# Response to NHS Chief Executive’s Open Call for Evidence and Ideas

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Spreading Innovation in the NHS: Call for Evidence and Ideas

FTAO:
NHS Chief Executive Innovation Review Team
Department of Health
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From:

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The Centre of Excellence for Life Sciences (Cels)

The Centre of Excellence for Life Sciences was established by the North East Regional Development Agency (One North East) in 2004 with remit to support and drive the region’s healthcare and life science economy.

Since its inception, Cels have actively been involved in facilitating the adoption and spread of innovation stemming from both within and outside the NHS.

As an organisation we have: delivered over 900 outputs to support businesses across the region; been involved in over 60 start-up companies; operated a regional network comprising of businesses, universities and NHS organisations; programme managed £16 million worth of projects and delivered over 50 consultancy projects to both private and public sector clients.

Cels Business Solutions is the consultancy division of the Centre of Excellence for Life Sciences. We have extensive experience developed from working across multiple sectors of the healthcare and life science industries. We are experts in the evaluation and commercial exploitation of healthcare and life science ideas, products and services which stem from industry, universities and NHS organisations. This expertise ranges from early stage technology and market analysis through to business development activity.

The Author

Steven Fountain – Business Solutions Manager, Cels

Steven is a specialist in business development, sales and marketing in the pharmaceutical and healthcare sectors, including the NHS. He holds a BSc in Chemistry from the University of York and an MBA from Durham Business School.

Having been employed by a FTSE 100 pharmaceutical company, Steven has experience of developing and implementing strategies for the commercialisation of pharmaceutical products into the NHS. This includes a background in NHS market access, Key Opinion Leader (KOL) development and NHS service development – forming joint working initiatives between the pharmaceutical industry, the NHS and third sector organisations.

During his MBA, Steven has researched and studied strategic innovation extensively, culminating in his dissertation which measured the impact of merger and acquisition activity on pharmaceutical innovation.

Within Cels Steven has acted as a consultant to both the NHS – identifying and advising on the commercialisation of innovations developed within an NHS Foundation Trust, and to healthcare and life science companies – facilitating B2B, academic and clinical collaborations for new product/service development and on the commercialisation of new products and services.
1 Introduction

In response to the call for evidence and ideas from the Department of Health, Cels have asked our community of regional business members from our network to provide their experiences and suggestions on the spread of innovation within the NHS. Cels have collated their responses and added our own thoughts and experiences to compile this brief report.

All of responses were from senior business executives including CEO’s, Directors, Consultants and Business Development Managers all operating in the healthcare sector. Some of the responses and cases from our business community have been included in quotation marks. Names, roles and company details have been omitted here for security and confidentiality purposes. Please contact Cels in the first instance should you wish to discuss comments made within the report.

2 Response to Questions

1. Learning from elsewhere about adoption and spread:

What can the NHS and NHS Commissioning Board learn from local, national and international best practice to accelerate the pace and scale of adoption of innovations in the NHS? [Please include relevant examples, published papers or other evidence you have found useful.]

This report is based on the thoughts, ideas and experiences of Cels and members of the North East healthcare and life science business community and therefore is not intended to provide an in-depth review of the literature on the adoption and diffusion of innovation.

However, there are a number of useful texts and research papers which have been published on this subject, some of which are suggested in the section on Useful Texts, Further Reading and References, some of the main principles of which are outlined below.

Tidd & Bessant (2009) suggest that there are many barriers to the adoption of innovation, which can be broadly categorized into four categories:

- Economic e.g. budgets, incentives,
- Behavioural e.g. morals, motivations, attitude to risk and change
- Organisational e.g. processes, politics, power and influence, culture
- Structural e.g. infrastructures, formal and informal networks, governance

“For these reasons, historically, large complex socio-technical systems tend to change only incrementally” (Tidd & Bessant, 2009, p.351).

It has been proposed that process of diffusion of an innovation in a homogenous population follows an “S-curve” where initially the rate of adoption is low, followed by a period of sustained growth and then slows as the market reaches saturation (Rogers, 2003). Rogers (2003) segments the resultant normal distribution curve into five main customer segments, including:

- Innovators
- Early adopters
- Early majority
- Late majority
- Laggards
Moore (2002) suggests that many innovations fall into the “chasms” between early adopters and the wide majority of potential users (see figure 1).

Fig 1: Potential User Segments and the “Chasm”

However, the NHS, as a very heterogeneous organisation (or network of organisations) with a variety of different needs, variables and stakeholders in each individual case which will dramatically slow the adoption of innovations across the population of users.

Bayesian models of diffusion allow potential adopters to hold different beliefs regarding the innovation, which are developed according to trials of the innovation (Tidd & Bessant, 2009). If these trials aren’t made public and information is not shared then others potential adopters cannot learn from the trials (Tidd & Bessant, 2009).

The factors of adoption can be grouped into three main categories: characteristics of the innovation, characteristics of individuals or organisational adopters, and the characteristics of the environment (Tidd & Beesant, 2009). Rogers (2003) defines a number of the characteristics of an innovation, including:

- Relative Advantage – degree to which an innovation is perceived as better than alternatives and competitors
- Compatibility – how consistent the innovation is with existing values, experience and needs of adopters
- Complexity – perceptions of how difficult the innovation is to understand or use
- Trialability – the degree to which the innovation can be trialed on a limited basis
- Observability – degree to which the results of the innovation are visible to others

For a rigorous investigation of the published literature with a specific focus on the healthcare sector, it is suggested that the previous Department of Health commissioned report by Greenhalgh et al. (2005) be reviewed.
2. Actions at national level in the NHS

What specific actions do you think national NHS bodies, such as the NHS Commissioning Board, need to take to encourage and stimulate the successful and rapid adoption and spread of innovations throughout the NHS?

Structure of the NHS

The NHS is often seen not as one organisation but a complex network of semi-autonomous and loosely connected organisations and supporting bodies. Whereas this type of structure is conducive to generating innovative products and services internally, the heterogeneity between organisations with individual budgets, priorities, strategies, patients and cultures, very much works against the whole-system adoption and diffusion of innovations.

The standardisation of purchasing and procurement decision factors would speed up the adoption of innovations as individual reviews and business cases by each NHS organisation would not need to be produced.

Conflict of Interests

This is particularly highlighted by the differing objectives of Primary Care Trusts (PCTs) or Clinical Commissioning Groups (CCGs) and that of NHS Hospital Trusts. Whereas PCTs are trying to manage the healthcare of a local geography to a finite budget, often by reducing admissions and managing patients in a primary care setting, NHS Hospital Trusts are trying to increase admissions and desire patients to be treat in secondary care settings. If an innovation moves patients from a secondary care setting to a primary care setting this often seen as positive by a PCT but may be negatively viewed by a Hospital Trust.

For example, point of care INR testing devices for warfarin management can be operated in primary care but this would potentially strip services away from secondary care NHS laboratories and consultants. This fundamental conflict of interest surely results in poorer patient management, a resistance to change by secondary care and slows the uptake and adoption of innovation.

Competition and Politics

In the commercial sector competition may lead to companies to adopt innovations to differentiate themselves from one another; however in the NHS, competition may stifle the adoption of innovation.

“Some innovations work well at a local level, however many innovations offer higher throughput and economies of scale and therefore work better at a (regional/)national level… For example in diagnostics there are high throughput platforms that could serve large areas rather than… local labs. Being mindful of these technologies should shape the geography of future consolidated service(s)”.

As emphasised by the Lord Carter of Coles report on pathology services, innovative technologies can enable the consolidation of services across regions with potentially significant cost savings to the NHS. However in the North East competition and politics between local laboratories is resulting in the regional NHS finding it difficult to pool resources, share benefits and decide on which Trust will host the regional service.

National organisations such as the NHS Commissioning Board may need to step in to help facilitate and drive the transition and hence adoption of innovations to support these services.
Short Term Gains Verses Long term Savings

As the NHS is managed through the use of budgets which are increasingly being squeezed, NHS organisations are constantly looking for short-term solutions. Often adopting an innovation involves higher up front costs (an innovation premium) with the benefit of a longer term financial rewards. Decision makers may therefore be reluctant to adopt high cost technologies that are not already costed into their financial budgets for a particular financial year and that don’t bring short-term financial solutions.

This may also result in NHS organisations being penalised for adopting innovative technologies. For example, a NHS organisation that adopts state of the art technology which results in a higher cost of service might lose that contract to another organisation which isn’t as ‘innovative’ but has a lower cost of service.

The NHS Commissioning Board may have to independently review business cases and where appropriate incentivise the adoption of innovations that produce longer-term gains.

Innovation and Adoption Roadmap

There are many local, regional and national NHS bodies, programmes or functions which appear to provide similar functions and/or could benefit from being better aligned and joined up.

For example, innovation bodies/programmes such as: the National Technology Adoption Centre (NTAC); NHS Innovations; Health Innovation and Educational Cluster’s (HIECs); NHS Institute for Innovation and Improvement; National Innovation Centre (NIC); the National Institute for Health and Clinical Excellence (NICE) and in procurement, such as: NHS Trust procurement functions; collaborative procurement hubs (commercial support units); Procurement, Investment and Commercial Division (PICD); Innovative Technology Adoption Procurement Programme (iTAPP); Sid4Health; NHS Supply Chain; Buying Solutions and OJEU.

“We have talked to 3 experts with proven track records of getting (a) product into the NHS and all 3 experts recommend almost completely different paths, involving different organisations and personnel”.

One suggestion would be to publish a clear roadmap of how to get new innovations (dependent on type) into the NHS and where these organisations are positioned along the roadmap which leads to the adoption of the innovation. It would be also useful to understand how these organisations are related and how they communicate and disseminate innovative ideas, products and services across the network.

3. Actions at local level in the NHS

What specific actions do you think local NHS bodies, such as providers and Clinical Commissioning Groups, need to take to encourage and stimulate the successful and rapid adoption and spread of innovations throughout the NHS?

Decision-Making

The decision to adopt an innovation needs to be not just made by a manager but those who utilise the innovation…”where the users and implementers of products and services are also involved in the procurement process”.

This will help create buy-in and support from the bottom up and allow front line staff to drive the uptake of innovation where necessary. It may be necessary to incentivise staff to review and adopt innovation at a local level

**Willingness to Trial**

“Be open to trialing innovations and become advocates if the innovation improves patient care and reduces costs”

Although organisations such as National Institute for Health Research (NIHR), the National Technology Adoption Centre (NTAC) and other support organisations are facilitating collaborations between industry and NHS organisations it is important for innovations to get trialed so as supporting data on the clinical utility of the innovation can be recorded.

**Service Specifications**

Service specifications drawn up by commissioners sometimes tend to be overly prescriptive in their specification (potentially to fit some providers over others). This reduces the incentive for providers to design innovate services.

“Service Specifications are often narrow having been developed by commissioners who perhaps aren’t aware even that there could be alternative providers or ways of delivering, and so specify what they know rather than identify their preferred outcomes and leave it to bidders to propose solutions”.

Specification should be more open to allow providers to deliver more innovative services.

**Job Retention**

An observed maxim within the NHS is: “we are the NHS, we don’t fire people here”!

“The key issue with adoption of innovations in the NHS is that local players tend to have vested interests and become concerned about the impact that a innovation may have on their department in terms of post retention”.

One potential barrier to the adoption of innovations is the potential reduction in posts it may cause. Departmental managers may be reluctant to adopt a technology if it reduces jobs as this may negatively impact staff morale, motivation and hence job satisfaction and also result in a negative reputation of the manager.

Careful consideration is required on how the introduction of innovations effect staff at a local level and this should be considered as part of the business cases/investment decision requires.

4. **Actions by NHS partners**

   What specific actions do you believe others, such as industry, academia, patient groups or local authorities, could take to accelerate adoption and spread, and what might encourage them to do so?

**National Institute for Health and Clinical Evidence**

Obviously the National Institute for Health and Clinical Excellence (NICE) plays a major role in evaluation of innovations, however, most likely due to capacity, NICE often only reviews potentially
disruptive high-priority/high-cost innovations in a sequential and periodical manner. More capacity to conduct ad-hoc reviews as and when innovations arise may be beneficial. More focus may be needed on the clinical utility and cost-savings of service re-design.

**Professional Bodies and Networks**

“In MSK (musculo-skeletal), and physiotherapy in particular, innovations such as self-referral and the use of the telephone for giving early advice have been developed and evaluated by entrepreneurial providers, shared with the professional body (in this case the Chartered Society of Physiotherapy), promoted by them through the professional press and then gradually adopted by the majority of providers. In this example, Connect and a Scottish NHS provider began collaborating on work they had begun independently in 1999/2000 and these practices are now mainstream, with the greatest uptake over the last 5 years”.

From the case above it is obvious that professional bodies and networks play a vital in the dissemination of innovations through peer-to-peer interactions and reviews across the NHS. A key remit of the organisations should be to review innovations and disseminate best-practice.

**Patient Groups**

It is important for the NHS and those developing innovative products and services to be able to get feedback regarding their products and services from (well-characterised) patients. This may be difficult to do for those organisations operating outside of the NHS. Clinical Commissioning Groups (CCGs) and NHS Hospital Trusts are well placed to be able to facilitate the ethical access to patient cohorts and/or gather data on patient experience.

General information on patient experience (unless a reported adverse event) may be rarely captured and/or fed back to manufactures in order for them to take appropriate action to continuously improve their products. Some way of capturing feedback from patients (and providers), either directly to the manufacturer or indirectly through an NHS body/website, would be useful for continuous improvement of innovations, which may lead them to be taken up elsewhere in the system.

**Industry**

“They seem to assume that if you are commercial you are... of evil intent”

Industry plays a key role, not only as a key source of new innovations but in facilitating the uptake of innovation and providing a mechanism for the dissemination of information and best practice across the system.

However, industry is often seen in a negative light by the NHS, access to right customers is often difficult and highly regulated and the willingness to engage or collaborate is often very low. The poor recognition that industry plays in bringing innovations to the NHS is often felt and more appreciation and willingness to engage is needed.
3 Conclusions

From an evolutionary perspective there may be inherent risks in trying to force the rate of uptake and whole-system adoption of innovations, in that the normal process of ‘natural selection’ during the fluid phase of the technological life cycle in which the ‘dominant design’ emerges, doesn’t have time to take place.

This is particularly important when investment decisions are being considered for high capital equipment (e.g. some medical technologies) or when the innovation becomes relatively locked-in (e.g. patients are prescribed long-term medications) causing finite resources to be ploughed into technologies which may soon be superseded.

An example of technically inefficient innovations that have become locked-in include the QWERTY keyboard (designed to slow typist down to stop typewriters jamming) and the DOS operating system designed for computer enthusiasts (Tidd & Bessant, 2009). Rogers (2003) suggest that research has suffered from pro-innovation bias which assumes that all innovations are “good” and should be readily adopted.

It is important for the NHS to have a clear strategy with regards to innovation and clearly set out what they want to achieve in accelerating the pace and scale of innovation.

This report has hopefully provided some ideas and evidence from the business community as to how the adoption and spread of innovations within the NHS is perceived externally and some recommendations of how the diffusion of innovations could be further enhanced.
## Contact details

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Useful Texts, Further Reading and References

There are a number of useful texts and further reading which may provide a greater insight into the adoption and diffusion of innovations, including:

A useful introduction to diffusion and adoption of innovations:


For a more detailed and general discussion on the diffusion and adoption of innovations see:


For a more systematic review of the literature with specific reference to healthcare services see:
