Briefing
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NHS CONFEDERATION

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The AHSN Network

Cracking the innovation nut

Diffusing healthcare innovation at pace and scale

Who should read this briefing?

- All those interested in how innovation can help to address challenges in the NHS, both now and in the future.
- Healthcare leaders across both commissioner and provider organisations keen to further develop cross-regional relationships with academic health science networks (AHSNs), academia and industry.

What this briefing is for

- To explore the barriers and enablers around the diffusion of innovation, and how AHSNs are working with the NHS, industry and others to overcome some of these issues. It offers a set of recommendations for national bodies, providers and commissioners to consider.
- This briefing represents the views of the AHSN Network. An NHS Confederation viewpoint is included on page 8.

Key points

- Delivery of safe and effective care increasingly requires diffusion of healthcare innovation.
- There are two contextual dimensions which impact diffusion of innovation – pursuit of scale in delivery and the diversity of innovation.
- AHSNs have a key role to play in supporting diffusion. They are not merely interested in the adoption and diffusion of the 'new' but also focus on fostering take-up of existing best practice and innovation.
- Even with fragmented organisational structures within the NHS, national levers to promote the uptake of innovation do remain.
- Challenges are clear – financial rules, lack of emphasis on the demand side of the equation, patient power, accountability and innovation pathways among others.
- AHSNs propose a number of recommendations to address those challenges around best practice, transparent data, empowering patients and financial incentives.

What are academic health science networks (AHSNs)?

The objective of AHSNs is simple – to create an environment where innovation and best practice can be diffused at pace and scale across healthcare systems thus benefitting patients and populations, the NHS, as well as industry and the economy at large.

As partnership bodies, AHSNs connect NHS organisations with academia and industry in order to accelerate the process of innovation diffusion and facilitate the adoption and spread of innovative ideas and technologies across large populations.

As catalysts and facilitators of change across whole health and social care economies, with a clear focus on improving outcomes for patients, AHSNs open doors and create a more conducive environment for relevant industries to work more effectively with the NHS and other parts of the healthcare sector.

Introduction

The diffusion of healthcare innovation is essential for any well-functioning and high-performing healthcare system. Fast and systematic diffusion of innovation can also support economic prosperity more widely by providing an attractive marketplace for entrepreneurs. This is also true for the NHS.

While the UK has a strong track record of innovations that have changed the face of medicine and healthcare globally, the NHS has a less positive record of adopting innovation and best practice at pace and scale. AHSNs were established in the Summer of 2013 by NHS England to help address the challenge of diffusion.

This briefing outlines some of the lessons that AHSNs have learned in their first 18–24 months of operation with regards to diffusing innovation and best practice at pace and scale. It includes examples of how AHSNs are working with the NHS, industry and others to overcome the challenges and gives recommendations to enable progress in this area.

Context matters

In order to understand the challenges around diffusion of innovation it is first important to set out the broader national and cultural context.

There are two particular dimensions of context which help to map the scope and scale of the activity AHSNs are undertaking in the realm of innovation diffusion. The first is scale, or lack thereof, and the second is diversity of innovation – are we all talking the same language?

In pursuit of scale

Given its scale, a national health service should provide an ideal environment for diffusion. However, the reality of the NHS is one of extreme fragmentation.

Clinical commissioning groups (CCGs) range in population size from just over 60,000 to 860,000. The largest acute trust in England – Barts Health NHS Trust – has a turnover of £1.25 billion, yet this is still relatively small compared to large healthcare systems in the US, a market usually considered to be fragmented. The vast majority of NHS organisations have a turnover of a few hundred million pounds and primary care providers significantly less than that.

Scale simply doesn't exist in today's NHS. But why does it matter for the diffusion of innovation?

- Autonomous organisations make autonomous purchase decisions and require significantly more effort to sell into from an industry point of view as it requires a number of negotiations with separate bodies, and therefore a number of different procurement processes – all of which can hinder small and medium size enterprises (SMEs) from working with the NHS at scale as they do not have the infrastructure or resource capacity of larger companies to manage such processes.
- Fragmented care pathways combined with mainly 'fee for service' payment systems limit the 'pull' from providers for truly transformative innovations at population level.
- Most transformative innovation requires significant up-front investment. In fragmented systems, savings do often not occur to those who bear the initial investment.
- Policy has deliberately rewarded and encouraged differentiation locally, for example, through the foundation trust model. However, one unintended consequence of this has been diversity in care and local solutions, even where tried and tested national ones exist (the 'not invented here' challenge).

AHSNs are designed to provide the 'glue' in a highly diverse group of local players and re-insert an element of scale to support diffusion across whole populations ranging in size between two and six million population.

Locally, there are attempts towards some level of consolidation in the provider landscape. For example, across the country primary care providers are forming federations, often spanning CCG footprints. At the same time, a small number of collaborations between acute, community and primary care providers have emerged in response to the growing need to provide accountable care across whole pathways of care rather than organisational boundaries. Several of

these have been selected as 'vanguard sites' by NHS England as part of the initiative to develop new models of care as set out in the *Five Year Forward View*.

It is tempting to see integration as a panacea, providing potentially the right incentives for more coordinated care and a more vibrant market for the diffusion of innovation, as less fragmentation could make the UK healthcare market more receptive and attractive to innovators by providing larger scale. However, we should be mindful that evidence from highly integrated systems, for example in the US, suggests that diffusion even in those organisations remains a challenge and requires more than just scale, but also a sophisticated innovation eco-system alongside integration.[1] More on this later.

The diversity of innovation

The second contextual dimension relevant to AHSNs' goal of driving diffusion of innovation across their regions is the diversity of innovation itself. To many, the term innovation suggests a homogenous class of mainly new products developed in labs by the very best researchers.

This is too narrow a definition for the purpose of the challenge being undertaken by AHSNs.

Firstly, innovation is not confined to the laboratory or drug development, but includes all aspects of the healthcare setting and workforce. In fact, some drugs on the market are all but innovative, for example 'me too' medicines, while some truly innovative discoveries are developed by nurses, receptionists and cleaners on the front line, nowhere near laboratories.

Secondly, innovation doesn't just come in the form of products, but increasingly services and the way patients are treated as well.

But more importantly, innovation does not always mean 'new'. Many products and services that have been around for some time but not taken up, only become recognised as innovations when they actually get adopted and change practice. A good example of this are NICE Technology Appraisals (NICE TAs), many of which are several years old but uptake is still low.

AHSNs are therefore not just interested in the adoption and diffusion of the 'new' but also play a vital role in fostering the take-up of existing best practice and innovation too.

Levers can help

The aforementioned contextual factors are strong and potentially pulling in the wrong direction to ensure effective diffusion of innovation at pace and scale.

However, the advantage of a national health service is that even with fragmented organisational structures, national levers to promote the uptake of innovation remain.

These range from NICE TAs, which are compulsory by statute, to 'softer' measures such as NICE guidance and other national commissioning standards which providers are expected to follow. Table 1 provides examples of levers and some of the challenges in descending order of degrees of freedom to implement them from the provider perspective.

Table 1. Levers that can drive diffusion of innovation

Levers	Legally binding	Contractual	Financial incentives	Standards	Guidance	Case studies of best practice
Examples	NICE Technology Appraisals	Number of maternity scans	CQUIN/QOF	Pulmonary rehabilitation national standards	NICE psychosis guidance	North West London medicine passport

Low → **High**

Provider level of freedom to implement

1 Dilling et al, 'Accelerating the use of best practices: the Mayo Clinic model of diffusion', *The Joint Commission Journal on Quality and Patient Safety*, April 2013, 39:4

The realm of diffusion for AHSNs

The two contextual dimensions set out earlier, in addition to an understanding of the levers in place, provide a stylised framework to describe the range of innovation diffusion activities the AHSNs have engaged in during their first 18 months, recognising the significant and appropriate variation across the 15 networks.

These largely focus on three key areas:

- **generating new innovation** – supporting the NHS to articulate its needs to innovators, and supporting innovators to meet those needs
- **discovering innovation** – supporting the NHS to actively scout for existing innovations
- **implementing existing innovation** – supporting the NHS to implement existing best practice and innovation.

Figure 1 sets out a stylised realm of AHSN diffusion activity resulting in the aforementioned three broad and complementary areas.

Generating new innovation

AHSNs are working to improve the route to market or simply to the front line (for example, see case study A on page 5). This can take the form of working locally with academic health science centres and other NHS research bodies, and also includes the work done with the Small Business Research Initiative (for more on SBRI, see case study D on page 6). AHSNs help collate clinical and organisational need among their membership, to inform and shape the innovations of entrepreneurs.

Discovering innovation

In most NHS organisations, systematic innovation eco-systems do not exist and the adoption of innovation is left to chance or is seen as "sitting with the procurement department".

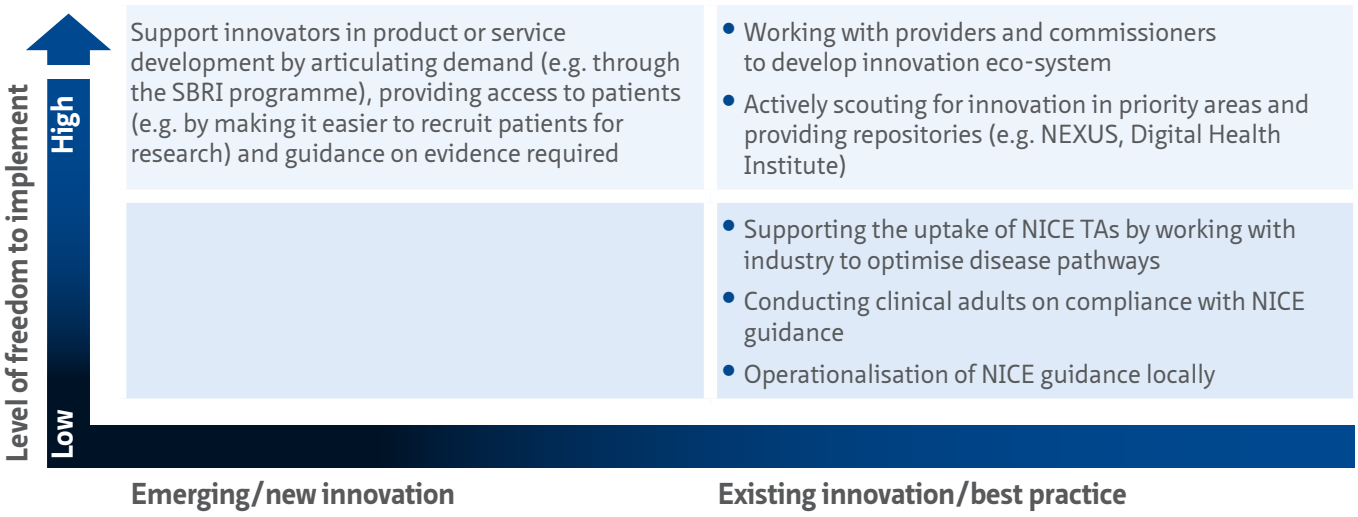
All too often the organisational focus is on internal research and development rather than scouting for existing solutions. This will have to change if we want a vibrant and receptive 'demand side' for innovation (for example, case study B on page 5).

Implementing existing innovation

Some AHSNs are also in the space of supporting uptake with nationally required best practice because variation is significant. The AHSN's role is to encourage and support their partner organisations to create a climate that encourages and adopts innovation (for example, case study C on page 5).

These three areas are not mutually exclusive and many of the strategies developed by AHSNs have implications for one or more of the three areas.

Figure 1. The work of AHSNs



Case study A: Imperial College Health Partners' self-assessment tool for innovators

Imperial College Health Partners – the AHSN for North West London – has a comprehensive research infrastructure within its membership. However, very few innovations reach the front line. Part of the problem is a lack of knowledge around evidence required to progress through the different development phases, particularly for non-traditional innovations such as digital health.

Imperial College Health Partners has developed a self-assessment tool for innovators that allows them to assess at what stage of the innovation pathway they are, what evidence is required to progress to the next stage, and what funding is available.

The tool is being combined with a social media platform to connect innovators with healthcare professionals, to enable the co-design of innovation.

For more information, see:
http://imperialcollegehealthpartners.com/in-the-loop

Case study B: The Innovation Scouts Programme

North West Coast AHSN has developed and is leading the Innovation Scouts Programme, to encourage a culture of innovation within local NHS organisations. The programme is intended to increase capability in the NHS by creating engagement with academia and industry. This includes peer support and access to 'thought leaders' and global companies recognised for their innovative culture.

The programme was launched in December 2014 and the initial cohort consists of 35 NHS 'innovation scouts'. The scouts seek out opportunities to promote the spread of evidence-based innovations, and encourage colleagues to incorporate innovation into their own practices.

They will be expected to demonstrate they carry out this role across each of the agreed scout values, namely: being curious, courageous, empowering, valuing people and being outcome focused.

For more information, see:
www.nwcahsn.nhs.uk/index.php

Case study C: UCLPartners and Camden CCG, clinical decision support model

Atrial fibrillation (AF) is an under-diagnosed condition responsible for around one in eight strokes and associated with significantly worse clinical outcomes. Evidence suggests that appropriate use of anti-coagulation treatments (including alternatives to warfarin known as NOACs) as recommended by NICE could prevent more than half of AF-related strokes. UCLPartners worked with Camden CCG to introduce a clinical decision support tool in GP practices, whole pathway quality standards, information and support for patients, and outcomes tracking. As a result:

- 132 extra people with AF taking appropriate anti-coagulation drugs
- a predicted five strokes prevented in Camden alone
- replicating Camden's results across the 19 other CCGs in the region could prevent a predicted 108 strokes, save 30 lives, and avoid around £1.3 million in clinical care costs every year
- replicating the rate of uptake would mean reaching NICE recommended levels within 18 months
- four CCGs are already replicating the project
- an AF community of practice has been established with engagement from 12 CCGs to share the lessons
- UCLPartners is working with the AF Association, NICE Implementation Collaborative, devices companies and ABPI Stroke and AF Group to enable national diffusion.

For more information, visit: **www.uclpartners.com**

What gets in the way?

Case study D: The Small Business Research Initiative (SBRI)

The SBRI is led by all the AHSNs and hosted by Eastern AHSN. It is intended to connect public sector challenges with innovative ideas from industry, supporting companies to generate economic growth. It runs funding competitions that offer a fast track to funding for product development matched to the needs specified by the NHS.

AHSNs convene clinicians to specify the challenges, support winning companies to undertake clinical trials, patient testing and health economic evaluations, make NHS introductions and advise on navigating procurement processes to enable accelerated adoption. The SBRI has:

- run 24 competitions based around areas of clinical need
- awarded contracts to 138 companies
- helped to create 150 high value jobs
- leveraged more than £10 million of investment in innovations.

Thirty SBRI winners are now negotiating licensing agreements, two have reached the point of making sales, 14 have signed research and development agreements and four patents have been awarded.

"The innovations created have the potential to help 7 million patients and achieve £1.5 billion of efficiency saving over ten years."

Office of Health Economics evaluation

For more information, see:
https://sbri.innovateuk.org

After 18 months of activity in the diffusion of innovation space, the challenges have become much clearer to AHSNs.

As one would expect, these are often complex and, while some of them are of a local nature, many apply to whole regions or indeed nationally as the recent research reports from the Insititute of Public Policy Research (IPPR) and Ipsos MORI have shown.[2] These include:

Financial rules

Most organisations in the NHS are required to plan on an annual basis and, more importantly, commissioners have to balance the books in-year. While there is some flexibility, this is a commonly cited barrier to long-term investment. In particular, short-term accounting rules militate against invest-to-save schemes and require finding alternative routes locally, such as social impact bonds or new contracts with industry, to move towards outcome-based payments (for example, the new Hepatitis C drug).

Academic bias

The NHS has a world-class research infrastructure. With such a strong focus on research, the challenge is the bias towards the 'new' rather than the 'existing'. There is little reward and recognition in the NHS for organisations which adopt systematically what others have already developed. To raise awareness, a new *Health Service Journal* award – *The most effective adoption and diffusion of existing best practice* – has been sponsored by one AHSN this year.

Related to this is the risk that the evidence generated by innovators is driven by the requirements of often academic funders rather than clients such as procurement departments, clinical leaders and patients.

Lack of an innovation eco-system on the demand side

A lot of emphasis has been put on supporting innovators with the development of their products. Numerous 'supply side' initiatives do exist, such as accelerator grants, and these are important, but unless there is a receptive customer at the other end, it will lead to frustration.

2. For more information, visit: **www.ipsos-mori.com/Healthcare-Innovation-NWLondon-2015** and **http://www.ippr.org/publications/improved-circulation-unleashing-innovation-across-the-nhs**

Patient power
Unlike consumer markets, the opportunity for patients to directly influence or, in some cases, buy innovation in the NHS is limited or in its infancy. Additionally, information about best practice for particular diseases is often inaccessible, even where NICE has set out clear guidance. This is true for information on the 'in principle' treatment options as well as the actual treatment received by patients. As a consequence, 'patient pull' is low and there is significant variation in clinical practice.

Accountability
There is limited accountability for systematically adopting best practice and innovation among healthcare professionals. Increasing transparency is slowly increasing accountability, but the lack of opportunities for systematic patient pull means this remains a serious impediment for the uptake of best practice and innovation.

Innovation pathways
The innovation pathway for drugs and traditional 'medtech' is clearly defined in the UK. However, this is not the case for more disruptive digital technologies. This makes it harder for innovators in this area to successfully enter and sell into the NHS market.

'Coral reef' culture
The NHS tends to 'layer innovation'. Outdated ways of working still exist in the NHS, which can lead to a complex layering of old and new – a 'coral reef' culture. This can often prevent truly transformative innovations.

How might AHSNs support you on innovation diffusion?

AHSNs can provide support with:

- spread of learning and best practice
- developing a tailored approach to meet local needs – for example, making links between NHS and innovators, supporting leadership and workforce development, measurement and data analysis, continuous improvement capability building
- enabling system-wide problem solving through impartial facilitation and networks
- evaluation and analysis.

Conclusion and recommendations

Scale to support the uptake of innovation is more elusive than one might expect in a national health service. There is also significant diversity within innovation.

Levers do exist, despite fragmentation, ranging from 'hard' levers (statute and financial incentives) to 'softer' levers (guidelines), varying the level of freedom providers have to implement different types of innovations.

As a result, AHSNs have needed to develop strategies both to support uptake of what is necessary by statute as well as optional and explorative innovation. In doing so, the 15 AHSNs have developed a wealth of learning and experience.

A debate is now needed about how the health system, both nationally and locally, can learn from the experiences of AHSNs and others, and work collectively on addressing some of the burning issues to finally 'crack the innovation nut'.

To help inform and shape this debate, the AHSN Network recommends:

1. **More reward for the systematic uptake of best practice** – unless there are very good clinical or operational reasons, known best practice should be adopted.
2. **A zero tolerance policy towards the lack of transparent data** on the uptake of NICE and other clinical standards across healthcare settings, particularly in primary care where there is a lack of readily available data to audit.
3. **A focus on empowering patients to demand best practice** through a patient-facing NICE interface and the systematic uptake of best practice data from automated clinical audits.
4. **Multi-year budgets** for providers and commissioners, incentivising invest-to-save schemes.
5. **Ring-fencing additional NHS spending** on long-term investment in preventative or truly transformative innovations.

NHS Confederation viewpoint

The delivery of health and care services will be transformed in the next decade. The financial imperatives to drive care that is better, simpler and more cost-effective are often seen as the biggest rationale for change. Yet we know services must change to better meet the needs of people today and that this must happen at pace and scale.

We welcome the recommendations offered by the AHSNs to support widespread diffusion across the system. For example, the NHS Confederation continues to advocate for a substantial 'transformation fund' to support service change and endorse the recommendation that part of this should be ring-fenced to support innovation. This investment should be focused on interventions that can demonstrate the highest value.

The levers of innovation need to be aligned as much as possible with the levers of value. Value-based judgements to support delivery based on the changing needs of the population should be incentivised. We are also clear that more widespread use of transparent data would be beneficial, when it is both presented to patients and the public in ways that can inform effective choice of treatment, and when the work of our members is portrayed appropriately.

We would welcome member views on how the service might overcome the 'coral reef' culture. It is an issue we have already begun to explore in our work with the Academy of Medical Royal Colleges on making Decisions of Value and our recent workshop with Think Local, Act Personal around how to sustainably finance personal budgets.

The NHS Confederation

The NHS Confederation is an independent membership body for all organisations that commission and provide NHS services; the only body that brings together and speaks on behalf of the whole of the NHS.

For more information, visit **www.nhsconfed.org**

The AHSN Network

The AHSN Network enables the development of shared knowledge and culture across academic health science networks. To ensure we deliver maximum value, individual AHSNs work together across geographic boundaries to facilitate the exchange of information, skills, knowledge and experience.

For more information, see **www.ahsnnetwork.com**

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