



Getting Knowledge into Action to Improve Healthcare Quality:

Report of Strategic Review and Recommendations

June 2012

Introduction

Healthcare Improvement Scotland and NHS Education for Scotland commissioned this strategic review. The Steering Group Terms of Reference, objectives and membership are provided in Appendix 1. The context is set out below together with a brief overview of the approaches taken to secure engagement with key stakeholders and the methodology for developing the proposals. A conceptual model is presented as the basis for applying the proposals and recommendations, together with a framework for evaluation of the suggested approaches. Jointly, Healthcare Improvement Scotland and NHS Education for Scotland have key roles in supporting NHS boards. Accordingly, the recommendations centre on building capacity and capability for knowledge support for local and national healthcare priorities. Healthcare Improvement Scotland and NHS Education for Scotland have approved these recommendations, and are now determining arrangements for implementation, communication with NHS boards and key stakeholders, and engagement of senior leaders for quality through, for example, the Quality Infrastructure Delivery Group, and the NHS Board Chief Executives' Meetings.

Key messages

The Knowledge into Action Review was commissioned by Healthcare Improvement Scotland and NHS Education for Scotland to help align the use of knowledge in NHSScotland with the aims of the [Quality Strategy](#)¹. It proposes a vision of a network of knowledge brokers, integrated with improvement and clinical teams. Such an arrangement would deliver support for evidence-based approaches which have a direct impact on clinical care at the frontline, and which underpin the efforts of NHS organisations and their partners to plan and deliver services based on safety, effectiveness, and better experience for patients, users and carers.

The outcome of the review offers the following.

- A **conceptual model (see Section 2)** for translating knowledge into frontline practice, by combining knowledge from research, practice, staff and patient experience.
- An evidence-based **change package (see Appendix 2, Figure 2)** comprising six key activities that will help NHS boards to apply knowledge to improve healthcare quality.
- A **framework for evaluation (see Appendix 2, Figure 3)** to assess the impact of Knowledge into Action activities.
- **Learning opportunities** from a series of tests of change of Knowledge into Action.
- The **engagement and support** of executive leads, clinical champions and knowledge managers in NHS boards which have shaped the proposed approach and have formed the basis of innovative professional networks at national and local levels.
- **Recommendations for implementation (see Section 5.3)** which Healthcare Improvement Scotland and NHS Education for Scotland have agreed to support.

1 The challenge

- 1.1 [Crossing the Quality Chasm](#)², a seminal work on international healthcare improvement, highlighted the “chasm” between knowledge and practice as a root cause of failure in quality and safety of healthcare. [McGlynn et al](#)³ reported that approximately 45% of care in the United States is not based on evidence which is readily available in guidelines, systematic reviews and other sources. In a study conducted in the Netherlands, Grol⁴ came to a similar conclusion, while the [mid-Staffordshire review](#) has highlighted that healthcare organisations have a responsibility to manage knowledge to improve outcomes, and reduce harm, waste and inequity⁵. Brent James, Don Berwick and others have underlined the need to move away from a “craft of medicine” model to [embed knowledge in delivery](#) of all aspects of care, applying research evidence in a personal, compassionate, person-centred manner⁶.

2 Our response – a new model for getting Knowledge into Action

- 2.1 NHSScotland already has a strong national knowledge infrastructure in the form of [the Knowledge Network](#)⁷ from [NHS Education for Scotland](#), the guidelines and evidence summaries from [Healthcare Improvement Scotland](#), and the library services workforce. The Knowledge into Action Review aimed to identify ways to mobilise this knowledge infrastructure to support the Quality Strategy ambitions of safe, effective, and person-centred care. This resulted in the development of proposals for a new approach which goes beyond accessing and organising information to:

- enabling practitioners to **apply** knowledge to frontline practice to deliver better healthcare, and
- **embedding** the use of knowledge in healthcare improvement.

- 2.2 Professor Huw Davies and Dr Vicky Ward, experts in the field of knowledge translation, were commissioned by the Steering Group to establish a contemporary and robust [evidence base](#) for translating Knowledge into Action in healthcare⁸. This review of research evidence was complemented by key informant interviews with international exemplars of good practice in quality improvement and knowledge translation. The review implemented a series of tests of change to evaluate the Knowledge into Action approaches indicated by the evidence base, in the working context of NHS boards. This was combined with an evaluative overview of already established Knowledge into Action approaches in NHSScotland⁹. From these sources of evidence, the Steering Group has derived a new dynamic model for using knowledge in NHSScotland, which augments the classic evidence-based practice approach. It proposes teams, patients and carers co-creating knowledge as part of continuous learning and improvement by:

- combining research evidence with the experience of teams, patients and carers, and data from practice activity, cost, performance, etc
- customising research knowledge to the working context
- personalising knowledge to individual patient care

- understanding, managing and using data on variation in practice to build the knowledge base for frontline delivery of care, and
- embedding knowledge in the workflow of practitioners, managers and policy makers.

3 Strategic Direction – Proposals for the Future of Knowledge Services

3.1 The review recommends a number of potential **changes** at local and national levels, as outlined in the indicative driver diagram (Appendix 2, Figure 2). This change package is based on the [evidence base](#) the review has established for what works in translating knowledge into practice^{8,9}. The proposal is to support NHS boards to develop the network of knowledge brokers with the skills and competencies to enable them to collaborate with clinicians and improvement practitioners to implement these changes by:

- co-ordinating methods and processes for **evidence search and synthesis** – combining research with evidence from the experience of teams, patients and carers
- delivering **knowledge in actionable formats** – for example care bundles, decision aids, pathways, decision support
- supporting person to person **exchange and dissemination of knowledge** (including recognition of the importance of tacit knowledge) among practitioners and patients, through methods such as communities of practice
- building **organisational capacity and culture** for use of knowledge through strategic, clinical and operational leadership, building knowledge management roles and skills
- developing a **network of knowledge brokers** integrated with clinical and improvement teams to deliver knowledge into practice approaches to support improvements in clinical practice and the quality outcomes, and
- **transforming use of the physical library space** to support the improvement activities of collaboration, innovation and reflection.

3.2 The review proposes an **evaluation framework** (Appendix 2, Figure 3), developed with the support of NHS Health Scotland, to help assess the impact of the new approach in the form of an Outcomes Chain describing successive levels of impact of Knowledge into Action approaches:

- Outputs
- Reach
- Reactions
- Knowledge, Attitudes, Skills and Aspirations
- Practice/Behaviour Changes, and
- Outcomes.

4 “The future is already here”¹⁰ - learning from current activity

- 4.1 Using this framework for assessing impact, the review has already demonstrated the positive impact of the proposed change package in national and local improvement initiatives, including general practice, intensive care, an emergency unit, a surgical ward, a urogynaecology unit and others⁹. Boxes 1–3 below provide a summary of selected tests of change. These examples and the ongoing activities commenced as part of the review offer valuable learning for future dissemination of Knowledge into Action across the healthcare system.
- 4.2 Many of these examples illustrate how collaboration within and across NHS boards can help to maximise use of available capacity to meet future demand for knowledge support.

Box 1: Collaborating as a knowledge broker network

Supporting National Patient Safety and Quality Improvement Initiatives

Knowledge managers from special and territorial boards have collaborated to support the Venous Thromboembolism and Sepsis Patient Safety Programme and a national quality improvement initiative on older people’s care with elements of the Knowledge into Action change package. This has involved the sourcing and synthesis of evidence about interventions and implementation and development of accessible actionable knowledge resources. Web-based platforms on the Knowledge Network have been established to host resources and share experience of improvement to support the communities of practice.

Palliative and end of life care

The updating of national palliative care guidance is being supported by knowledge services staff from a number of NHS boards and SIGN by undertaking literature searches and providing critical appraisal training to the clinical staff responsible for producing the updated guidance.

Developing an NHS board-wide knowledge broker network

One special health board has developed an internal network of knowledge brokers, including library services, research and public health staff. This network brings together complementary skills and resources to offer the full portfolio of Knowledge into Action support and avoid duplication of effort.

Box 2: Building workforce capability in knowledge management skills

WebEx, an online web-based platform for running virtual seminars, has been successfully used as a medium for remote training of staff in use of the Knowledge Network allowing equity of access.

Practice educators have been supported to develop their knowledge broker roles and disseminate training in use of the Knowledge Network to over 700 staff across NHSScotland.

A training needs assessment based on the competencies within the Royal Collage of Nursing Information Use Framework enabled tailoring of training sessions to the needs of respondents, with a focus on reference management software and use of databases.

Box 3: Knowledge into Action tools and methods

Evidence search and synthesis

Evidence search and synthesis support to particular clinical specialties in two NHS boards increased clinicians' use of published evidence, improved clinical decision-making and delivered measurable changes in patient care. Knowledge managers' search and synthesis skills are also being applied to support problem-based small group learning around cervical screening in general practice.

Current awareness

A new current awareness bulletin on improvement science methods has been developed and is being piloted to support the work of the Quality Improvement Hub. This includes a digest of publications on new and evaluated methods for improving the quality of clinical services.

Actionable knowledge

Browser Plug-in

The clinical decision support search from NHS Education for Scotland is available to download as a browser plug-in, providing quick, easy access to international and local "actionable knowledge", to provide answers to clinical queries at point of care.

Actionable Knowledge Publication Toolkit

NHS Education for Scotland's Actionable Knowledge Publication Toolkit supports creation and online publication of clinical pathways and guidance, integrated with evidence from the Knowledge Network.

Person to person exchange of knowledge

Communities of practice

NHSScotland has supported communities of practice as a social model of learning and quality improvement since 2005. A high-impact current example involves Allied Health Professionals working with people with dementia, who rely on their community of practice and web-based platform to share resources, and offer mutual support for learning and improvement.

Staff profile database

One NHS board has developed databases of staff knowledge and experience to facilitate learning from the experience of others.

5 Next steps

- 5.1 Healthcare Improvement Scotland and NHS Education for Scotland have approved the following recommendations and have agreed to proceed with these as the basis for implementation with the service. They are establishing governance arrangements to ensure that key issues such as resources, change methodology, and the impact and practicability of key actions are appropriately assessed.
- 5.2 Implementation of these recommendations will need to be both aligned with local NHS board strategic priorities and provide sufficient flexibility with respect to approach and pace taking into account local resources and capability.
- 5.3 The evidence base and the experience of the review underline the following as the key areas to consider in planning for implementation

Recommendation 1: To deploy and further develop the Knowledge into Action model and change package. The aim would be to establish processes, skills and support that continuously improve and update healthcare knowledge and apply it to practice, planning and policy. This would help to embed knowledge in delivery of care, supporting day to day use in the work setting, and person-centred care of individual patients.

Recommendation 2: To continue to support and develop the network of Executive leads and clinical champions for knowledge management, improvement practitioners and knowledge management leads, both locally and nationally. This would take the form of regular opportunities to share experience, identify areas for action, celebrate success, and build capability in Knowledge into Action tools and techniques.

Recommendation 3: To build clinical engagement as an essential enabler of translating knowledge into frontline practice. The review has helped to raise awareness of [point of care knowledge services](#) which support clinicians by making it easy to “do the right thing in the right way” at point of clinical decision-making. Configuring e-knowledge and e-learning systems to work together could support clinical education and continuing professional development, and reinforce the need to embed knowledge in clinical care.

Recommendation 4: To establish systems to embed knowledge support as an integral component of quality and safety initiatives from the outset to benefit the improvement process and ultimately healthcare outcomes.

Recommendation 5: To provide opportunities for healthcare workers to develop the skills, behaviours and values of finding, sharing and utilising knowledge as part of day to day practice, continuous learning and improvement. Building capacity across the system in this way will help to exploit the power of knowledge as a key asset for NHSScotland.

Recommendation 6: To integrate knowledge management with ehealth to support translation of knowledge into frontline practice. Closer working with eHealth will help optimise access to, and usage of, online knowledge and learning systems.

This will facilitate embedding decision support in clinical and quality management systems, combining intelligence from patient, practice and service data with evidence from guidelines and other sources. Greater use of social networking tools has significant potential for sharing and dissemination of knowledge from the experience of practitioners and service users.

Recommendation 7: To identify opportunities for collaborating to translate Knowledge into Action across health and social care to support integrated working across the public sector as outlined in the [Christie Report](#)¹¹. The social services knowledge management strategy – “Knowledge into Practice”¹² - has been developed in parallel with the Knowledge into Action Review, and is founded on similar principles and change ideas. Potentially, this presents opportunities (where appropriate and feasible) to consider the benefits of other practical arrangements such as common knowledge management technology, staff expertise and procurement, including collaborative purchasing.

Recommendation 8: To develop the relationship among NHS, Higher and Further Education stakeholders to support Knowledge into Action. Structures and processes that enable seamless transfer of knowledge across the boundaries of research, education and practice are important enablers of a culture that translates Knowledge into Action. Potentially, this could translate into practical arrangements such as shared technology, resources and collaborative purchasing.

Recommendation 9: Implementation should focus on:

- **building capacity and capability** for Knowledge into Action, both locally and nationally
- supporting **local Knowledge into Action developments** to underpin local strategic priorities, and
- applying Knowledge into Action to support **a small number of high profile national initiatives** relevant to healthcare quality outcomes and the health and social care integration agenda.

Conclusion

The Knowledge into Action Review recommends strategic and practical approaches. These will build on NHSScotland’s strengths in knowledge management to apply knowledge to frontline practice, planning and policy, and embed knowledge in healthcare improvement. Delivering the vision of Knowledge into Action will require engagement and leadership from clinicians and strategic managers in order to align use of knowledge with local and national healthcare priorities. The overall prize is a healthcare system which recognises that “[the transfer of knowledge is care](#)”¹³, embedding knowledge in practice to consistently deliver safer, more effective, and person-centred care.

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Appendix 1: Knowledge into Action Steering Group

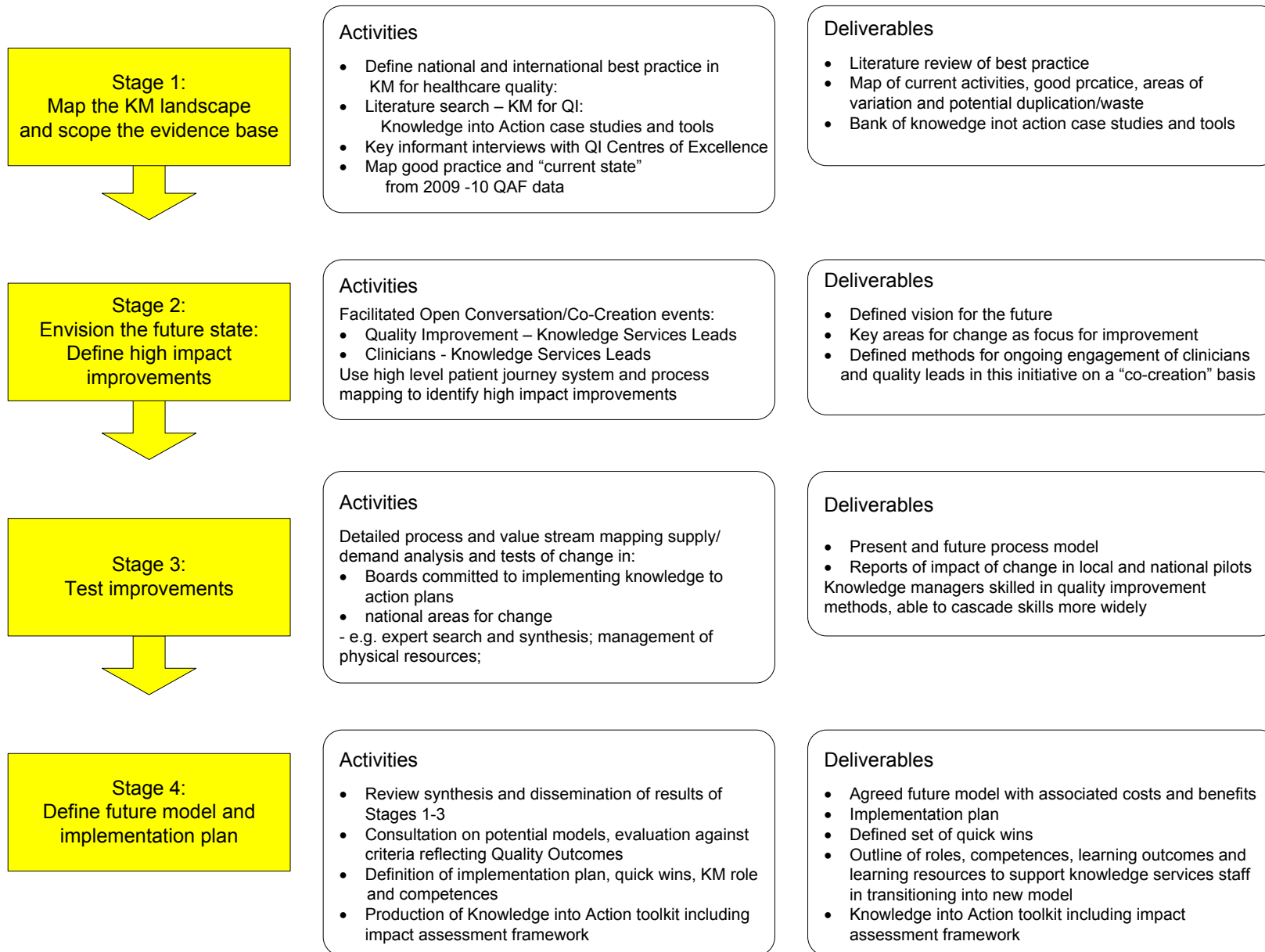
Terms of Reference – April 2011, revised June 2011

The Knowledge into Action Review Steering Group was convened by Healthcare Improvement Scotland and NHS Education for Scotland. The group provides oversight and advice in the delivery of the objectives listed below using the process and methods set out in Figure 1. (Membership of the group can be found on page 11.)

Objectives

- 1 Create a coherent, outcomes-focused national operating model for knowledge services, as part of a wider “virtual network” of services working together to get knowledge into action for safe, effective, person-centred care.
- 2 Define the competences, roles and functions required to deliver this model, including particularly specialist librarian expertise.
- 3 Align this model with the goals and delivery approaches of the Healthcare Quality Strategy, to deliver measurable improvement in quality of care outcomes.
- 4 Engage senior strategic leads in NHS boards in sponsoring and authorising implementation of this model.
- 5 Engage operational leads in the virtual network of knowledge services, across special and territorial boards, in defining and implementing this model.
- 6 Define an action plan for improving use of knowledge, for example, through frontline practice, education, organisational development and shared decision-making, to improve quality of care outcomes through this new model.
- 7 Deliver efficiencies, and free up financial and human resource by removing duplication, realising economies of scale and achieving synergies in managing knowledge across the system to improve quality of healthcare.

Figure 1: Knowledge into Action: process and methods for review of knowledge services and definition



<<<< March – July 2011 >>>>

August – December 2011

January 2012 – June 2012

Knowledge into Action Steering Group membership

Colin Brown (Chair)	Deputy Director, Health and Social Care Directorates, Scottish Government
Kevin Rooney (National Clinical Lead)	Professor of Care Improvement, University of West of Scotland, and Consultant Anaesthetist, NHS Greater Glasgow and Clyde
Carrie Marr (Specialist Adviser)	Director for Organisational Effectiveness, NHS Tayside
Karen Ritchie (Knowledge Management Lead)	Head of Knowledge Management, Healthcare Improvement Scotland
Ann Wales (Knowledge Management Lead)	Programme Director, Knowledge Management, NHS Education for Scotland
Val Baker, subsequently John Steyn	NHS Lothian, representing eHealth leads
Roger Black	Head of Quality Improvement Programme, Information Services Division
Penny Bond	Improvement Team Leader, Healthcare Improvement Scotland.
Lorna Brown	NHS Fife eHealth and representing eHealth leads
Fiona Clark	Learning and Development Advisor, Scottish Social Services Council
Lorraine Gray	Policy and Strategy Manager, Scottish Social Services Council
Andy Crawford	Quality Improvement/Clinical Governance, NHS Greater Glasgow and Clyde
Huw Davies	Co-Director, Social Dimensions of Health Institute, Universities of Dundee and St Andrews
Simon Edgar	Director of Medical Education, NHS Lothian
Vicky Entwistle	Professor of Values in Healthcare, Social Dimensions of Health Institute, Universities of Dundee and St Andrews
Lynne Huckerby	Head of Health Information Service, NHS 24
Jean Ker	Head of Clinical Skills Unit, NHS Education for Scotland
Michelle Kirkwood	Knowledge Services Manager, NHS Greater Glasgow and Clyde
Paul Knight	Chair of Directors of Medical Education Group
Sandra Ladd	Librarian, Knowledge Services, NHS Lothian
Mhairi McMillan	Head of Knowledge Management, NHS Ayrshire and Arran
Pat Millar	Learning and Development, NHS Tayside
Jane Murkin	Associate Director of Improvement, Healthcare Improvement Scotland
Hazel Scott	Associate Postgraduate Dean, NHS Education for Scotland, Medical Education
Annette Thain	Coordinator, Knowledge-Based Practice Team, NHS Education for Scotland
Janice Watt	Principle Pharmacist, NHS Greater Glasgow and Clyde
Sandy Wilkie	Organisational Development, NHS Dumfries & Galloway/Organisational Development Leads Network
Suzanne Wilson	Health Information Scientist, Healthcare Improvement Scotland
Erica Wimbush	Head of Programme Evaluation, NHS Health Scotland

Appendix 2: Knowledge into Action support fro NHS boards

Figure 2: Primary drivers and conceptual design of change package

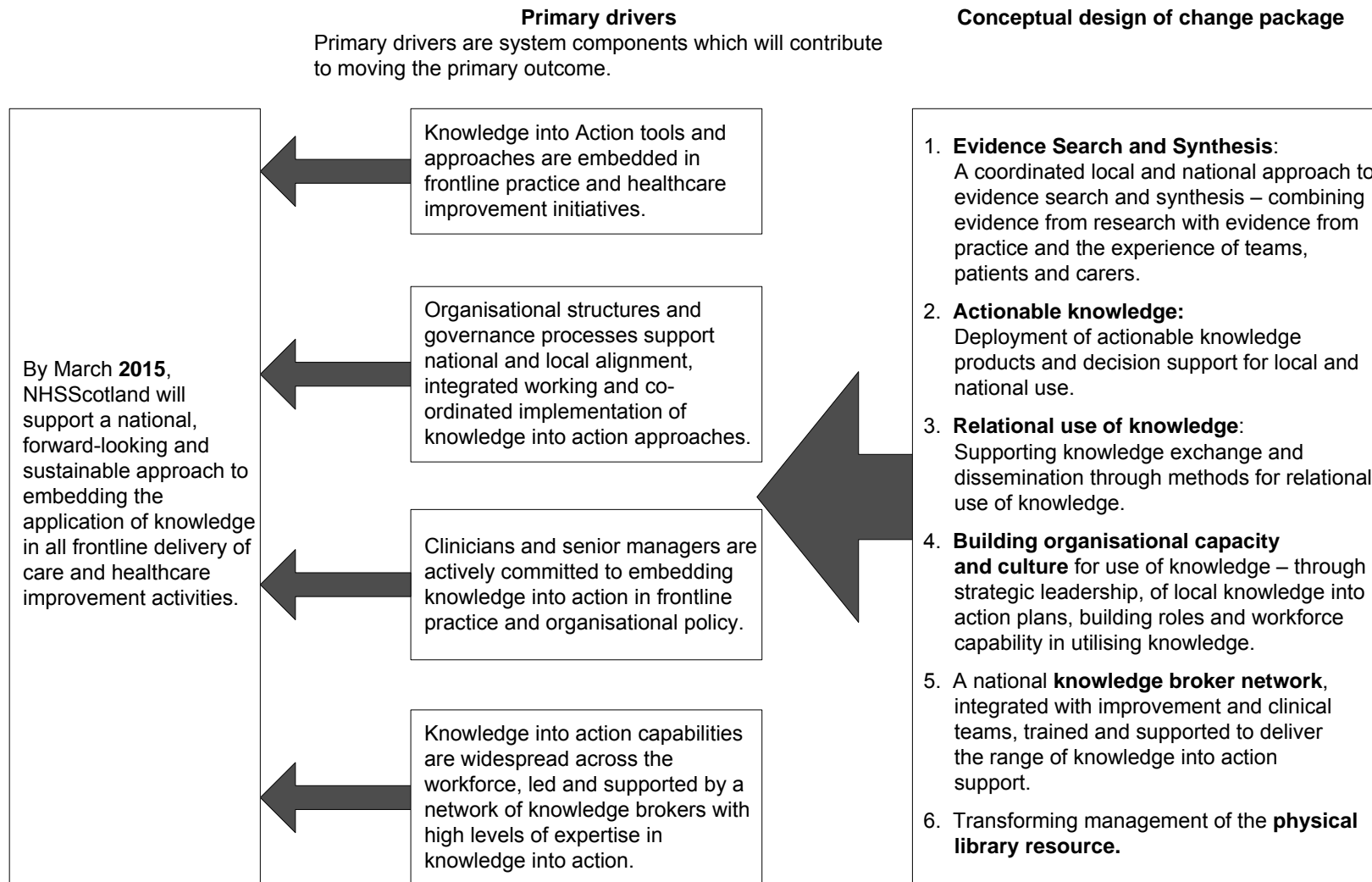


Figure 3: Knowledge into Action Test of Change projects – Outcomes Chain

