinicians going through such programmes go on to implement their learning.
Although it is not possible from the evidence to say which programmes are the most successful, it is possible to say that leadership programmes have had a positive impact on the leadership skills of participants and their movement into positions of leadership. This suggests that the course content of the programmes considered is at least in part meeting its aims.

Although there is an absence of comparable evidence on different approaches, the available evidence suggests that the aspects of training that seem most useful are the use of real world multi agency change projects as learning tools, the use of mentoring and having the learning linked to individual aims. Whether training in change management, leadership or quality improvement is online or in the classroom, does not seem to be important.

There seems to be consistent evidence that training can be effective in enabling clinicians to become leaders, and the evidence is also consistent that training is not enough. The literature about barriers and enablers to the adoption of what clinicians have learned focuses on attributes of both the trainee and the organisation in which they operate. The evidence suggests that identifying the right people for training is important. Individuals need a desire to lead but also need to have existing personal attributes to make them an effective leader.

The evidence points to the need for a culture of support for change without which leaders will struggle to be successful. This culture of support seems to be characterised in tangible metrics (such as giving clinicians the time to lead change projects outside of their ‘day job’) but also in the form of more intangible support and encouragement from senior management to enable others within the organisation to follow the lead of the clinician undertaking the change or QI project.

4.2 RESEARCH GAPS

From an evaluation of long term projects and programmes perspective, the research gaps are significant.

For each of the key research questions we found only limited evidence.

We did not identify any evaluation evidence on how networks or support collaboratives have and do enable clinicians to lead change. The available evidence is on leadership programmes and this is limited by the lack of true long term studies with counterfactuals. This is understandable given that counterfactual studies are problematic to establish in this area and long-term studies are expensive. Also, healthcare develops so rapidly that looking at the long term impact of a training programme that is no longer run may seem an irrelevant activity today.

Given this, in our opinion, research should focus on clinicians that do, do not and had previously taken up leadership positions, but no longer do, and focus on their experience of what has helped and been a barrier to their leadership development. In our opinion, the
available evidence suggests the importance of organisational culture linked with an individual’s characteristics, goals and training in producing clinician leaders and this relationship should be explored further. For example, a research question that could be posed is: what makes some clinicians more effective leaders than others and are these characteristics that can be identified, learned or developed?

4.3 AVAILABLE EVIDENCE

Although this review included an extensive search for evidence and benefited from the knowledge and input of an experienced virtual reference group, it is not a systematic review and was not conducted with full systematic review methods. Therefore, we cannot be sure that no relevant evaluations have been missed by the search or during the record selection process.

4.4 CONCLUSIONS

Although the available evidence was limited against the original research questions, it does provide some information for the development of future programmes and identifies the need to ensure that the right people for training are identified. It also suggests that those people need to be appropriately supported both during and after training by the organisation in which they operate. The evidence also points to areas for future research, notably in supporting collaboratives and networks that enable clinicians to lead and the link between clinician characteristics, training and support that results in effective leadership.
References


References
APPENDIX A

Review Methods
A systematic review was published in 2007 (15) which had undertaken extensive literature searches for relevant studies. This review includes the findings of that review and so searches for this review were restricted to those published in 2007 onwards and in the English language. Studies with English abstracts but whose full reports were in languages other than English were not eligible for inclusion.

Table A.1  Eligibility criteria for the literature review of training clinicians in leading improvement and large scale change

<table>
<thead>
<tr>
<th>Eligibility criterion</th>
<th>Detail</th>
<th>Exclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population of interest</td>
<td>Study must involve clinicians, (medical doctors, nurses and allied health professionals)</td>
<td>Managers and administrators.</td>
</tr>
<tr>
<td>Interventions</td>
<td>Studies must report training initiatives around quality improvement including QI practitioner training, Collaboratives, networks fellowship programmes and any other initiatives designed to engage and/or support clinicians to lead improvement work.</td>
<td></td>
</tr>
<tr>
<td>Outcomes/Themes</td>
<td>Studies must report long-term evaluations of effectiveness of the training in terms of clinicians’ impact to lead transformational/large-scale, improvement science/&quot;normal&quot; or small-scale improvement and/or change within their organisations or across the NHS.</td>
<td>Short-term (immediate) post-course evaluations; Details of courses and curricula; Planning of training.</td>
</tr>
<tr>
<td>Applicability</td>
<td>Studies and programmes should be relevant to or applicable to the UK and the NHS. Eligible countries: Europe, USA, Canada, Australia and New Zealand.</td>
<td>Countries in Africa, Asia and South America.</td>
</tr>
<tr>
<td>Publication types</td>
<td>Journal articles in English; Reports in English; Conference abstracts in English; Other grey literature in English.</td>
<td>Publications in languages other than English.</td>
</tr>
</tbody>
</table>
A.2: VIRTUAL REFERENCE GROUP

The VRG members were identified through suggestions from NHS IQ and by contacting authors of key reports and resources in the field. YHEC invited potential members to join the VRG by email. VRG members were invited to contribute to the review as follows:

- Commenting on the draft protocol. VRG members had the opportunity to help determine the precise scope addressed by the review question through reading, commenting on and suggesting edits to the project protocol which described the aims and methods of the review;
- Offering suggestions about relevant evidence to include in the review. This was an opportunity for members of the VRG to directly contribute any evidence of relevance to the review or advise the project team of resources to be considered in the review. This supplemented evidence identified by the main literature search;
- Offering advice on the outcomes and themes to be reviewed;
- Reading and commenting on the draft results and assisting with forming recommendations based on the available evidence, ensuring its relevance to the targeted groups. The draft results were made available to the VRG members in late November 2014, which allowed members to provide feedback to inform the development of the recommendations. The VRG were also invited to provide feedback on the complete draft report.

A.3: SEARCH STRATEGY

The literature search was designed to identify studies on the effectiveness of quality improvement training initiatives for clinicians that evaluated the impact of the training on leadership of change and/or improvement.

The strategy was developed for MEDLINE (Ovid interface). The strategy was devised using a combination of subject indexing terms and free text search terms in the title and abstract fields. The search terms were identified through discussion between the research team, by scanning background literature, by browsing database thesauri and through the use of the PubMed PubReminer tool (http://hgserver2.amc.nl/cgi-bin/miner/miner2.cgi).

The topic is difficult to capture efficiently within a search strategy; this context was discussed in early project communications. A focused strategy was developed to ensure a manageable number of records to assess for relevance. The bibliographic database search strategy was not designed to be comprehensive, but was complemented by the more specific searches on known programmes, citation searching and any specific documents known to members of the VRG.

The draft strategy used highly pragmatic approaches to target records which were most likely to be relevant to the review question. The strategy excluded some publication types which were unlikely to yield study reports: editorials, news items and letters. Studies which were indexed with subject headings for geographic regions outside those of interest (and which were not also indexed with subject headings for regions of interest) were excluded, as
were animal studies using a standard algorithm. It was agreed with NHS IQ that searches would be limited to studies published in English language from 2007 to date. This date reflects the search date of the systematic review by Boonyasai et al. (15).

The MEDLINE strategy was translated appropriately for other databases. The strategy for MEDLINE is shown in Figure A.1 and the full strategies (including search dates) are included in the appendix.

**Figure A.1** Search strategy for Ovid MEDLINE(R) In-Process & Other Non-indexed Citations and Ovid MEDLINE(R) <1946 to Present>

<table>
<thead>
<tr>
<th>Step</th>
<th>Search Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>((educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or &quot;communit$ of practice&quot; or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency) and (quality adj3 improv$)).ti.</td>
</tr>
<tr>
<td>2</td>
<td>((educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or &quot;communit$ of practice&quot; or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency) and (QI or CQI or total quality management or TQM or &quot;plan do study&quot; or PDSA or &quot;plan do check&quot; or PDCA or six sigma or CANDO or TQIS or breakthrough series or break-through series or &quot;practice-based learning and improvement&quot; or PBLI or system-based or systems-based or system thinking or systems thinking or human factor$ analysis or process-mapping or root-cause$ analysis)).ti.</td>
</tr>
<tr>
<td>3</td>
<td>((educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or &quot;communit$ of practice&quot; or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency) and (deliver$ adj2 improv$)).ti.</td>
</tr>
<tr>
<td>4</td>
<td>(educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or &quot;communit$ of practice&quot; or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency) and (quality improvement$ or QI or CQI).ab. /freq=3</td>
</tr>
<tr>
<td>5</td>
<td>(QIC or QICs).ti,ab,kf.</td>
</tr>
<tr>
<td>6</td>
<td>or/1-6</td>
</tr>
<tr>
<td>7</td>
<td>*health personnel/ or exp *Allied Health Personnel/ or exp *medical staff/ or exp *nurses/ or *nursing staff/ or exp *physicians/</td>
</tr>
<tr>
<td>8</td>
<td>((health$ or medical or clinical) adj2 (staff or professional$ or practitioner$ or personnel)).ti,ab,kf.</td>
</tr>
<tr>
<td>9</td>
<td>(clinician$ or doctor$ or physician$ or GP or GPs or general practitioner$ or family practitioner$ or medic or medics).ti,ab,kf.</td>
</tr>
<tr>
<td>10</td>
<td>(nurse or nurses or nursing).ti,ab,kf.</td>
</tr>
</tbody>
</table>
Appendix A

(12) (allied adj3 (staff or profession$ or practitioner$ or personnel or medicine)).ti,ab,kf. (2671)
(13) (AHP or AHPs or PAM or PAMs).ti,ab,kf. (6627)
(14) or/8-13 (1000739)
(15) *education/ or exp *curriculum/ or *education, distance/ or exp *education, professional/ or exp *inservice training/ or exp *teaching/ (217760)
(16) (educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or "communit$ of practice" or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competen$ty).ti,ab,kf. (1230465)
(17) or/15-16 (1295383)
(18) Quality Improvement/ (6282)
(19) *Total Quality Management/ (7016)
(20) *Quality Assurance, Health Care/ (28449)
(21) (quality improvement$ or QI or CQI or total quality management or TQM).ti,ab,kf. (21498)
(22) or/18-21 (54812)
(23) Leadership/ (28169)
(24) (leader$1 or leadership).ti,ab,kf. (48986)
(25) ((lead or leads or leading) adj3 (chang$ or improv$)).ti,ab,kf. (34416)
(26) *Organizational Innovation/ (3902)
(27) ((manag$ or implement$ or develop$ or engag$ or integrat$ or agent$1 or champion$1) adj3 (chang$ or improv$)).ti,ab,kf. (90010)
(28) or/23-27 (186757)
(29) 14 and 17 and 22 and 28 (1344)
(30) 7 or 29 (3703)
(31) (exp africa/ or exp caribbean region/ or exp central america/ or "gulf of mexico"/ or latin america/ or exp south america/ or antarctic regions/ or arctic regions/ or exp asia/) not (exp north america/ or exp europe/ or exp australia/ or exp new zealand/) (757924)
(32) exp animals/ not humans/ (4016039)
(33) (editorial or news or letter).pt. (1393120)
(34) 30 not (31 or 32 or 33) (3458)
(35) limit 34 to (english language and yr="2007 -Current") (2029)
(36) remove duplicates from 35 (1942)

Key to Ovid symbols and commands
.ti,ab,kf. Restrictions search to title, abstract and keyword headings fields
/ Restricts search to Medical Subject Headings (MeSH)
* Searches the Medical Subject Headings (MeSH) as a major descriptor only
$ Truncation symbol
adjn Words must appear with n words of each other
ab. /freq=n Records containing the term are retrieved only if that term occurs at least n times in the abstract
.pt. Restrictions search to publication type field
The literature search was conducted using a range of relevant bibliographic databases and other information sources containing both published and grey literature. Relevant publications were also identified by the research team, NHS IQ and the VRG. Searches for related and follow-up work were conducted using identified studies and prominent authors. Citation searches were carried out on key identified publications including the previous systematic review by Boonyasai (15) on training clinicians in quality improvement (see Section A.1).

Evidence from literature reviews was not included although the reviews themselves were checked to obtain any valid primary studies contained within the review that had not been picked up by the review. This did not result in the inclusion of any additional studies to the review.

A.4: ELECTRONIC DATABASES AND INFORMATION SOURCES

Table A.2 Information resources searched for documents reporting the effectiveness of trained clinicians as improvement leaders review

<table>
<thead>
<tr>
<th>Information resources to be searched for the review</th>
<th>Interface/access</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEDLINE and MEDLINE in process</td>
<td>via Ovid</td>
</tr>
<tr>
<td>EMBASE</td>
<td>via Ovid</td>
</tr>
<tr>
<td>Cochrane Database of Systematic Reviews (CDSR), Cochrane Central Register of Controlled Trials (CENTRAL), Database of Abstracts of Reviews of Effects (DARE), Health Technology Assessment Database (HTA Database)</td>
<td>In the Cochrane Library</td>
</tr>
<tr>
<td>Health Management Information Consortium (HMIC)</td>
<td>via Ovid</td>
</tr>
<tr>
<td>Websites of key organisations such as the Kings Fund, the Health Foundation, the Healthcare Quality Improvement Partnership, Faculty of Medical Leadership and Management, Advancing Quality Alliance, NHS Leadership Academy, NHS Institute for Innovation and Improvement, Institute for Healthcare Improvement and the Royal Colleges</td>
<td>Websites</td>
</tr>
<tr>
<td>Citation searches on key papers</td>
<td>Web of Science (Science Citation Indexes)</td>
</tr>
<tr>
<td>ERIC (educational research database)</td>
<td>EBSCO</td>
</tr>
<tr>
<td>PsycINFO (psychological literature)</td>
<td>PsycINFO</td>
</tr>
<tr>
<td>CINAHL</td>
<td>EBSCO</td>
</tr>
<tr>
<td>Business Source Premier</td>
<td>EBSCO</td>
</tr>
<tr>
<td>Google search using the NHS site limit and other organisational limits</td>
<td>Google</td>
</tr>
</tbody>
</table>

All of the search strategies are reported in detail in Appendix B. Where possible, the search results were loaded into EndNote bibliographic software. Where results format did not facilitate loading into EndNote, Word documents and Excel spreadsheets were used as appropriate.
A.5: STUDY SELECTION

Records were scanned for relevance to the review question based on information in the title and abstract. Irrelevant records (such as programmes for training managers and administrators rather than clinicians) were removed.

After the removal of the irrelevant records, electronic or paper copies of potentially eligible documents were obtained. The documents were assessed in detail for relevance to the review question.

A.6: DATA EXTRACTION AND QUALITY ASSESSMENT

The data extracted from each relevant study included the following elements:

- Bibliographic details of the document;
- Country of study;
- Study objectives;
- Numbers of participants in the programme/evaluation of the programme;
- Study type;
- Purpose and description of training, including relevance to the NHS and UK;
- Type of measurement for quality of care;
- Evidence of the impact of training on clinicians in terms of:
  - Leadership outcomes (change in outcome after training);
  - Factors identified that make clinicians' effective improvement leaders;
  - Clinicians' roles in improvement and implementing large scale change;
  - Barriers and enablers to clinicians having an impact within their department/organisation/health system;
  - Factors associated with some clinicians having greater success in integrating improvement science into their work;
  - Impact of supporting clinicians to lead improvement;
  - Methodologies, best practices and critical success factors for supporting clinicians to lead improvement and/or large scale change.

Studies were data extracted by one researcher and were checked by a second researcher. Disagreements were resolved by reference to a third researcher.
A.7: DATA SYNTHESIS

Data, themes and issues were summarised to answer the following questions:

- What are the most successful programmes designed to support clinicians in achieving or driving quality improvement or large scale change within their organisation, e.g. a hierarchy of factors for training to succeed?
- What are the relationships between theory and evidence in relation to the effectiveness of training clinicians to achieve improvement and large scale change within their organisation?
- What methodological issues may be important to consider in future commissioning?
- How far does the current policy context of the NHS in England affects clinicians’ engagement in the improvement agenda?
- What are the research gaps?
- What further research should be commissioned in this area?

A.8: RESULTS OF THE LITERATURE SEARCH

Table A.3 Literature search results

<table>
<thead>
<tr>
<th>Resource</th>
<th>Number of records identified</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEDLINE and MEDLINE In-Process</td>
<td>1942</td>
</tr>
<tr>
<td>EMBASE</td>
<td>2981</td>
</tr>
<tr>
<td>Cochrane Database of Systematic Reviews (CDSR)</td>
<td>4</td>
</tr>
<tr>
<td>Cochrane Central Register of Controlled Trials (CENTRAL)</td>
<td>222</td>
</tr>
<tr>
<td>DARE Database of Abstracts of Reviews of Effects (DARE)</td>
<td>40</td>
</tr>
<tr>
<td>Health Technology Assessment Database (HTA)</td>
<td>16</td>
</tr>
<tr>
<td>PsycINFO</td>
<td>647</td>
</tr>
<tr>
<td>CINAHL</td>
<td>1877</td>
</tr>
<tr>
<td>HMIC (Health Management Information Consortium)</td>
<td>253</td>
</tr>
<tr>
<td>Business Source Premier</td>
<td>268</td>
</tr>
<tr>
<td>ERIC</td>
<td>86</td>
</tr>
<tr>
<td>Kings Fund website</td>
<td>6</td>
</tr>
<tr>
<td>Health Foundation website</td>
<td>32</td>
</tr>
<tr>
<td>Healthcare Quality Improvement Partnership website</td>
<td>0</td>
</tr>
<tr>
<td>Faculty of Medical Leadership and Management website</td>
<td>0</td>
</tr>
<tr>
<td>Advancing Quality Alliance website</td>
<td>0</td>
</tr>
<tr>
<td>NHS Leadership Academy website</td>
<td>1</td>
</tr>
<tr>
<td>NHS Institute for Innovation and Improvement website</td>
<td>2</td>
</tr>
<tr>
<td>Institute for Healthcare Improvement website</td>
<td>10</td>
</tr>
<tr>
<td>Royal College of Nursing website</td>
<td>3</td>
</tr>
<tr>
<td>Royal College of Physicians website</td>
<td>3</td>
</tr>
<tr>
<td>Royal College of General Practitioners website</td>
<td>0</td>
</tr>
<tr>
<td>Google</td>
<td>11</td>
</tr>
<tr>
<td>Science Citation Index Expanded (SCI-EXPANDED) -1900-present/ Conference Proceedings Citation Index- Science (CPCI-S) -1990-present (citation search)</td>
<td>18</td>
</tr>
<tr>
<td>TOTAL</td>
<td>8422</td>
</tr>
<tr>
<td>TOTAL after de-duplication</td>
<td>4979</td>
</tr>
</tbody>
</table>
Figure A.2  Study selection process

Search records, identified through database searching (n = 8422)

Additional records identified through other sources (n = 121)

Records after duplicates and those excluded by original search removed (n = 5098)

Records excluded on title/abstract (n = 4930)

Total reports excluded (n = 161)
  - Ineligible outcomes (n = 149)
    - Published pre-2007 (n = 6)
    - Findings reported elsewhere (n = 4)
    - Ineligible population (n = 2)

Reports assessed (n = 168)

Studies included in review (7 reports)
APPENDIX B

Search Strategies
Search strategies

B.1: Source: Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations and Ovid MEDLINE(R) 1946 to Present

Interface/URL: OvidSP
Search date: 03/10/14
Retrieved records: 1942
Search strategy:

1. ((educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or "communit$ of practice" or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency) and (quality adj3 improv$)).ti. (958)
2. ((educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or "communit$ of practice" or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency) and (QI or CQI or total quality management or TQM or "plan do study" or PDSA or "plan do check" or PDCA or six sigma or CANDO or TQIS or breakthrough series or break-through series or "practice-based learning and improvement" or PBLI or system-based or systems-based or system thinking or systems thinking or human factor$ analysis or process-mapping or root-cause$ analysis)).ti. (352)
3. ((educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or "communit$ of practice" or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency) and (deliver$ adj2 improv$)).ti. (22)
4. ((educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or "communit$ of practice" or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency or program$ or project$ or model$1 or intervention$1).ti. and (quality improvement$ or QI or CQI).ab. /freq=3 (798)
5. ((educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or "communit$ of practice" or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency) adj3 (quality improvement$ or QI or CQI or total quality management or TQM)).ab. (1063)
6. (QIC or QICs).ti,ab,kf. (76)
7. or/1-6 (2615)
8. *health personnel/ or exp *Allied Health Personnel/ or exp *medical staff/ or exp *nurses/ or *nursing staff/ or exp *physicians/ (179618)
9. ((health$ or medical or clinical) adj2 (staff or professional$ or practitioner$ or personnel)).ti,ab,kf. (102074)
10. (clinician$ or doctor$ or physician$ or GP or GPs or general practitioner$ or family practitioner$ or medic or medics).ti,ab,kf. (548710)
11. (nurse or nurses or nursing).ti,ab,kf. (340472)
B.2: Source: Embase 1974 to 2014 October 02

Interface / URL: OvidSP
Search date: 03/10/13
Retrieved records: 2981
Search strategy:

1 ((educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$ or "communit$ of practice" or network$ or bursary or bursaries or fellowship$ or professional development or CPD or recertificat$ or CME or competencies or competency)).ti,ab,kf. (2671)
2 (AHP or AHPs or PAM or PAMs).ti,ab,kf. (6627)
3 or/8-13 (1000739)
4 *education/ or exp *curriculum/ or *education, distance/ or exp *education, professional/ or exp *inservice training/ or exp *teaching/ (217760)
5 (educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$ or "communit$ of practice" or network$ or bursary or bursaries or fellowship$ or professional development or CPD or recertificat$ or CME or competencies or competency).ti,ab,kf. (1230465)
6 or/15-16 (1295383)
7 Quality Improvement/ (6282)
8 *Total Quality Management/ (7016)
9 *Quality Assurance, Health Care/ (28449)
10 (quality improvement$ or QI or CQI or total quality management or TQM).ti,ab,kf. (21498)
11 or/18-21 (54812)
12 Leadership/ (28169)
13 (leader$ or leadership).ti,ab,kf. (48986)
14 ((lead or leads or leading) adj3 (chang$ or improv$)).ti,ab,kf. (34416)
15 *Organizational Innovation/ (3902)
16 ((manag$ or implement$ or develop$ or engag$ or integrat$ or agent$ or champion$) adj3 (chang$ or improv$)).ti,ab,kf. (90010)
17 or/23-27 (186757)
18 14 and 17 and 22 and 28 (1344)
19 7 or 29 (3703)
20 (exp africa/ or exp caribbean region/ or exp central america/ or "gulf of mexico"/ or latin america/ or exp south america/ or antarctic regions/ or arctic regions/ or exp asia/) not (exp north america/ or exp europe/ or exp australia/ or exp new zealand/) (757924)
21 exp animals/ not humans/ (4016039)
22 (editorial or news or letter).pt. (1393120)
23 30 not (31 or 32 or 33) (3458)
24 limit 34 to (english language and yr="2007 -Current") (2029)
25 remove duplicates from 35 (1942)
or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency) and (quality adj3 improv$)).ti. (1200)

2  ((educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or "communit$ of practice" or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency) and (QI or CQI or total quality management or TQM or "plan do study" or PDSA or "plan do check" or PDCA or six sigma or CANDO or TQIS or breakthrough series or break-through series or "practice-based learning and improvement" or PBLI or system-based or systems-based or system thinking or systems thinking or human factor$ analysis or process-mapping or root-cause$ analysis)).ti. (406)

3  ((educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or "communit$ of practice" or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency) and (deliver$ adj2 improv$)).ti. (28)

4  (educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or "communit$ of practice" or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency or program$ or project$ or model$1 or intervention$1).ti. and (quality improvement$ or QI or CQI).ab. /freq=3 (1043)

5  ((educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or "communit$ of practice" or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency) adj3 (quality improvement$ or QI or CQI or total quality management or TQM)).ab. (1409)

6  (QIC or QICs).ti,ab,kw. (92)

7  or/1-6 (3344)

8  *health care personnel/ or exp *paramedical personnel/ or exp *medical personnel/ (356398)

9  ((health$ or medical or clinical) adj2 (staff or professional$ or practitioner$ or personnel)).ti,ab,kw. (127437)

10  (clinician$ or doctor$ or physician$ or GP or GPs or general practitioner$ or family practitioner$ or medic or medics).ti,ab,kw. (705578)

11  (nurse or nurses or nursing).ti,ab,kw. (376195)

12  (allied adj3 (staff or profession$ or practitioner$ or personnel or medicine)).ti,ab,kw. (3621)

13  (AHP or AHPs or PAM or PAMs).ti,ab,kw. (7652)

14  or/8-13 (1318434)

15  *education/ or *curriculum/ or *vocational education/ or exp *medical education/ or exp *paramedical education/ or *continuing education/ or *education program/ or *in service training/ or *staff training/ or exp *teaching/ (279206)

16  (educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or "communit$ of practice" or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency).ti,ab,kw. (1473037)

17  or/15-16 (1571870)

18  *total quality management/ (10530)

Appendix B
Appendix B

B.3: Source: Cochrane Database of Systematic Reviews (CDSR) - Issue 10 of 12, October 2014

Interface/URL: Cochrane Library/Wiley Interscience
Search date: 03/10/14
Retrieved records: 4
Search strategy:

#1 ((educat* or train* or teach* or leam* or curriculum* or curricula* or collaborative* or commun* next of next practice or network* or bursary or bursaries or fellowship* or fellowship* or "professional development" or CPD or recertific* or re-certific* or CME or competencies or competency) and (quality near/3 improv*)):ti 152
#2 ((educat* or train* or teach* or leam* or curriculum* or curricula* or collaborative* or commun* next of next practice or network* or bursary or bursaries or fellowship* or fellowship* or "professional development" or CPD or recertific* or re-certific* or CME or competencies or competency) and (QI or CQI or "total quality management" or TQM or "plan do study" or PDSA or "plan do check" or PDCA or "six sigma" or CANDO or TQIS or "breakthrough series" or "break-through series" or "practice-based learning and improvement" or PBLI or "system-based" or "systems-based" or "system thinking" or "systems thinking" or human next factor* next analysis or process-mapping or root-cause* next analysis)):ti 12
Appendix B

#3 ((educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or
communit* next of next practice or network* or bursary or bursaries or fellowship* or fellow-
ship* or "professional development" or CPD or recertificat* or re-certificat* or CME or
competencies or competency) and (deliver* near/2 improv*)):ti 5
#4 (educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or
communit* next of next practice or network* or bursary or bursaries or fellowship* or fellow-
ship* or "professional development" or CPD or recertificat* or re-certificat* or CME or
competencies or competency or program* or project* or model* or intervention*):ti and
(quality next improvement* or QI or CQI or "total quality management" or TQM):ab 207
#5 ((educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or
communit* next of next practice or network* or bursary or bursaries or fellowship* or fellow-
ship* or "professional development" or CPD or recertificat* or re-certificat* or CME or
competencies or competency) near/3 (quality next improvement* or QI or CQI or "total
quality management" or TQM):ab 58
#6 (QIC or QICs):ti,ab 0
#7 (13-#6) 369
#8 [mh ""health personnel"] or [mh "Allied Health Personnel"] or [mh "medical staff"] or
[mh nurses] or [mh "nursing staff"] or [mh physicians] 3648
#9 ((health* or medical or clinical) near/2 (staff or professional* or practitioner* or
personnel)):ti,ab,kw 6078
#10 (clinician* or doctor* or physician* or GP or GPs or general next practitioner* or
family next practitioner* or medic or medics):ti,ab,kw 27550
#11 (nurse or nurses or nursing):ti,ab,kw 15138
#12 (allied near/3 (staff or profession* or practitioner* or personnel or medicine)):ti,ab,kw
294
#13 (AHP or AHPs or PAM or PAMs):ti,ab,kw 188
#14 (13-#13) 43762
#15 [mh "education] or [mh curriculum] or [mh "education, distance"] or [mh "education,
professional"] or [mh "inservice training"] or [mh teaching] 6190
#16 (educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or
communit* next of next practice or network* or bursary or bursaries or fellowship* or fellow-
ship* or "professional development" or CPD or recertificat* or re-certificat* or CME or
competencies or competency):ti,ab,kw 72309
#17 #15 or #16 72579
#18 [mh "Quality Improvement"] 197
#19 [mh "Total Quality Management"] 172
#20 [mh "Quality Assurance, Health Care"] 731
#21 (quality next improvement* or QI or CQI or "total quality management" or
TQM):ti,ab,kw 1892
#22 {or #18-#21} 2517
#23 [mh "Leadership"] 135
#24 leader*:ti,ab,kw 800
#25 ((lead or leads or leading) near/3 (chang* or improv*)):ti,ab,kw 2541
#26 [mh "Organizational Innovation"] 100
#27 ((manag* or implement* or develop* or engag* or integrat* or agent* or champion*)
near/3 (chang* or improv*)):ti,ab,kw 4099
B.4: Source: Cochrane Central Register of Controlled Trials (CENTRAL) - Issue 9 of 12, September 2014

Interface/URL: Cochrane Library/Wiley Interscience
Search date: 03/10/14
Retrieved records: 222
Search strategy:

#1 ((educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or communit* next of next practice or network* or bursary or bursaries or fellowship* or fellowship* or "professional development" or CPD or recertificat* or re-certificat* or CME or competencies or competency) and (quality near/3 improv*)):ti 152
#2 ((educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or communit* next of next practice or network* or bursary or bursaries or fellowship* or "professional development" or CPD or recertificat* or re-certificat* or CME or competencies or competency) and (QI or CQI or "total quality management" or TQM or "plan do study" or PDSA or "plan do check" or PDCA or "six sigma" or CANDO or TQIS or "breakthrough series" or "break-through series" or "practice-based learning and improvement" or PBLI or "system-based" or "systems-based" or "system thinking" or "systems thinking" or human next factor* next analysis or process-mapping or root-cause* next analysis)):ti 12
#3 ((educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or communit* next of next practice or network* or bursary or bursaries or fellowship* or "professional development" or CPD or recertificat* or re-certificat* or CME or competencies or competency) and (deliver* near/2 improv*)):ti 5
#4 (educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or communit* next of next practice or network* or bursary or bursaries or fellowship* or fellowship* or "professional development" or CPD or recertificat* or re-certificat* or CME or competencies or competency) and (quality next improvement* or QI or CQI or "total quality management" or TQM):ab 207
#5 ((educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or communit* next of next practice or network* or bursary or bursaries or fellowship* or fellowship* or "professional development" or CPD or recertificat* or re-certificat* or CME or competencies or competency or program* or project* or model* or intervention*):ti and (quality next improvement* or QI or CQI or "total quality management" or TQM):ab 58
#6 (QIC or QICs):ti,ab 0
#7 (13-#6) 369
#8 [mh "health personnel"] or [mh "Allied Health Personnel"] or [mh "medical staff"] or [mh nurses] or [mh "nursing staff"] or [mh physicians] 3648
#9 ((health* or medical or clinical) near/2 (staff or professional* or practitioner* or personnel)) 8944
#10 (clinician* or doctor* or physician* or GP or GPs or general next practitioner* or family next practitioner* or medic or medics) 45144
#11 (nurse or nurses or nursing) 25119
#12 (allied near/3 (staff or profession* or practitioner* or personnel or medicine)) 764
#13 (AHP or AHPs or PAM or PAMs) 310
#14 (13-#13) 68169
#15 [mh ^education] or [mh curriculum] or [mh ^"education, distance"] or [mh "education, professional"] or [mh "inservice training"] or [mh teaching] 6190
#16 (educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or communit* next of next practice or network* or bursary or bursaries or fellowship* or fellowship* or "professional development" or CPD or recertificat* or re-certificat* or CME or competencies or competency) 90044
#17 #15 or #16 90230
#18 [mh ^"Quality Improvement"] 197
#19 [mh ^"Total Quality Management"] 172
#20 [mh ^"Quality Assurance, Health Care"] 731
#21 (quality next improvement* or QI or CQI or "total quality management" or TQM) 3125
#22 {or #18-#21} 3738
#23 [mh ^Leadership] 135
#24 leader* 1414
#25 ((lead or leads or leading) near/3 (chang* or improv*)) 3397
#26 [mh "Organizational Innovation"] 100
#27 ((manag* or implement* or develop* or engag* or integrat* or agent* or champion*) near/3 (chang* or improv*)) 5060
#28 {or #23-#27} 9379
#29 #14 and #17 and #22 and #28 254
#30 #7 or #29 586
#31 #30 Publication Year from 2007 to 2014, in Trials 222

B.5: Source: Database of Abstracts of Reviews of Effects (DARE) - Issue 3 of 4, Jul 2014

Interface/URL: Cochrane Library/Wiley Interscience
Database coverage dates:
Search date: 03/10/14
Retrieved records: 40
Search strategy:

#1 ((educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or communit* next of next practice or network* or bursary or bursaries or fellowship* or fellowship* or "professional development" or CPD or recertificat* or re-certificat* or CME or competencies or competency) and (quality near/3 improv*)):ti 152

Appendix B
Appendix B viii

#2 ((educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or communit* next of next practice or network* or bursary or bursaries or fellowship* or fellowship* or "professional development" or CPD or recertificat* or re-certificat* or CME or competencies or competency) and (QI or CQI or "total quality management" or TQM or "plan do study" or PDSA or "plan do check" or PDCA or "six sigma" or CANDO or TQIS or "break-through series" or "break-through series" or "practice-based learning and improvement" or PBLI or "system-based" or "systems-based" or "system thinking" or "systems thinking" or human next factor* next analysis or process-mapping or root-cause* next analysis)):ti 12

#3 ((educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or communit* next of next practice or network* or bursary or bursaries or fellowship* or fellowship* or "professional development" or CPD or recertificat* or re-certificat* or CME or competencies or competency) and (deliver* near/2 improv*)):ti 5

#4 (educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or communit* next of next practice or network* or bursary or bursaries or fellowship* or fellowship* or "professional development" or CPD or recertificat* or re-certificat* or CME or competencies or competency or program* or project* or model* or intervention*):ti and (quality near/3 improvement* or QI or CQI or "total quality management" or TQM) 530

#5 ((educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or communit* next of next practice or network* or bursary or bursaries or fellowship* or fellowship* or "professional development" or CPD or recertificat* or re-certificat* or CME or competencies or competency or program* or project* or model* or intervention*)):ti and (quality near/3 improvement* or QI or CQI or "total quality management" or TQM)) 125

#6 (QIC or QICs) 0

#7 (13-#6) 692

#8 [mh "health personnel"] or [mh "Allied Health Personnel"] or [mh "medical staff"] or [mh nurses] or [mh "nursing staff"] or [mh physicians] 3648

#9 ((health* or medical or clinical) near/2 (staff or professional* or practitioner* or personnel)) 8944

#10 (clinician* or doctor* or physician* or GP or GPs or general next practitioner* or family next practitioner* or medic or medics) 45144

#11 (nurse or nurses or nursing) 25119

#12 (allied near/3 (staff or profession* or practitioner* or personnel or medicine)) 764

#13 (AHP or AHPs or PAM or PAMs) 310

#14 (13-#13) 68169

#15 [mh "education"] or [mh curriculum] or [mh "education, distance"] or [mh "education, professional"] or [mh "inservice training"] or [mh teaching] 6190

#16 (educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or communit* next of next practice or network* or bursary or bursaries or fellowship* or fellowship* or "professional development" or CPD or recertificat* or re-certificat* or CME or competencies or competency) 90044

#17 #15 or #16 90230

#18 [mh "Quality Improvement"] 197

#19 [mh "Total Quality Management"] 172

#20 [mh "Quality Assurance, Health Care"] 731
Appendix B

Source: Health Technology Assessment Database (HTA) - Issue 3 of 4, Jul 2014

Interface/URL: Cochrane Library/Wiley Interscience
Search date: 03/10/14
Retrieved records: 16
Search strategy:

#1 ((educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or communit* next of next practice or network* or bursary or bursaries or fellowship* or fellowship* or "professional development" or CPD or recertificat* or re-certificat* or CME or competencies or competency) and (quality near/3 improv*)):ti 152
#2 ((educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or communit* next of next practice or network* or bursary or bursaries or fellowship* or fellowship* or "professional development" or CPD or recertificat* or re-certificat* or CME or competencies or competency) and (QI or CQI or "total quality management" or TQM or "plan do study" or PDSA or "plan do check" or PDCA or "six sigma" or CANDO or TQIS or "breakthrough series" or "break-through series" or "practice-based learning and improvement" or PBLI or "system-based" or "systems-based" or "system thinking" or "systems thinking" or human next factor* next analysis or process-mapping or root-cause* next analysis)):ti 12
#3 ((educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or communit* next of next practice or network* or bursary or bursaries or fellowship* or fellowship* or "professional development" or CPD or recertificat* or re-certificat* or CME or competencies or competency) and (deliver* near/2 improv*)):ti 5
#4 (educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or communit* next of next practice or network* or bursary or bursaries or fellowship* or fellowship* or "professional development" or CPD or recertificat* or re-certificat* or CME or competencies or competency or program* or project* or model* or intervention*):ti and (quality next improvement* or QI or CQI or "total quality management" or TQM) 530
Appendix B

Source: PsycINFO 1806 to October Week 1 2014

Interface/URL: OvidSP
Search date: 06/10/14
Retrieved records: 647

Search strategy:

1. (((educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or "communit$ of practice" or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency) and (quality adj3 improv$)).ti. (229)

2. (((educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or "communit$ of practice" or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency) and (QI or CQI or total quality management or TQM or "plan do study" or PDSA or "plan do check" or PDCA or six sigma or CANDO or TQIS or breakthrough series or break-through series or "practice-based learning and improvement" or PBLI or system-based or systems-based or system thinking or systems thinking or human factor$ analysis or process-mapping or root-cause$ analysis)).ti. (176)

3. (((educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or "communit$ of practice" or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency) and (deliver$ adj2 improv$)).ti. (9)

4. (educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or "communit$ of practice" or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency or program$ or project$ or model$1 or intervention$1).ti. and (quality improvement$ or QI or CQI).ab. /freq=3 (139)

5. (((educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or "communit$ of practice" or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency or program$ or project$ or model$1 or intervention$1).ti. and (quality improvement$ or QI or CQI or total quality management or TQM))).ab. (252)

6. (QIC or QICs).ti,ab,id. (13)

7. or/1-6 (679)

8. *health personnel/ or exp *allied health personnel/ or exp *medical personnel/ or *clinicians/ (57822)

9. (((health$ or medical or clinical) adj2 (staff or professional$ or practitioner$ or personnel)).ti,ab,id. (48934)

10. (clinician$ or doctor$ or physician$ or GP or GPs or general practitioner$ or family practitioner$ or medic or medics).ti,ab,id. (140833)

11. (nurse or nurses or nursing).ti,ab,id. (68878)

12. (allied adj3 (staff or profession$ or practitioner$ or personnel or medicine)).ti,ab,id. (1181)

13. (AHP or AHPs or PAM or PAMs).ti,ab,id. (819)

14. or/8-13 (248471)
*education/ or *curriculum/ or *distance education/ or *professional development/ or exp *continuing education/ or *training/ or exp *personnel training/ or *teaching/ (81563)
16 (educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or "communit$ of practice" or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency).ti,ab,id. (965529)
17 or/15-16 (970414)
18 exp "quality of services"/ (13644)
19 quality control/ (1224)
20 (quality improvement$ or QI or CQI or total quality management or TQM).ti,ab,id. (3530)
21 or/18-20 (16570)
22 exp leadership/ (28659)
23 (leader$1 or leadership).ti,ab,id. (64522)
24 ((lead or leads or leading) adj3 (chang$ or improv$)).ti,ab,id. (6958)
25 *innovation/ (4723)
26 exp *organizational change/ (8100)
27 ((manag$ or implement$ or develop$ or engag$ or integrat$ or agent$1 or champion$1) adj3 (chang$ or improv$)).ti,ab,id. (32767)
28 or/22-27 (110794)
29 14 and 17 and 21 and 28 (368)
30 7 or 29 (996)
31 (editorial or letter).dt. (45730)
32 30 not 31 (967)
33 limit 32 to (english language and yr="2007 -Current") (647)

B.8: Source: CINAHL Plus

Interface/URL: EBSCO Host
Search date: 06/10/14
Retrieved records: 1877
Search strategy:

S47 S43 not (S44 or S45) Limiters - Published Date: 20070101-20151231; English Language 1,877
S46 S43 not (S44 or S45) 2,989
S45 PT (editorial or letter) 380,417
S44 ((MH "Africa+") OR (MH "Central America+") OR (MH "Latin America") OR (MH "South America+") OR (MH "West Indies+") OR (MH "Antarctic Regions") OR (MH "Arctic Regions") OR (MH "Asia+") OR (MH "Atlantic Islands+") OR (MH "Indian Ocean Islands+") OR (MH "Melanesia+") OR (MH "Micronesia+") OR (MH "Polynesia+")) not ((MH "North America+") OR (MH "Australia+") OR (MH "Europe+") OR (MH "New Zealand")) 201,660
S43 S7 OR S42 3,152
S42 S30 AND S34 AND S41 968
S41 S35 OR S36 OR S37 OR S38 OR S39 OR S40 76,654
S40  TI ((manag* or implement* or develop* or engag* or integrat* or agent* or champion*) N3 (chang* or improv*)) or AB ((manag* or implement* or develop* or engag* or integrat* or agent* or champion*) N3 (chang* or improv*))  25,081
S39  (MM "Organizational Change")  3,434
S38  (MM "Change Management")  3,156
S37  TI ((lead or leads or leading) N3 (chang* or improv*)) or AB ((lead or leads or leading) N3 (chang* or improv*))  5,388
S36  TI leader* or AB leader*  30,946
S35  (MH "Leadership")  25,177
S34  S31 OR S32 OR S33  40,171
S33  TI ("quality improvement** or QI or CQI or "total quality management" or TQM) or AB ("quality improvement** or QI or CQI or "total quality management" or TQM)  9,859
S32  (MM "Quality Assurance")  8,979
S31  (MH "Quality Improvement")  27,991
S30  S24 OR S25 OR S26 OR S27 OR S28 OR S29  148,681
S29  S14 AND S23  144,671
S28  (MM "Physicians+/ED")  2,220
S27  (MM "Nurses+/ED")  4,448
S26  (MM "Medical Staff+/ED")  393
S25  (MM "Allied Health Personnel+/ED")  3,927
S24  (MM "Health Personnel+/ED")  1,950
S23  S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21 OR S22  407,259
S22  TI (educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or "communit* of practice" or network* or bursary or bursaries or fellowship* or "fellow-ship** or "professional development" or CPD or recertificat* or "re-certificat* or CME or competencies or competency) or AB (educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or "communit* of practice" or network* or bursary or bursaries or fellowship* or "fellow-ship** or "professional development" or CPD or recertificat* or "re-certificat* or CME or competencies or competency)  398,403
S21  (MM "Teaching")  3,019
S20  (MM "Education, Competency-Based")  1,092
S19  (MM "Education, Continuing+")  12,972
S18  (MM "Refresher Courses")  511
S17  (MM "Education, Non-Traditional")  4,729
S16  (MM "Curriculum+")  8,812
S15  (MM "Education")  2,792
S14  S8 OR S9 OR S10 OR S11 OR S12 OR S13  628,408
S13  TI (AHP or AHPs or PAM or PAMs) or AB (AHP or AHPs or PAM or PAMs)  744
S12  TI (allied N3 (staff or profession* or practitioner* or personnel or medicine)) or AB (allied N3 (staff or profession* or practitioner* or personnel or medicine))  1,906
S11  TI (nurse or nurses or nursing) or AB (nurse or nurses or nursing)  366,952
S10  TI (clinician* or doctor* or physician* or GP or GPs or "general practitioner** or "family practitioner** or medic or medics) or AB (clinician* or doctor* or physician* or GP or GPs or "general practitioner** or "family practitioner** or medic or medics)  148,179
S9  TI ((health* or medical or clinical) N2 (staff or professional* or practitioner* or
personnel)) or AB ((health* or medical or clinical) N2 (staff or professional* or practitioner* or personnel)) 52,539
S8 (MM "Health Personnel") or (MM "Allied Health Personnel+") or (MM "Medical Staff+") or (MM "Nurses+") or (MM "Physicians+") 191,107
S7 S1 OR S2 OR S3 OR S4 OR S5 OR S6 2,467
S6 TI (QIC or QICs) or AB (QIC or QICs) 25
S5 AB ((educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or "communit* of practice" or network* or bursary or bursaries or fellowship* or "fellow-ship** or "professional development" or CPD or recertificat* or "re-certificat*" or CME or competencies or competency) N3 ("quality improvement** or QI or CQI or "total quality management" or TQM)) 550
S4 TI (educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or "communit* of practice" or network* or bursary or bursaries or fellowship* or "fellow-ship** or "professional development" or CPD or recertificat* or "re-certificat*" or CME or competencies or competency or program* or project* or model* or intervention*) and AB ("quality improvement**" or QI or CQI) 1,454
S3 TI ((educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or "communit* of practice" or network* or bursary or bursaries or fellowship* or "fellow-ship** or "professional development" or CPD or recertificat* or "re-certificat*" or CME or competencies or competency) and (deliver* N2 improv*)) 28
S2 TI ((educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or "communit* of practice" or network* or bursary or bursaries or fellowship* or "fellow-ship** or "professional development" or CPD or recertificat* or "re-certificat*" or CME or competencies or competency) and (QI or CQI or "total quality management" or TQM or "plan do study" or PDSA or "plan do check" or PDCA or "six sigma" or CANDO or TQIS or "breakthrough series" or "break-through series" or "practice-based learning and improvement" or PBLI or "system-based" or "systems-based" or "system thinking" or "systems thinking" or "human factor* analysis" or "process-mapping" or "root-cause* analysis")) 185
S1 TI ((educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or "communit* of practice" or network* or bursary or bursaries or fellowship* or "fellow-ship** or "professional development" or CPD or recertificat* or "re-certificat*" or CME or competencies or competency) and (quality N3 improv*)) 725

B.9: Source: HMIC Health Management Information Consortium 1979 to July 2014

Interface/URL: OvidSP
Search date: 08/10/14
Retrieved records: 253
Search strategy:

1 ((educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or "communit$ of practice" or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency) and (quality adj3 improv$)).ti. (107)
(educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or "communit$ of practice" or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency) and (QI or CQI or total quality management or TQM or "plan do study" or PDSA or "plan do check" or PDCA or six sigma or CANDO or TQIS or breakthrough series or break-through series or "practice-based learning and improvement" or PBLI or system-based or systems-based or system thinking or systems thinking or human factor$ analysis or process-mapping or root-cause$ analysis)).ti. (13)

((educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or "communit$ of practice" or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency) and (deliver$ adj2 improv$)).ti. (4)

(educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or "communit$ of practice" or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency or program$ or project$ or model$1 or intervention$1).ti. and (quality improvement$ or QI or CQI).ab. /freq=3 (80)

((educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or "communit$ of practice" or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency) adj3 (quality improvement$ or QI or CQI or total quality management or TQM)).ab. (110)

(QIC or QICs).ti,ab. (4)
or/1-6 (262)

exp health service staff/ (51322)

((health$ or medical or clinical) adj2 (staff or professional$ or practitioner$ or personnel)).ti,ab. (38160)

(clinician$ or doctor$ or physician$ or GP or GPs or general practitioner$ or family practitioner$ or medic or medics).ti,ab. (37249)

(nurse or nurses or nursing).ti,ab. (689)

or/8-13 (97437)

exp education/ or exp educational programmes/ or exp teaching/ (23847)

(educat$ or train$ or teach$ or learn$ or curriculum$ or curricula$ or collaborative$1 or "communit$ of practice" or network$1 or bursary or bursaries or fellowship$ or fellow-ship$ or professional development or CPD or recertificat$ or re-certificat$ or CME or competencies or competency).ti,ab. (58795)

or/15-16 (66139)

exp quality improvement/ (3581)

exp quality management/ (776)

exp quality assurance/ (18022)

(quality improvement$ or QI or CQI or total quality management or TQM).ti,ab. (2549)

or/18-21 (21820)

exp leadership/ or exp leaders/ or leadership skills/ (2979)

(leader$1 or leadership).ti,ab. (5654)
25 ((lead or leads or leading) adj3 (chang$ or improv$)).ti,ab. (763)
26 exp change management/ (1964)
27 exp organisational change/ (3487)
28 ((manag$ or implement$ or develop$ or engag$ or integrat$ or agent$1 or champion$1) adj3 (chang$ or improv$)).ti,ab. (5795)
29 or/23-28 (16559)
30 14 and 17 and 22 and 29 (402)
31 7 or 30 (634)
32 (exp africa/ or exp Asia/ or exp latin america/) not (exp europe/ or exp north america/ or exp australasia/) (2862)
33 31 not 32 (632)
34 limit 33 to (yr="2007 -Current" and english) (253)

B.10: Source: Business Source Premier

Interface/URL: EBSCO
Search date: 08/10/14
Retrieved records: 268
Search strategy:

S32 S30 AND S31 268
S31 LA English 14,019,429
S30 S7 OR S28 Limiters - Published Date: 20070101-20151231 269
S29 S7 OR S28 505
S28 S14 AND S17 AND S20 AND S27 134
S27 S21 OR S22 OR S23 OR S24 OR S25 OR S26 360,197
S26 TI ((manag* or implement* or develop* or engag* or integrat* or agent* or champion*) N3 (chang* or improv*)) or AB ((manag* or implement* or develop* or engag* or integrat* or agent* or champion*) N3 (chang* or improv*)) 81,203
S25 DE "ORGANIZATIONAL change" 22,639
S24 DE "CHANGE management" 2,181
S23 TI ((lead or leads or leading) N3 (chang* or improv*)) or AB ((lead or leads or leading) N3 (chang* or improv*)) 8,120
S22 TI leader* or AB leader* 255,915
S21 DE "LEADERSHIP" OR DE "LEADERS" 48,323
S20 S18 OR S19 34,708
S19 TI ("quality improvement**" or QI or CQI or "total quality management" or TQM) or AB ("quality improvement**" or QI or CQI or "total quality management" or TQM) 10,025
S18 ((DE "QUALITY assurance") OR (DE "QUALITY control")) OR (DE "TOTAL quality management") 29,443
S17 S15 OR S16 1,136,344
S16 TI (educat* or train* or teach* or learn* or curriculum* or curricula* or collaborati* or "communit* of practice* or network* or bursary or bursaries or fellowship* or "fellow-ship*" or "professional development" or CPD or recertificat* or "re-certificat*" or CME or competencies or competency) or AB (educat* or train* or teach* or learn* or curriculum* or curricula* or
collaborative* or "communit* of practice" or network* or bursary or bursaries or fellowship* or "fellow-ship*" or "professional development" or CPD or recertificat* or "re-certificat*" or CME or competencies or competency) 1,130,731

S15  (DE "TRAINING" OR DE "OCCUPATIONAL training" OR DE "EMPLOYEE training" OR DE "PROFESSIONAL education" OR DE "PROFESSIONAL education of women" OR DE "CONTINUING education")  64,625

S14  S8 OR S9 OR S10 OR S11 OR S12 OR S13  144,954

S13  TI (AHP or AHPs or PAM or PAMs) or AB (AHP or AHPs or PAM or PAMs)  4,584

S12  TI (allied N3 (staff or profession* or practitioner* or personnel or medicine)) or AB (allied N3 (staff or profession* or practitioner* or personnel or medicine)) 304

S11  TI (nurse or nurses or nursing) or AB (nurse or nurses or nursing)  27,647

S10  TI (clinician* or doctor* or physician* or GP or GPs or "general practitioner*" or "family practitioner*" or medic or medics) or AB (clinician* or doctor* or physician* or GP or GPs or "general practitioner*" or "family practitioner*" or medic or medics)  97,414

S9  TI ((health* or medical or clinical) N2 (staff or professional* or practitioner* or personnel)) or AB ((health* or medical or clinical) N2 (staff or professional* or practitioner* or personnel)) 15,299

S8  (DE "MEDICAL personnel" or DE "HEALTH practitioners" or DE "HOSPITAL personnel" or DE "MENTAL health personnel" or DE "MENTAL health practitioners" or DE "NURSES" OR DE "HOSPITAL nursing staff" OR DE "NURSE liaisons" OR DE "VISITING nurses" or DE "PHYSICIANS" OR DE "MEDICAL consultants" OR DE "PHYSICIAN executives" OR DE "WOMEN physicians")  36,128

S7  (S1 OR S2 OR S3 OR S4 OR S5 OR S6) AND TX (health* or medic* or clinic* or doctor* or physician* or GP or GPs or "general practitioner*" or "family practitioner*" or nurse or nurses or nursing or hospital or hospitals or AHP or AHPs or PAM or PAMs)  474

S6  (TI (QIC or QICs) or AB (QIC or QICs)) NOT (CO (QIC or "queensland investment" or "quality insurance congress" or "qatar insurance") or IC ("computer and peripheral equipment manufacturing" or "computer and computer peripheral equipment and software merchant wholesalers" or "computer and software stores" or "computer terminal and other computer peripheral equipment manufacturing" or "computer, computer peripheral and pre-packaged software merchant wholesalers" or "computer and office machine repair and maintenance" or "computer storage device manufacturing" or "investment advice" or "consumer lending" or "miscellaneous financial investment activities" or "other insurance funds" or "all other insurance related activities" or "open-end investment funds" or "other financial vehicles"))  73

S5  AB ((educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or "communit* of practice" or network* or bursary or bursaries or fellowship* or "fellow-ship*" or "professional development" or CPD or recertificat* or "re-certificat*" or CME or competencies or competency) N3 ("quality improvement*" or QI or CQI or "total quality management" or TQM))  445

S4  TI (educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or "communit* of practice" or network* or bursary or bursaries or fellowship* or "fellow-ship*" or "professional development" or CPD or recertificat* or "re-certificat*" or CME or competencies or competency or program* or project* or model* or intervention*) and AB ("quality improvement*" or QI or CQI)  598
S3  TI ((educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or "communit* of practice" or network* or bursary or bursaries or fellowship* or "fellow-ship*" or "professional development" or CPD or recertificat* or "re-certificat*" or CME or competencies or competency) and (deliver* N2 improv*))  19
S2  TI ((educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or "communit* of practice" or network* or bursary or bursaries or fellowship* or "fellow-ship*" or "professional development" or CPD or recertificat* or "re-certificat*" or CME or competencies or competency) and (QI or CQI or "total quality management" or TQM or "plan do study" or PDSA or "plan do check" or PDCA or "six sigma" or CANDO or TQIS or "breakthrough series" or "break-through series" or "practice-based learning and improvement" or PBLI or "system-based" or "systems-based" or "system thinking" or "systems thinking" or "human factor* analysis" or "process-mapping" or "root-cause* analysis"))  323
S1  TI ((educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or "communit* of practice" or network* or bursary or bursaries or fellowship* or "fellow-ship*" or "professional development" or CPD or recertificat* or "re-certificat*" or CME or competencies or competency) and (quality N3 improv*))  149

B.11:  Source: ERIC

Interface/URL: EBSCO
Search date: 08/10/14
Retrieved records: 86
Search strategy:

S31 S11 OR S29 Limiters - Date Published: 20070101-20141231; Language: English 86
S30 S11 OR S29  213
S29 S18 AND S22 AND S28  59
S28 S23 OR S24 OR S25 OR S26 OR S27  109,431
S27 TI ((manag* or implement* or develop* or engag* or integrat* or agent* or champion*) N3 (chang* or improv*)) or AB ((manag* or implement* or develop* or engag* or integrat* or agent* or champion*) N3 (chang* or improv*))  24,989
S26 DE "Change Strategies" OR DE "Change Agents" OR DE "Extension Agents" OR DE "Organizational Change"  31,281
S25 TI ((lead or leads or leading) N3 (chang* or improv*)) or AB ((lead or leads or leading) N3 (chang* or improv*))  2,341
S24 TI leader* or AB leader*  58,353
S23 DE "Leadership" OR DE "Instructional Leadership" OR DE "Transformational Leadership" OR DE "Leaders" OR DE "Leadership Effectiveness" OR DE "Leadership Qualities" OR DE "Leadership Responsibility" OR DE "Leadership Training"  27,363
S22 S19 OR S20 OR S21  6,322
S21 TI ("quality improvement*" or QI or CQI or "total quality management" or TQM) or AB ("quality improvement*" or QI or CQI or "total quality management" or TQM)  1,839
S20 DE "Quality Assurance"  398
S19 DE "Total Quality Management" OR DE "Quality Control"  5,292
S18  S12 OR S13 OR S14 OR S15 OR S16 OR S17  40,755
S17  TI (AHP or AHPs or PAM or PAMs) or AB (AHP or AHPs or PAM or PAMs)  354
S16  TI (allied N3 (staff or profession* or practitioner* or personnel or medicine)) or AB (allied N3 (staff or profession* or practitioner* or personnel or medicine))  577
S15  TI (nurse or nurses or nursing) or AB (nurse or nurses or nursing) 11,480
S14  TI (clinician* or doctor* or physician* or GP or GPs or "general practitioner"* or "family practitioner"* or medic or medics) or AB (clinician* or doctor* or physician* or GP or GPs or "general practitioner"* or "family practitioner"* or medic or medics)  19,489
S13  TI ((health* or medical or clinical) N2 (staff or professional* or practitioner* or personnel)) or AB ((health* or medical or clinical) N2 (staff or professional* or practitioner* or personnel)) 6,495
S12  (DE "Health Personnel" OR DE "Allied Health Personnel" OR DE "Mental Health Workers" OR DE "Nurses" OR DE "Physicians" OR DE "Psychologists" OR DE "Emergency Medical Technicians" OR DE "Nurses" OR DE DE "School Nurses")  13,769
S11  S7 AND S10  183
S10  S8 OR S9  188,641
S9  TX (health* or medic* or clinic* or doctor* or physician* or GP or GPs or "general practitioner"* or "family practitioner"* or nurse or nurses or nursing or hospital or hospitals or AHP or AHPs or PAM or PAMs)  187,210
S8  DE "Health Services" OR DE "Community Health Services" OR DE "Medical Services" OR DE "Prenatal Care" OR DE "School Health Services" OR DE "Health Occupations" OR DE "Allied Health Occupations" OR DE "Health Personnel" OR DE "Allied Health Personnel" OR DE "Mental Health Workers" OR DE "Nurses" OR DE "Physicians" OR DE "Psychologists" 26,676
S7  S1 OR S2 OR S3 OR S4 OR S5 OR S6 1,322
S6  TI (QIC or QICs) or AB (QIC or QICs)  6
S5  AB ((educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or "communit* of practice" or network* or bursary or bursaries or fellowship* or "fellow-ship"* or "professional development" or CPD or recertificat* or "re-certificat*" or CME or competencies or competency) N3 ("quality improvement"* or QI or CQI or "total quality management" or TQM))  404
S4  TI (educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or "communit* of practice" or network* or bursary or bursaries or fellowship* or "fellow-ship"* or "professional development" or CPD or recertificat* or "re-certificat*" or CME or competencies or competency or program* or project* or model* or intervention*) and AB ("quality improvement"* or QI or CQI)  484
S3  TI ((educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or "communit* of practice" or network* or bursary or bursaries or fellowship* or "fellow-ship"* or "professional development" or CPD or recertificat* or "re-certificat*" or CME or competencies or competency) and (deliver* N2 improv*))  22
S2  TI ((educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or "communit* of practice" or network* or bursary or bursaries or fellowship* or "fellow-ship"* or "professional development" or CPD or recertificat* or "re-certificat*" or CME or competencies or competency) and (QI or CQI or "total quality management" or TQM or "plan do study" or PDSA or "plan do check" or PDCA or "six sigma" or CANDO or TQIS or "breakthrough series" or "break-through series" or "practice-based learning and
improvement" or PBLI or "system-based" or "systems-based" or "system thinking" or "systems thinking" or "human factor* analysis" or "process-mapping" or "root-cause* analysis")  227
S1  TI ((educat* or train* or teach* or learn* or curriculum* or curricula* or collaborative* or "communit* of practice" or network* or bursary or bursaries or fellowship* or "fellow-ship*" or "professional development" or CPD or recertificat* or "re-certificat*" or CME or competencies or competency) and (quality N3 improv*))  452

B.12: Source: Kings Fund website

Interface/URL: http://www.kingsfund.org.uk/
Search date: 08/10/14
Retrieved records: 6
Search strategy:

All results scanned by an information specialist. Choice of items to view and selection for further consideration was based on the searcher's judgment.

1. Following searched using homepage search box: "quality improvement"

‘Publication’ filter applied = 13 results

Results opened and assessed for relevance by searcher. 2 selected for further consideration.

2. Following searched using homepage search box: "quality improvements"

0 publications

Results opened and assessed for relevance by searcher. 0 selected for further consideration.

2. Following searched using homepage search box: "quality improvement"

‘Publication’ filter applied = 16 results

Results opened and assessed for relevance by searcher. 1 selected for further consideration.

2. Following search carried out using Google: allintitle: "quality improvement" site:http://www.kingsfund.org.uk

‘About 12 results’ returned. Results assessed for relevance by searcher. 3 selected for further consideration.
3. Following search carried out using Google: allintitle: "quality improvements" site:http://www.kingsfund.org.uk

1 result returned. Result assessed for relevance by searcher. 0 selected for further consideration.

B.13: Source: Health Foundation website

Interface/URL: http://www.health.org.uk/
Search date: 08/10/14
Retrieved records: 32
Search strategy:

All results scanned by an information specialist. Choice of items to view and selection for further consideration was based on the searcher’s judgment.

1. Following search carried out using Google: allintitle: "quality improvement" site:www.health.org.uk filetype:pdf

‘About 27 results’ returned. Results assessed for relevance by searcher. 11 selected for further consideration.


3 results returned. Results assessed for relevance by searcher. 0 selected for further consideration.

3. Navigated to publications page. Used ‘Quality Improvement’ ‘Filter by topic’ option. 43 results. Titles scanned by searcher. 17 selected for further consideration.

Additional found and selected by following links: 4

B.14: Source: Healthcare Quality Improvement Partnership website

Interface/URL: http://hqip.org.uk/
Search date: 08/10/14
Retrieved records: 0
Search strategy:

All results scanned by an information specialist. Choice of items to view and selection for further consideration was based on the searcher’s judgment.

'About 37 results' returned. Results assessed for relevance by searcher. 0 selected for further consideration.


0 results returned.

3. Used tabs on website homepage to browse for relevant documents. 0 selected for further consideration.

B.15: Source: Faculty of Medical Leadership and Management website

Interface/URL: https://www.fmlm.ac.uk/
Search date: 08/10/14
Retrieved records: 0
Search strategy:

All results scanned by an information specialist. Choice of items to view and selection for further consideration was based on the searcher's judgment.

Used 'Search resources' function at: https://www.fmlm.ac.uk/resources/all

Filtered by theme 'quality improvement' and by resource type 'publication' or 'article'. 11 results returned. Results assessed for relevance by searcher. 0 selected for further consideration.

B.16: Source: Advancing Quality Alliance

Interface/URL: http://www.advancingqualityalliance.nhs.uk/
Search date: 08/10/14
Retrieved records: 0
Search strategy:

All results scanned by an information specialist. Choice of items to view and selection for further consideration was based on the searcher's judgment.

2. Searched following using Google: allintitle: "quality improvement" site:
http://www.advancingqualityalliance.nhs.uk/
0 results returned

3. Searched following using Google: allintitle: "quality improvements"
site:http://www.advancingqualityalliance.nhs.uk/
0 results returned

B.17: Source: NHS Leadership Academy website

Interface/URL: http://www.leadershipacademy.nhs.uk/
Search date: 09/10/14
Retrieved records: 1
Search strategy:

All results scanned by an information specialist. Choice of items to view and selection for further consideration was based on the searcher’s judgment.

1. Navigated to the Discover section at: http://www.leadershipacademy.nhs.uk/discover/
Browsed pages, scanning titles of publications for relevance. 1 selected for further consideration.

2. Used home page search function to search on the term "quality improvement". Scanned results for relevance. 0 selected for further consideration.

3. Searched following using Google: allintitle: "quality improvement"
site:http://www.leadershipacademy.nhs.uk = 0 results

4. Searched following using Google: allintitle: "quality improvements"
site:http://www.leadershipacademy.nhs.uk = 0 results

B.18: Source: NHS Institute for Innovation and Improvement website

Interface/URL: http://www.institute.nhs.uk/
Search date: 09/10/14
Retrieved records: 2
Search strategy:

All results scanned by an information specialist. Choice of items to view and selection for further consideration was based on the searcher’s judgment.
1. Navigated via ‘Quality and Value’ tab to section on quality improvement at http://www.institute.nhs.uk/service_transformation/quality_improvement/quality_improvement%3a_theory_and_practice_in_healthcare.html. 1 identified result retrieved.


Viewed titles of publications under ‘Delivering Quality and Value’, ‘Leadership’ and ‘Quality and Value’. 0 results selected for further consideration.


5 results returned. Results assessed for relevance. 0 results retrieved


B.19: **Source:** Institute for Healthcare Improvement website

Interface/URL: http://www.ihi.org/Pages/default.aspx
Search date: 09/10/14
Retrieved records: 10
Search strategy:

All results scanned by an information specialist. Choice of items to view and selection for further consideration was based on the searcher’s judgment.

1. Navigated to IHI White Papers at: 
http://www.ihi.org/resources/Pages/IHIWhitePapers/default.aspx

Document titles scanned for relevance to training. 0 selected.

2. Following searches carried out using Advanced search option at:
http://www.ihi.org/search/Pages/advanced.aspx

(IHITopic:collaboratives AND IHIContentType:publications) = 12 results, 4 selected for further consideration.

(IHITopic:"quality improvement" AND IHIContentType:publications) = 56 results, 1 selected.

(IHITopic:"Health Professions Education" AND IHIContentType:publications) = 24 results, 5 selected

(IHITopic:"Plan-do-study-act" AND IHIContentType:publications) = 5 results, 0 selected
B.20: Source: Royal College of Nursing website

Interface/URL: http://www.rcn.org.uk/
Search date: 09/10/14
Retrieved records: 3
Search strategy:

All results scanned by an information specialist. Choice of items to view and selection for further consideration was based on the searcher’s judgment.

Navigated to RCN publications page at: http://www.rcn.org.uk/development/publications

Navigated to the RCN Quality Improvement pages at: http://www.rcn.org.uk/development/practice/clinical_governance/quality_improvement

Browsed policies and reports. 3 selected

Browsed publications: 0 selected

B.21: Source: Royal College of Physicians website

Interface/URL: https://www.rcplondon.ac.uk/
Search date: 09/10/14
Retrieved records: 3
Search strategy:

All results scanned by an information specialist. Choice of items to view and selection for further consideration was based on the searcher’s judgment.

1. Navigated to the resources page for quality improvement projects at: https://www.rcplondon.ac.uk/resources/clinical-resources/quality-improvement-projects-0

Browsed results - 1 selected.

2. Searched following using Google: allintitle: "quality improvement" site:https://www.rcplondon.ac.uk

18 results returned. Results assessed for relevance. 2 results retrieved

3. Searched following using Google: allintitle: "quality improvements" site:https://www.rcplondon.ac.uk = 0 results
B.22: Source: Royal College of General Practitioners website

Interface/URL: http://www.rcgp.org.uk/
Search date: 09/10/14
Retrieved records: 0
Search strategy:

All results scanned by an information specialist. Choice of items to view and selection for further consideration was based on the searcher’s judgment.

Searched for following using homepage search function: quality. Browsed result titles. 0 selected

B.23: Source: Google

Interface/URL: https://www.google.co.uk
Search date: 09/10/14
Retrieved records: 11
Search strategy:

A focused, pragmatic search was conducted to identify relevant research on NHS and UK government sites. The following searches were run separately.

For each search, the first 50 ‘most relevant’ returned results (five pages) of each search were scanned for potentially relevant research studies on training initiatives around quality improvement. Relevance ranking was determined by the Google algorithm. Choice of items to view and selection for further consideration was based on the searcher’s judgment.

Searches run on 09/10/14 between 19.40 pm and 20.40 pm.

allintitle: education quality site:.nhs.uk filetype:pdf. About 145 results. 0 selected

allintitle: training quality site:.nhs.uk filetype:pdf. About 52 results. 0 selected

allintitle: "quality improvement" site:.nhs.uk filetype:pdf = about 218 results, 1 selected

allintitle: "quality improvements" site:.nhs.uk filetype:pdf = 2 results, 0 selected

allintitle: teaching "quality improvement" site:.nhs.uk filetype:pdf = 0 results

allintitle: learning "quality improvement" site:.nhs.uk filetype:pdf = 2 results, 1 selected

allintitle: curriculum "quality improvement" site:.nhs.uk filetype:pdf = 1 result, 0 selected
Appendix B

allintitle: curricular "quality improvement" site:.nhs.uk filetype:pdf = 0 results
allintitle: collaborative quality site:.nhs.uk filetype:pdf = 3 results, 0 selected
allintitle: collaboratives quality site:.nhs.uk filetype:pdf = 1 results, 0 selected
allintitle: "community of practice " quality site:.nhs.uk filetype:pdf = 0 results
allintitle: "communities of practice " quality site:.nhs.uk filetype:pdf = 0 results
allintitle: network "quality improvement" site:.nhs.uk filetype:pdf = 0 results
allintitle: networks "quality improvement" site:.nhs.uk filetype:pdf = 0 results
allintitle: bursary "quality improvement" site:.nhs.uk filetype:pdf = 0 results
allintitle: bursaries "quality improvement" site:.nhs.uk filetype:pdf = 0 results
allintitle: fellowship "quality improvement" site:.nhs.uk filetype:pdf = 0 results
allintitle: "professional development" "quality improvement" site:.nhs.uk filetype:pdf = 0 results
allintitle: CPD "quality improvement" site:.nhs.uk filetype:pdf = 0 results
allintitle: recertification "quality improvement" site:.nhs.uk filetype:pdf = 0 results
allintitle: CME "quality improvement" site:.nhs.uk filetype:pdf = 0 results
allintitle: competencies "quality improvement" site:.nhs.uk filetype:pdf = 0 results
allintitle: competency "quality improvement" site:.nhs.uk filetype:pdf = 0 results
allintitle: QIC site:.nhs.uk filetype:pdf = 0 results
allintitle: QICs site:.nhs.uk filetype:pdf = 0 results
allintitle: quality improve site:.nhs.uk filetype:pdf = about 34, 0 selected
allintitle: quality improving site:.nhs.uk filetype:pdf = about 76, selected
allintitle: education "quality improvement" site:.ac.uk filetype:pdf = 4, 0 selected
allintitle: training "quality improvement" site:.ac.uk filetype:pdf = 10, 0 selected
allintitle: "quality improvements" site:.ac.uk filetype:pdf = 15, 0 selected
Citation searches

B.24: **Source:** Science Citation Index Expanded (SCI-EXPANDED) -1900-present / Conference Proceedings Citation Index- Science (CPCI-S) -1990-present

Interface/URL: Web of Science
Search date: 21/10/14
Retrieved records: 18
Search strategy:

Studies supplied by research team for citation searches:


2. Matrix - *NHS Institute for Innovation and Improvement - Evaluation of the Fellowship Scheme.* Study not indexed in WoS.


B.25: **Source:** Google

Interface/URL: https://www.google.co.uk
Search date: 21/12/14
Retrieved records: 160
Search strategy:
Google searches were carried out on 21/12/14 using the following search terms

'champions of change' AND 'quality improvement'

The first 110 results were examined and the most relevant reports were downloaded for assessment.
A further search limiting to just NHS sites was also undertaken 'champions of change' AND 'quality improvement' AND site:nhs.uk

The first 50 results were examined and the most relevant reports were downloaded for assessment.

The Health Foundation website was explored further on 21/12/14 and a series of reports were downloaded relating to collaboratives. The site was also searched using the terms 'evaluation fellowships'
APPENDIX C

Data Extraction of Included Studies
<table>
<thead>
<tr>
<th>Study</th>
<th>Ellison (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>UK</td>
</tr>
<tr>
<td>Programme name</td>
<td>Dementia Champions and Dementia Nurse Consultant Programme</td>
</tr>
<tr>
<td>Programme deliverer</td>
<td>Alzheimer Scotland</td>
</tr>
<tr>
<td>Year(s) of programme</td>
<td>2011 to present</td>
</tr>
<tr>
<td>Number of clinician participants</td>
<td>321 nurses as dementia champions and 13 dementia nurse consultants</td>
</tr>
</tbody>
</table>

**Summary of programme**

Dementia Nurse Consultants - The post was designed to provide a strategic leadership to push through changes to improve dementia care. Information on training provided was limited beyond it being described as "a yearlong, bespoke, person-centred leadership development programme".

Dementia Champions - The aim was to develop operational staff as change agents to support Dementia Nurse Consultants who provided strategic leadership for change.

Blended learning course over six months. Training includes five contact days with a range of online learning. Each learner has a personal tutor and as well as three written assignments has to complete a change activity in their workplace. As well as being directed at understanding the complexity of dementia, legal implications and a range of interventions that can be used to raise the quality of life of dementia patients, a primary learning goal of the programme is to:

"Understand and implement leadership and change agent skills and knowledge to enhance and improve the care of the person with dementia in every area of their influence, utilising existing and developing quality improvement systems".

**Evaluation Method**

Interviews, case studies and surveys of both course participants and senior management and strategic stakeholders.

**Key findings as reported**

The findings below relate specifically to the impact of the training on an individual's ability as a change leader rather than their ability to assist people with dementia or to encourage others to respond more positively to people with dementia. As an impact evaluation, the report focussed more on the changes in care for dementia patients and the development of the two roles rather than the changes in the leadership abilities of participants.

**Ability to lead change:** The authors concluded that “despite the enormity of the task and the relative small scale and immaturity of the initiatives, a significant amount of change and improvement work has been initiated by the two roles, and would likely not have happened without them”.

**Factors that make clinicians effective improvement leaders:** Not reported

**Factors associated with some clinicians having greater success in integrating improvement science into their work:** Not reported

**Impact of supporting clinicians to lead improvement:** Not reported

**Barriers/enablers to clinicians having an impact within their organisation through the programme:** The following were all reported as being positively linked to a participants ability to effect change through:

- Pre-existing knowledge, skills, contacts and experience;
- Level of seniority of the trainee;
- Commitment, passion and enthusiasm;
- Sufficient dedicated time and resource.
The opposite of the above were cited as barriers as well as:

- Lack of engagement and attitudes of others;
- Lack of support from colleagues and other professionals.

Methodologies, best practices and critical success factors for supporting clinicians to lead improvement and/or large scale change: Beyond the barriers/enablers above, the authors stated that participants were most effective when they were supported properly to develop the knowledge and skills required for the roles.

Study strengths
The evaluation drew on a large number of interviewees who had received training at some point in the past. It looked at large scale change driven by national policy with an interesting model of strategic and operational change agents.

Study weaknesses
Lack of information on training. In many areas evaluated it was felt to be too early to assess impact. Training was only part of a wider intervention making isolation of effects of training difficult. Focus of evaluation was not on training but on the impact of the two roles on organisations and patient care and the interaction between the roles. Unclear how the training impacted on individuals’ ability to lead change in future projects. Findings were general covering both strategic and operational change agents and training, which made it difficult to isolate which findings referred to which group.

<table>
<thead>
<tr>
<th>Study</th>
<th>Hardacre (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>UK</td>
</tr>
<tr>
<td>Programme name</td>
<td>The HF Leadership Programme including:</td>
</tr>
<tr>
<td></td>
<td>• Leaders for Change;</td>
</tr>
<tr>
<td></td>
<td>• HF Leadership Fellows;</td>
</tr>
<tr>
<td></td>
<td>• Quality Improvement Fellowships.</td>
</tr>
<tr>
<td>Programme deliverer</td>
<td>The HF</td>
</tr>
<tr>
<td>Year(s) of programme</td>
<td>2003-2007</td>
</tr>
<tr>
<td>Number of clinician participants</td>
<td>NR</td>
</tr>
<tr>
<td>Summary of programme</td>
<td><strong>Leaders for Change</strong>: One year programme for middle and senior healthcare professionals with a leading role in service improvement to gain skills and knowledge in implementing and managing change. The scheme includes a work based improvement project, action learning sets, a set modular and bespoke personal development programmes, mentoring and e-learning.</td>
</tr>
<tr>
<td></td>
<td><strong>HF Leadership Fellows</strong>: A coaching programme for two days a month for 22 months for middle level healthcare professionals. Scheme components are monthly one-to-one coaching sessions, action learning sets, seminars and workshops.</td>
</tr>
<tr>
<td></td>
<td><strong>Quality Improvement Fellowships</strong>: Designed for a small number of senior clinical leaders to promote quality improvement nationally and to build organisational capacity to increase performance levels. Fellows spend one year out of their normal posts to learn the theory and practice of quality improvement. This includes:</td>
</tr>
<tr>
<td></td>
<td>• Assessment of leadership potential;</td>
</tr>
<tr>
<td></td>
<td>• Participation in the IHI’s Breakthrough Series College and the clinical effectiveness programme at the Harvard School of Public Health;</td>
</tr>
<tr>
<td></td>
<td>• Mentored experience in an improvement project;</td>
</tr>
</tbody>
</table>
Strategic planning and review sessions on how to help integrate learning back into their original posts.

Evaluation Method
Semi-structured interviews (which commenced in October 2008) and surveys (commencement date not outlined) with course participants and with stakeholders of improvement projects. The retrospective evaluation was designed to establish whether specific leadership behaviours could be linked to quality improvement work and then whether these behaviours had been enacted by individuals who had been on the HF programmes.

Key findings as reported

- **Ability to lead change:** The methodology for identifying whether clinicians who had been on the programmes were seen as exhibiting the skills and attributes to lead change was unfortunately unsuccessful. Findings were, therefore, limited to self-reported statements of personal change brought about by the programmes with terms such as “feeling empowered” to lead change and being more confident and motivated to lead change being used. The authors concluded that:
  
  “Participants’ perceptions about the personal benefits they obtained from their programme tended to be greater than those about organisational or service benefit.”

- **Factors that make clinicians effective improvement leaders:** The authors reported that the most important personal attributes for sustainable improvement and tangible impact are responsive and nimble leadership that is able to adapt and respond to changing and unpredictable circumstances.

- **Factors associated with some clinicians having greater success in integrating improvement science into their work:** NR

- **Impact of supporting clinicians to lead improvement:** NR

- **Barriers/enablers to clinicians having an impact within their organisation through the programme:** NR

- **Methodologies, best practices and critical success factors for supporting clinicians to lead improvement and/or large scale change:** Whilst not directly linked to an ability to lead improvement, the authors found that the programme content that was most important for programme participants was the academic input, informal networking, coaching and action learning.

Study strengths
The evaluation attempted a multi-faceted evaluation to try to understand the impact the programmes had on leadership behaviours and then onto outcomes within organisations and participants’ ability to lead change rather than just on individual participants’ beliefs and self-perceived behaviours. The evaluation was conducted by an independent researcher.

Study weaknesses
The study methodology failed to create the desired counterfactual to understand if changes in leadership behaviour have been brought about by the programmes and then resulted in changes in leadership outcomes.

---

<table>
<thead>
<tr>
<th>Study</th>
<th>Lynch (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>UK</td>
</tr>
<tr>
<td>Programme name</td>
<td>The Practice Leaders Programme (PLP)</td>
</tr>
<tr>
<td>Programme deliverer</td>
<td>NHS Leadership Academy</td>
</tr>
<tr>
<td>Year(s) of programme</td>
<td>2008-2012. (Duration of evaluation which covered two programmes)</td>
</tr>
<tr>
<td>Number of clinician participants</td>
<td>48 in total. A mixture of GPs, management and social care staff</td>
</tr>
<tr>
<td>Summary of</td>
<td>The aim of the PLP was to enhance leadership skills within a local health</td>
</tr>
</tbody>
</table>
A local area was supported through a change or quality improvement programme through six separate multi-professional active learning sets and coaching sessions provided to each individual that was part of the project. Learning sets were modified for the needs of each of the areas, but each programme covered theory behind leadership and change management. Facilitated group workshops were held so individuals could discuss their project and use the group to help arrive at solutions.

**Evaluation Method**

Focus groups and participant reflective accounts to identify themes (timeframes were not specified but it was a retrospective evaluation). It was a stated aim of the evaluation to identify changes in participants’ leadership skills and practice because of involvement in the programme.

**Key findings as reported**

**Ability to lead change**: NR directly for the programme as a whole beyond stating that some GPs who were on the programme now hold executive roles in CCGs. In addition, the following quotes were provided which suggests for at least one participant the programme had impacted on their ability to lead change:

> “The programme has had a significant impact on me, personally and professionally; it has changed the way I approach my role as a GP and the way I interact with my colleagues. It has empowered me to effect change in a system in which I had come to feel I had little, if any, sphere of influence.”

> “Professionally I use the skills and theory from this programme daily. When implementing change I have become aware of models of improvement, change management and neurolinguistics of leadership. I try and use this when making even small changes in my professional capacity. I think this makes the changes I make more structured, hopefully more useful and sustainable.”

**Factors that make clinicians effective improvement leaders**: Training that is collaborative involving a range of stakeholders in and out of health around a project that an individual feels passionate about.

**Factors associated with some clinicians having greater success in integrating improvement science into their work**: Authors report that a key theme that emerged from the programme was that “there was a dominant discourse of enablement” that the project brought about.

**Impact of supporting clinicians to lead improvement**: NR

**Barriers/enablers to clinicians having an impact within their organisation through the programme**: NR

**Methodologies, best practices and critical success factors for supporting clinicians to lead improvement and/or large scale change**: Several recommendations were made on how a learning project can result in individuals becoming successful change leaders. It is not clear if these are based on evidence or author opinion.

**Summary (excluding the findings already mentioned)**:

- Integrate learning with work;
- Choose projects for learning where outcomes can be easily measured;
- Ensure everyone involved in a learning project has realistic expectations;
- Learning sets should be experiential and allow for group feedback;
- Provide opportunity for learning networks to continue after the programme.

**Study strengths**
The evaluation captured data directly from participants. The evaluation was published in a peer-reviewed journal.

**Study weaknesses**
Appears to be self-evaluation that could lead to potential bias in results. How structured different aspects of the evaluation methodology were to allow consistency of collection is NR. As the programme was offered to clinicians and non-clinicians, it is not possible to know whether the findings reported are relevant just to clinicians. The evaluation findings were essentially provided as a short collection of quotes from participants and the key evaluation aim of assessing whether the programme has improved the leadership skills and practice is not properly addressed in the evidence presented.

<table>
<thead>
<tr>
<th>Study Matrix (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
</tr>
<tr>
<td>Programme name</td>
</tr>
<tr>
<td>Programme deliverer</td>
</tr>
<tr>
<td>Year(s) of programme</td>
</tr>
<tr>
<td>Number of clinician participants</td>
</tr>
</tbody>
</table>

**Summary of programme**
The study summarized the key elements of the programme as follows:

- Undertake a range of formal development activities - the exact nature to be agreed between the Fellow, the Institute supervisor, the academic supervisor and the NHS mentor; these activities are likely to include some Master classes from those with experience in the field and will be designed to ensure that, as a minimum, the Fellow has a good understanding of improvement science;
- Complete an innovation or improvement project relevant to the NHS - the exact nature to be agreed between the Fellow, their host employer and the supervisors;
- Identify, establish and maintain links with key people in the NHS and beyond working in similar/comparable areas of innovation/improvement;
- Establish a range of formal links within the Institute;
- Make at least one formal visit to the Institute for Healthcare Improvement in Boston;
- Write a formal report on the personal and organisational implications arising from their project;
- Undertake dissemination activities as agreed with their supervisors - including publication in the peer-reviewed literature where appropriate;
- Maintain an agreed level of contact with a named lead at their host employing organisation;
- Be a member of the Learning team for the period of the Fellowship, and also be affiliated to one of the Institute work streams (e.g. a priority programme work stream) and encouraged to link and learn from the specialist teams.

The scheme involved a senior clinician taking 12 months away from their existing work role and being placed on a quality improvement project elsewhere in the NHS. Four participants went through the scheme up to the point of evaluation. All were experienced clinicians who all appear to have already led change of improvement programmes.

**Evaluation Method**
A Theory of Change approach was adopted with construction of a logic
model with the team delivering the programme. Outcomes for learners were ascertained through case studies with clinicians who had been through the programme (the timeframes of this prospective evaluation were not specified).

<table>
<thead>
<tr>
<th>Key findings as reported</th>
<th>Ability to lead change: NR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Factors that make clinicians effective improvement leaders: NR</td>
</tr>
<tr>
<td></td>
<td>Factors associated with some clinicians having greater success in integrating improvement science into their work: It was reported by Fellows and other interviewees that to achieve the intended objectives of the Fellowship Scheme, post-Scheme employers need to be sympathetic to Service Improvement (SI) practice.</td>
</tr>
<tr>
<td></td>
<td>Impact of supporting clinicians to lead improvement: NR</td>
</tr>
<tr>
<td></td>
<td>Barriers/enablers to clinicians having an impact within their organisation through the programme: NR</td>
</tr>
<tr>
<td></td>
<td>Methodologies, best practices and critical success factors for supporting clinicians to lead improvement and/or large scale change: Fellows would require both &quot;moral and intellectual support&quot; to act as change agents.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Study strengths</th>
<th>The evaluation was independent and involved data capture from all relevant parties to the programme.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study weaknesses</td>
<td>The study does not appear to have been published in a peer-reviewed journal and detail on the methodology for evaluation is poorly reported.</td>
</tr>
<tr>
<td></td>
<td>The programme was only on four programme participants during Phase 1 of the programme. All four participants already appeared to hold either very senior roles where they had led service redesign/quality improvement or had successfully led quality improvement projects.</td>
</tr>
<tr>
<td></td>
<td>The study reported very briefly on outcomes and was more focused on processes that needed to be improved to deliver the programme. Whilst there was some information on how participants may better take on roles as service improvement leaders there was no information reported on their effectiveness in this role because of the programme.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Study</th>
<th>Maynard (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>USA</td>
</tr>
<tr>
<td>Programme name</td>
<td>Mentored Implementation</td>
</tr>
<tr>
<td>Programme deliverer</td>
<td>Society of Hospital Medicine</td>
</tr>
<tr>
<td>Year(s) of programme</td>
<td>From 2004</td>
</tr>
<tr>
<td>Number of clinician participants</td>
<td>300 hospital improvement teams</td>
</tr>
<tr>
<td>Summary of programme</td>
<td>Delivery of quality improvement support through &quot;Resource Rooms&quot; in which experts had reviewed existing evidence and produced toolkits which also documented their own experience of leading improvement projects. Toolkits produced in three areas: care transition, venous thromboembolism and glycaemic control. To aid a quality improvement programme to utilise the Resource Rooms and to successfully complete a QI project a clinician with expertise in the relevant QI project mentored QI teams through the project. This &quot;Mentored Implementation (MI)&quot; was designed to provide just in time solutions drawing on the mentors experience and provide a voice outside authority to give goals for the team to meet before they came again. MI components were phone calls, webinars, training, web-based support and site visits. A central data centre for monitoring performance was also provided.</td>
</tr>
</tbody>
</table>
**Evaluation Method**

Unclear how or when the evaluation was conducted. Appears to have been a pilot that was evaluated with a retrospective survey.

<table>
<thead>
<tr>
<th>Key findings as reported</th>
<th>Ability to lead change: Ninety-three percent in one collaborative stated the &quot;Collaborative improved my skills in leadership and quality improvement&quot;. Eighty percent stated they had applied their learning to other quality improvement projects.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Factors that make clinicians effective improvement leaders: NR</td>
</tr>
<tr>
<td></td>
<td>Factors associated with some clinicians having greater success in integrating improvement science into their work: NR</td>
</tr>
<tr>
<td></td>
<td>Barriers/enablers to clinicians having an impact within their organisation through the collaborative: A lack of support from local leadership. The constant proliferation of new guidelines. Environment that does not structure investment in QI. Patient confidentiality making data sharing difficult.</td>
</tr>
<tr>
<td></td>
<td>Impact of supporting clinicians to lead improvement: The authors report that several mentees have become &quot;champions of change&quot; in their own institutions.</td>
</tr>
<tr>
<td></td>
<td>Methodologies, best practices and critical success factors for supporting clinicians to lead improvement and/or large scale change: NR</td>
</tr>
</tbody>
</table>

| Study strengths | The evaluation captured data directly from participants. The evaluation was published in a peer-reviewed journal. |
| Study weaknesses | The evaluation method is NR and seems to represent findings from only a small number of the total number of participants involved with the learning collaborative. It appears that evaluation itself may have been undertaken by the organisation delivering the collaborative. The findings are US based and, therefore, may not be directly relevant to the UK. |

| Study | Stoll (6) |
| Location | UK |
| Programme name | NHS London Darzi Fellowships Leadership Programme |
| Programme deliverer | NHS London using courses provided by the Centre for Innovation in Health Management at the University of Leeds and the Kings Fund with the University of Manchester. |
| Year(s) of programme | The programme started in 2009 and the Fellowship last 12 months. |
| Number of clinician participants | Thirty-nine in year one and 30 in year two. |
| Summary of programme | Fellows are taken on a 12 month "out of programme" experience from their own specialty and are mentored by a Medical or Clinical Director. The Fellowship consisted of working on three live projects that looked at the following elements that were seen as essential to sustainable change: |
|                          | • Service change management; |
|                          | • Quality/safety improvement or clinical governance; |
|                          | • Supporting capacity building within the Trust for training and generic skills. |
|                          | In addition to the live projects, the Universities of Leeds and Manchester and the Kings Fund provided 24 days of structured learning which included classroom based teaching, action learning sets, coaching and advice surgeries, stakeholder events and accreditation of the qualification. |
|                          | A web-based community to facilitate collaborative working was also |
established and there was a dedicated project manager to support Fellows.

**Evaluation Method**
A retrospective review of programme documents and data, interviews with designers and deliverers of the programme, Fellows and managing directors and stakeholders. Review of the Fellow’s final poster presentations. Evaluation timeframes are not specified but the report.

**Key findings as reported**

*Ability to lead change:* The authors report that the impact of the Fellows programme has generally been far reaching and, in many cases, profound. Six areas of impact have been identified: growth in self-understanding and personal skills; increased knowledge and understanding of the organisation and system context of change; enhanced understanding and skills in working with others; change management, service improvement and capacity building knowledge, understanding and skills; changed beliefs and values; and some revised career aspirations.

*Factors that make clinicians effective improvement leaders:* NR

*Factors associated with some clinicians having greater success in integrating improvement science into their work:* NR

*Impact of supporting clinicians to lead improvement:* NR

*Barriers/enablers to clinicians having an impact within their organisation through the programme:* NR

*Methodologies, best practices and critical success factors for supporting clinicians to lead improvement and/or large scale change:* Findings from the first year on what was needed to make the project work well were:

- Committed and learning-oriented Medical Director;
- Supportive Trust culture;
- Working on “ambitious but appropriate” live projects;
- High quality mentoring Learning programme that targets transformational change;
- Combining workplace and external learning;
- Network of support;
- Ongoing monitoring and adaptation addressing Programme issues.

**Study strengths**
The evaluation captured data directly from participants. The study is well reported and provides extensive detail on evaluation findings. The evaluation was undertaken independently of the organisation delivering the programme.

**Study weaknesses**
Despite being more than a simple pre/post evaluation there is little evidence contained on the impact of the programme that has resulted in clinicians leading change or quality improvement projects outside the Fellowship. The evaluation focuses on how participants, their mentors and their sponsors feel at the end of the programme, albeit based on experience of being involved with live change and improvement projects. As a programme evaluation it also focuses on what is required for the programme to work rather than the factors that are supportive or barriers to clinicians taking their learning forward so that they can lead change/quality improvement projects in the future.

<table>
<thead>
<tr>
<th>Study</th>
<th>Walmsley (7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>UK</td>
</tr>
<tr>
<td>Programme name</td>
<td>The HF Leadership Programme including:</td>
</tr>
<tr>
<td>Programme deliverer</td>
<td>The HF</td>
</tr>
<tr>
<td>---------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Year(s) of programme</td>
<td>2003-2007</td>
</tr>
<tr>
<td>Number of clinician participants</td>
<td>NR</td>
</tr>
</tbody>
</table>

**Summary of programme**

- **Harkness/HF Fellowships**: Fellows spend a year in the USA examining its healthcare system and learning more about an aspect of policy with relevance to the UK.

- **Clinician Scientist Fellowships**: Five year funding for a clinician to pursue academic research alongside a programme of leadership development involving ten days per year of bespoke leadership training.

- **Leaders for Change**: One year programme for middle and senior healthcare professionals with a leading role in service improvement to gain skills and knowledge in implementing and managing change. The scheme includes a work based improvement project, action learning sets, a set modular and bespoke personal development programmes, mentoring and e-learning.

- **HF Leadership Fellows**: A coaching programme for two days a month for 22 months for middle level healthcare professionals. Scheme components are monthly one-to-one coaching sessions, action learning sets, seminars and workshops.

- **Quality Improvement Fellowships**: Designed for a small number of senior clinical leaders to promote quality improvement nationally and to build organisational capacity to increase performance levels. Fellows spend one year out of their normal posts to learn the theory and practice of quality improvement. This includes:
  - Assessment of leadership potential;
  - Participation in the IHI's Breakthrough Series College and the clinical effectiveness programme at the Harvard School of Public Health;
  - Mentored experience in an improvement project;
  - Strategic planning and review sessions on how to help integrate learning back into their original posts.

**Evaluation Method**

A retrospective review of individual scheme evaluations conducted by the HF or independent evaluators up to 2006 augmented by further interviews with facilitators, participants and sponsors (all post-2006).

**Key findings as reported**

- **Ability to lead change**: The authors conclude that the evidence from the individual programmes suggests that they have helped individuals develop the skills and personal qualities to take on leadership roles in quality improvement and managing change. The Quality Improvement Fellowship is singled out as a scheme where Fellows have now moved into positions of national influence, although the authors also state that Fellows from other programmes have pursued quality improvement roles or combined clinical practice with wider contributions to quality.

- **Factors that make clinicians effective improvement leaders**: The authors reported that organisational capacity and willingness to support Fellows post award was variable. Failure to support was reported as being due to perceived threat by more senior managers or simply a lack of time.
Factors associated with some clinicians having greater success in integrating improvement science into their work: Fellowships that prioritise research did not have enough time to develop competencies around influencing and political astuteness to allow the Fellows to become successful influencers of policy. There was little evidence that clinicians and managers on the Harkness Fellowship in particular could use their knowledge unless they changed careers.

**Impact of supporting clinicians to lead improvement:** Several examples were cited of Fellows who completed the programme and went on to lead and drive through quality improvement projects - such as one Fellow who introduced a “one stop shop” for minor surgery.

**Barriers/enablers to clinicians having an impact within their organisation through the programme:** There was some reluctance found for organisations to allow their clinicians to become Fellows. Contractual issues and normal career progression paths may also restrict the influence of a Fellow.

**Methodologies, best practices and critical success factors for supporting clinicians to lead improvement and/or large scale change:** The authors stated that evidence was unequivocal across programmes that learning being multidisciplinary with exposure to different clinicians and parts of the healthcare system was of paramount importance in a leadership programme.

The authors conclude that the evidence is that the method for leadership development is not as important as aligning the tools with individual aims, giving people the time away from their existing roles to develop skills and provision of peer support.

| Study strengths | The evaluation drew on existing evaluation evidence, some of which was independent, and was able to expand on this with independently conducted interviews with participants. |
| Study weaknesses | The individual evaluations appear to have been simple pre/post studies and so the value to this review may be limited as it is difficult to isolate the findings from the interviews post the individual evaluations from the authors’ follow-up interviews. The author also acknowledges that long term evaluation is needed to understand how effective the programmes have been in establishing Fellows as leaders in the NHS. |
APPENDIX D

Excluded Studies
<table>
<thead>
<tr>
<th>Study</th>
<th>Exclusion Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berwick DM. Preparing nurses for participation in and leadership of continual improvement. Journal of Nursing Education. 2011;50(6):322-7. DOI: <a href="http://dx.doi.org/10.3928/01484834-20110519-05">http://dx.doi.org/10.3928/01484834-20110519-05</a>.</td>
<td>Ineligible outcomes</td>
</tr>
<tr>
<td>Study</td>
<td>Exclusion Reason</td>
</tr>
<tr>
<td>---------------------------------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Study</td>
<td>Exclusion Reason</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Dieter PE. A Faculty Development Program can result in an improvement of the quality and output in medical education, basic sciences and clinical research and patient care. Medical Teacher. 2009;31(7):655-9. DOI: <a href="http://dx.doi.org/10.1080/01421590802520972">http://dx.doi.org/10.1080/01421590802520972</a>.</td>
<td>Ineligible outcomes</td>
</tr>
<tr>
<td>Doebbeling BN, Flanagan ME. Emerging perspectives on transforming the healthcare system: redesign strategies and a call for needed research. Medical Care. 2011;49 Suppl:S59-64. DOI: <a href="http://dx.doi.org/10.1097/MLR.0b013e31821b57eb">http://dx.doi.org/10.1097/MLR.0b013e31821b57eb</a>.</td>
<td>Ineligible outcomes</td>
</tr>
<tr>
<td>Dückers MLA, Wagner C, Groenewegen PP. Developing and testing an instrument to measure the presence of conditions for successful implementation of quality improvement collaboratives. BMC Health Services Research. 2008;8(172).</td>
<td>Ineligible outcomes</td>
</tr>
<tr>
<td>Dückers MLA. Changing Hospital Care. Utrecht: Utrecht University; 2009.</td>
<td>Ineligible outcomes</td>
</tr>
<tr>
<td>Garba AM. Champions for Change (C4C); a New Dawn. In: Health Interactive (blog); February 25 2014.</td>
<td>Ineligible outcomes</td>
</tr>
<tr>
<td>Study</td>
<td>Exclusion Reason</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Study</td>
<td>Exclusion Reason</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Learning to lead. Mental Health Today. 2007;Jul-Aug:40-1.</td>
<td>Ineligible outcomes</td>
</tr>
<tr>
<td>Study</td>
<td>Exclusion Reason</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>Nembhard IM. All teach, all learn, all improve?: the role of interorganizational learning in quality improvement collaboratives. Health Care Management Review. 2012;37(2):154-64. DOI: <a href="http://dx.doi.org/10.1097/HMR.0b013e31822af831">http://dx.doi.org/10.1097/HMR.0b013e31822af831</a>.</td>
<td>Ineligible outcomes</td>
</tr>
<tr>
<td>Study</td>
<td>Exclusion Reason</td>
</tr>
<tr>
<td>---------------------------------------------------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Pricewaterhousecoopers. Evaluation of the Improvement Faculty for Patient Safety and Quality Improvement. London; PriceWaterhouseCoopers; 2010</td>
<td>Ineligible outcomes</td>
</tr>
<tr>
<td>Study</td>
<td>Exclusion Reason</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Quality improvement studies don't learn from their mistakes. Managed Care. 2014,23(8):16.</td>
<td>Ineligible outcomes</td>
</tr>
<tr>
<td>Simanovski V, Hertz S, Green E, Meertens E, Kaizer L, Krzyzanowska MK, et al. Enabling quality improvement in systemic cancer treatment through a collaborative</td>
<td>Findings reported</td>
</tr>
<tr>
<td>Study</td>
<td>Exclusion Reason</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Study</td>
<td>Exclusion Reason</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>---------------------------</td>
</tr>
</tbody>
</table>