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What does the service improvement literature tell us and how can it make a difference to implementation?

Introduction

This paper is an overview of the improvement science literature in relation to supporting implementation strategies. It is a reflection of the learning the author (Gillian Granville) obtained during a six month, full time secondment from the National Institute for Health and Clinical Excellence (NICE) to the NHS Institute for Innovation and Improvement (the Institute). During that time, she worked in one of the Institute's priority programmes with the team delivering a programme of work for the Department of Health on reducing healthcare associated infections. As well as being able to put some of the service improvement methodologies into practice, she also had the extra benefit of participating in the Institute's learning events.

This paper is intended for any individual and organisation wishing to be more effective in the implementation of evidence based practice, policy initiatives and the spread of good practice. It offers the evidence base for the approaches and suggests some key areas organisations may wish to consider, both at a strategic and operational level.

It is divided into three sections: section one is about service improvement science, the rationale for change, and an understanding of complex adaptive systems; section two looks at the application of service improvement knowledge and skills, and the spread and sustainability of innovations in healthcare delivery; section three explores four key areas which may offer support to those concerned with implementation and the development and spread of good practice.

SECTION ONE: ABOUT THE SCIENCE OF SERVICE IMPROVEMENT

The science of service improvement

The science of service improvement is a mix of disciplines, which aims to build a culture that is supportive of improvement and uses principles and thinking from psychology and organisational development. The objective is to combine the tools and techniques of quality improvement with effective organisational and leadership development.

It draws on a breadth of knowledge and research including technical engineering theories of systems, theories about human relationships and social interactions and complexity theory. There are also the theories that support organisational development, design and adult learning (NHS Institute 2005). Newer approaches to spreading good practice are taking principles

from marketing, social marketing, social movement and network science (Bevan 2005).

Theme of 'change'

The goal of service improvement is to achieve a higher quality experience for patients than the NHS is currently achieving (Maher and Penny 2005). It can mean different things to different people depending on individual roles, responsibilities and experiences, but the common theme is that it involves change:

> "Not every change is an improvement but certainly every improvement is a change and we cannot improve something unless we change it" (Goldratt, 1990, p.10)

What is the difference between improvement, innovation and creativity?

- Improvement is any method that brings about a measurable benefit against a stated aim. The model for improvement asks three questions
    - What are you trying to achieve?
    - How will you know a change is an improvement?
    - What changes can you make that will result in the improvement that you seek?
- Creativity is thinking flexibly to generate new and useful change ideas
- Innovation is when a creative idea is put into action

<u>Why do we need to apply service improvement science in healthcare?</u>

Nigel Edwards, Policy Director at the NHS Confederation, believes that there are serious weaknesses in the existing models of management and that a new set of techniques and approaches are required:

> "The hierarchy that conventional organisations use to transmit strategy and commands to the front line is considerably less effective in healthcare and may even be disconnected" (Foreword in Peck 2005)

He argues that efforts to reconnect high level command and front line staff through more rigorous command and control techniques has not proved very effective. Improvement science and its connection to organisational development offers opportunities to engage front line staff in a new way that is not manipulative but aligns objectives of users, government, organisations and clinical staff. He further argues that:

> "NHS management is atheoretical, it is pragmatic and experience based. Bias for action over reflection, strategy and planning is reinforced by the short term focus of performance management and the political cycle…… (support is required to) leaders trying to engage their staff in changing their organisations by bringing together

theory and experience. This is important as too often theory is neglected and there is insufficient reflection on experience" (Foreword in Peck 2005).

'Pull' not 'push'

Helen Bevan, Director of Service Transformation at the NHS Institute, believes that if we implemented all the improvements we have evidence about, patient care would be transformed. She says that approaches to spreading good practice have largely focused on *pushing* (spreading, disseminating, rolling out, scaling up) change in the system. The future emphasis needs to be on creating a *'pull',* because sustainable change cannot be pushed externally: it is an internal process that starts at the level of the individual. She continues:

> "We cannot produce a standard or guideline and just expect people to adopt it . The newest approaches take principles from marketing, social movement theory, complexity and network science. They involve working right from the start with the groups of people who might adopt the changes to design guidance and delivery approaches in their language and context, meeting their exact need" (Bevan 2005).

I return to Helen's work in the section on spreading and sustaining innovations.

Lynne Maher, Head of Innovation Practice, and Jean Penny, Head of Learning, both at the NHS Institute for Innovation and Improvement, say that the primary motivation for service improvement should be the needs of the patients, and by focusing on that it will be easier to understand what needs to improve:

> "To achieve change for improvement that both sustains and leads to continual improvement, individuals and teams must use a combination of the 'softer sides' of organisational development and the human dimension of change, with the 'harder sides' of tools, techniques, measurement and project management" (Maher and Penny 2005: 98).

I now move on to discuss how an understanding of healthcare organisations as complex adaptive systems is essential for achieving service improvement and organisational change.

Understanding complex adaptive systems

There is a growing body of opinion now that believes health care is complex and that complexity affects how improvements and innovations can be generated and spread through the system (Battram 1999, Plsek and Greenhalgh 2001, Sweeney and Griffiths 2002, Barnes et al 2003, Plsek 2003). Health care organisations are viewed as complex adapted systems and understanding the concepts from the science of complex systems is necessary to generate practical insights into improvement. In 2001, the NHS Confederation (2001) published a series of discussion papers about the implications of complexity science for the UK health system.

Definition

> "A complex adaptive system is a collection of individual change agents, who have the freedom to act in ways that are not always totally predictable, and whose actions are interconnected such that one agent's actions change the context for other agents. Examples include the immune system, a colony of insects, the stock market, families and health care organisations (Plsek 2003)".

Complexity theory develops the contrast between the machine metaphor for simple systems and the chaos of complex systems. It suggests that in complex systems:

- Elements of the system can change themselves
- Complex outcomes can emerge from a few simple rules
- Small changes can have big impact
- Complex systems thrive in tension and paradox
- Continual creativity is a natural state of the system
- Complex systems are non linear
- Leaders in complex systems manage generative relationships
- Leaders in complex systems need to learn and think in different ways than yesterday's norm

Complexity theory emphasises the importance of context and creating the receptive conditions for change, and that the change is not linear and centrally determined, but can be emergent and bottom up. The key principles to use when applying complexity to service improvement are:

- Help people to uncover their own solutions
- Allow people the space to create generative relationships
- Pay attention to the necessary pre-conditions for change

Two examples of the application of complexity theory to practice can be found in Latchem et al (2003) and Meyrick and Granville (2006).

The importance of patterns in improving healthcare systems

The work of the physicist Fritjof Capra (1996, 2002) has demonstrated that complex systems consist of structures, processes and patterns, and interactions and changes in each of these elements is required to improve and transform systems in health and social care.

Structures refer to the geography and lay out of facilities and equipment, organisational boundaries, roles and responsibilities, teams, committees and working groups, targets and goals

Processes refer to patient journeys, care pathways, educational processes, funding flows, recruitment of staff, procurement and supporting processes such as ordering, delivery and dispensing

Patterns refer to patterns of thinking and behaviours, conversations, relationships, communication and learning, decision-making, conflict and power

These three parts are highly intertwined and interconnected, and improvement cannot be achieved, as complexity theory reinforces, by making changes in only one part of the system. People are usually familiar with structure and it is often the first action to be changed; there is a lot of knowledge around about understanding and improving processes, freeing bottlenecks and so on, but patterns are often ignored and remain unchanged and unchallenged within systems, despite changes to structures and processes (Plsek and Greenhalgh 2001).

Creating the right context for change

Complexity science shows us the importance of the context where change occurs and how it is fundamental to understanding improvement. Pettigrew et al (1992) used the term 'receptive context' to describe the degree to which a particular group or organisation naturally takes on change and ideas, and others, with the same challenges, lack the will or ability to implement an initiative. Plsek believes that a lack of understanding about the important role of organisational context, or unwillingness and lack of skill in doing something to make it more receptive, leads to the current frustrations in the slow and uneven adoption of improvements. He cautions against the generalisability of solutions and warns about:

> "..silly mistakes such as expecting that an innovation that was successful in one place will be successful in other places if only 'they would follow the model provided'." (Plsek 2003)

Therefore, the literature is emphatic that when considering implementation, adoption and spread of ideas, good practice, policy and evidence through the system, it is not sufficient to describe only the initiative. A language has to be developed to describe the nature of the context that will make it successful. The 'kit' for spreading the improvement needs to include advice on assessing, and modifying key elements of organisational context relevant to the change required. Plsek (2003) offers five key elements of organisational context that can have a large impact on receptivity for change. These are:

- The nature of relationships; how they are built and maintained
- The nature of decision-making; how it is done and by whom
- The nature of power; how it is acquired and how it is used
- The nature of conflicts; how do they arise and what are the common forms of dealing with it
- The importance of learning; both individually and collectively

However, Plsek acknowledges that we are only just beginning to understand receptive context and its relationship to generation, implementation and widespread adoption of innovative change. However, it is essential to

understand it in order to create practical tools and advice for organisational leaders

Emerging debates on culture and organisational development may offer some useful insights. Anderson- Wallace and Blantern (2005) suggest that culture can be viewed as the context for all organisational activity, rather than a distinctive variable in organisational life.

SECTION TWO: APPLICATION OF IMPROVEMENT KNOWLEDGE AND SKILLS

Model of Improvement

The model of improvement thinking involves four equally important and interrelated parts that are seen as the foundation for improvement activities (Jean Penny 2003). These are:

- Personal and organisational development: building a culture that supports improvement
- Process and systems thinking: understanding work processes and systems, and the linkages within them
- Involving users, carers, staff and the public: understanding their experience and needs
- Making it a habit: initiating, sustaining and spreading, building improvement into daily work

In the current climate of the NHS and the drive for a more patient led approach, the effective engagement of different audiences of users, carers and staff groups is being recognised as particularly important. I will return to this in the section on experience-based design.

Improvement Activities

Six improvement activities are described here, which illustrate the breadth of disciplines that improvement activities are drawn from:

1. **Care pathways:** the development of care or clinical pathways document the most appropriate care, at the most appropriate time, by the most appropriate person in the most appropriate place (Layton A et al 2002).

2. Clinical Microsystems: these are the building blocks of larger organisations, small, functional, frontline units that provide most healthcare to most people. This method provides a framework to support organisations to analyse and understand a micro system, through looking at purpose, people, patients, process and patterns.

3. Lean thinking is a set of approaches, tools and characteristics aimed at reducing the amount of time needed to produce a product or service. It focuses on value from a 'customer' perspective, by eliminating all activities that add no value. Lean is more about waste prevention than elimination whilst

emphasising continuous improvement. It was pioneered by Toyota and is widely used in manufacturing, and is gaining popularity in the UK for certain types of interventions (see Bevan et al 2006).

4. Six sigma was also conceived in the manufacturing sector and is a rigorous strategy for improvement based on analysis and measurement. Sigma refers to a statistical concept, which reduces the amount of variation in a process. The methodology focuses on a five-step process- define, measure, analyse, improve and control.

5. Theory of Constraints is about concentrating efforts to identify and reduce the impact of a 'constraint' or bottleneck in a system. It fits well with lean and six sigma, but pays little attention to the people side of change (Goldratt 1990).

6. Total Quality Management (TQM) is an all-embracing term, based on the principle of involving everybody in the process of improvement. It advocates not just meeting the needs of staff and patients but also exceeding expectations. It has been found to be less effective in complex systems when solutions are not easy to identify and apply.

Using learning cycles (PDSA) to test small scale change ideas

Plan-Do-Study-Do (PDSA) cycles (Langley et al 1996) are considered to be one of the most useful tools for those wishing to make change and improve a service (Maher and Penny 2005), particularly when testing change ideas on a small scale. The cycle has been used as a framework to support improvements within both health and business contexts.

The principle is based on the knowledge of how learning takes place, which involves a cycle of events: 'doing something', 'thinking about what has been done' and 'the consequences'. The key stage in PDSA cycles is 'study', when time is taken to analyse what has happened and compare to any predictions or thoughts about what was expected to happen. The reality of the delivery of healthcare services is that there is often little time, or 'permission' given, to reflect and learn on what has been done, because of the urgency placed on 'doing'. This means that learning often doesn't take place and no change can occur.

Whole system level change

Helen Bevan (Bevan et al 2006) reminds us that the NHS is in the middle of a ten-year programme of transformational change. The aim is to provide health and healthcare services that meet the life long needs of the citizens of England. This requires fundamental redesign of the healthcare system, as well as incremental improvement of existing services. Helen discusses the challenges of sustaining change over time, and whilst acknowledging there are excellent examples of project-led improvement work where specific improvements are made for a specific group of patients, she continues:

> "There are fewer examples of project work sustained over time, scaled up and spread across entire organisations, making noticeable changes in overall organisational performance" (Bevan 2005)

She talks about the trend globally away from discrete quality projects towards organisation-wide improvement strategies. Boards and senior leadership are setting improvement goals for the whole organisation, and for commissioners, a system level improvement strategy offers the potential of population-wide benefits.

The '10 High Impact Changes for Service Improvement and Delivery' (Modernisation Agency 2004) is underpinned by new ways of thinking about performance improvement to deliver and sustain national and local performance goals. It is intended that the changes proposed in the high impact changes should not be seen as a one-off initiative, but as part of a concerted long-term effort to transform NHS services.

Experience based design: co-designing services

There is now an increasing body of literature, which is moving the discourse around patient and public involvement to a new level by looking towards other disciplines. In particular, ideas and knowledge are being used from the field of design sciences and the design professions, such as architecture, computer, product, graphic and service design (Bate et al 2005). It is seen as moving from redesigning the system *around* the patient to *co-designing* with the patient (Bate and Robert 2006).

The focus is on patients working in partnership with front line staff to design new models of care based on their experiences. The focus is moving away from designing purely care processes and pathways, to designing human experiences. It concerns "the aesthetics of healthcare; the touch, the emotion, the whole experience, from a user perspective" (Bevan 2005). It differs from process mapping, which maps steps in the clinical pathways, to mapping patient 'touch points'; patient stories and storytelling are used to give insights into the strengths and weaknesses of present services and how they might be redesigned in the future.

It is believed that experience based design will become increasingly common as the NHS moves from a service that does things to and for patients, to a NHS that is truly patient led (Bevan 2005). This has huge implications for the way the service will work to make improvements.

Spreading and sustaining innovations in health service delivery

The seminal work of Tricia Greenhalgh and colleagues (2004), which reviewed the spread and sustainability of innovations in health service delivery and organisation, presents a comprehensive account of the factors required to promote spread. They identify eight key messages:

1. The nature of the innovation

2. The characteristics of the adopters
3. Ways of spreading the message
4. The role of opinion leaders and 'champions'
5. How adoption will take place
6. The type of organisation and its culture
7. The organisation's readiness to change
8. The impact of factors outside the organisation

They conclude that the evidence on implementation and sustainability of innovations is complex, and is difficult to disentangle from change management and organisational development. However, success depends on many of the factors discussed. (NHS Service Delivery and Organisation Programme who commissioned the review have produced a useful briefing paper: 'Spreading and sustaining innovations in health service delivery and organisation', Change Management, November 2004).

Rogers 'Diffusion of Innovations' distribution curve (Rogers 1985) is well known, and describes the groups of people who influence the adoption and spread of innovation. The groups are innovators and early adopters where ideas flow between the groups; the early majority and late majority who are more cautious and take a wait and see attitude before they commit, and the laggards and resistors to change who hold out until the bitter end. It is described as a natural process and research shows that if you engage 20% of a population, the rest will follow but it will take time. Current thinking is that it can take five years for an initiative to be adopted.

An urgency is now developing to find ways to quicken up the adoption curve, and a challenge to the NHS Institute for innovation and improvement is to find ways to make 'better things happen faster'. There is considerable interest in looking towards social marketing techniques to support large scale behavioural change where national co-ordination and supporting resources are combined with a bottom up campaign approach, encouraging wide spread engagement and motivation of all the stakeholders. An example of a campaign that has been very successful is the one initiated by the Institute for Healthcare Improvement in the USA, (www.ihi.org/IHI/) which is briefly described below.

The '100,000 lives' campaign

The mission of the campaign was to save the lives of 100,000 people who would otherwise have died in hospital over a period of 18 months. The campaign was based on six evidence-based interventions that save lives: deployment of rapid response, actions to reduce hospital deaths from heart attacks, three to reduce hospital acquired infections, and the prevention of adverse events through reconciliation of medication. The 18 months ended in June and the official estimate is that 122,342 lives have been saved. The campaign is now continuing to full implementation of all six interventions in all participating hospitals by January 2007.

Helen Bevan, director of service transformation at the NHS Institute commenting on the 100,000 campaign, believes that it demonstrates the power

of the 'pull' approach discussed earlier in this paper. She says that it framed the change proposition as an irresistible and logical argument that fits with the values, beliefs and life experiences of clinicians and managers. She continues:

> " The campaign suggests new methods for spread and adoption of best practice. Campaigns are emergent, self-fuelling and bottom-up, yet success depends on meticulous planning and strategy. You have to design for pull as well as push" (Bevan 2006)

She argues that in order to make the large-scale changes that are required, there is a need to move beyond the push of the top down performance improvement approach as well as beyond the unco-ordinated pull of lots of individual local projects

SECTION THREE: FOUR KEY AREAS FOR ORGANISATIONS TO CONSIDER IN DEVELOPING IMPLEMENTATION STRATEGIES

There is a significant body of evidence already to support service improvement methodologies, and in this dynamic field, more evidence of effective approaches continue to emerge. I have selected four key areas where I think the literature and my own learning may be particularly useful in supporting implementation strategies. The four areas are: recognising the context, working with patterns as well as structures and processes, engaging with the patient experience and building knowledge around improvement.

1. Recognising the context

The importance of understanding the local context is fundamental to success. This requires development of language and tools that create a receptive context where change will be taken up. It requires a particular understanding of local cultures, 'the way we do things round here', and an identification of the opinion formers and champions locally who need to be engaged to promote change. In this time of reconfiguration of the NHS, with changes to commissioning and new organisations forming to deliver health care, such as social enterprises, an understanding of the history and culture of the local organisational context will be important to implementation. One way this can be done is through working with local and regional service improvement leads, and others, and producing resources that can be adapted to suit the local conditions.

2. Working with patterns, as well as structures and processes

The evidence from service improvement science demonstrates the need to pay attention to working with behaviours and relationships as well as structures and processes. The values and beliefs of staff will have an effect on the way implementation occurs, and the need to engage people's hearts and minds is often underestimated. One powerful way this can be achieved is through all staff, including boards and senior clinicians focusing on the patient experience and recognising what that means for improvement. This may have implications for how people are involved in implementation strategies, and an

acknowledgement that as well as understanding the benefits of evidence based practice, mechanisms are required to connect those facts with people's own values. It has the possibility of people wanting to implement best practice, 'the pull', rather than some seeing it as another thing that has to be done, 'the push'.

3. Engaging the patient experience

The emerging evidence on experience-based design is offering ways that patients can be fully engaged in the improvement of services. This makes a move to designing implementation that begins from the patient perspective. The identification of 'touch points' rather than care pathways may be a useful approach for organisations to explore in the development of their strategies for change. This also enables different stakeholders to emerge who may be crucial for success.

My own work at the NHS Institute in leading the body of work around understanding patient and public perceptions of the service as clean and safe and what was required to increase confidence, demonstrated the value of co-designing for improvement. The process of hearing the different perspectives of staff and patients and the wider public, enabled solutions for change to be identified and responsibility to act being taken forward. This approach sees improvement, of which implementation of guidance is a factor, as everyone's responsibility.

4. Building knowledge around improvement

The literature on service improvement is very clear about the need for people working in the service to have the opportunity and space to reflect and learn. We know that this is not easily recognised as important in heath care when the focus is so strongly on task completion. If implementation is to be effective, opportunities for staff to have time to understand and incorporate change into their routines has to be included. The learning needs to incorporate how change will be undertaken in the local context, and how that context can be made more receptive. It is in these learning situations that examples of good practice can be shared and customised for local application.

Building capacity around improvement also includes creating opportunities for knowledge sharing, building on the evidence around practitioner knowledge and wisdom. The value of peer-to-peer knowledge exchange is well understood (Collison and Parcell 2004, Wells et al, 2006). The model of 'communities of practice' (Wenger et al, 2002, Bate et al 2004) is not a popular model in the UK healthcare systems but has been extensively used in industry and the private sector. It enables an understanding of how things work in real life situations. Organisations who are keen to develop approaches to sharing good practice, may wish to explore different models of knowledge sharing.

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