Sir Ian Carruthers:  
‘Innovation in the NHS, Call for Evidence’

Introduction

When speaking about Innovation in the NHS today, the current buzz words are ‘adoption and diffusion’. The suggestion is that they are new and only recently recognised but, of course, they are neither.

The UK medical technology industry recognised the ‘adoption and diffusion’ issue pre-2005 and lobbied Government to complain that the NHS was not receptive to new ideas and technological advances and was slow to take them up. Lord Warner set up HITF (Health Industries Task Force) to examine the issue. It made a number of recommendations that, amongst others, included the establishment of the National Innovation Centre (NIC). Since 2006, the NIC has developed a unique approach to the development of innovative Healthcare technology and its take-up by the NHS. Their approach recognised that the ‘adoption’ challenges was core to the problem, and the NIC can today demonstrate a number of successful examples of new products which, thanks to their approach, are now in widespread use across the NHS. In the submission below, the NIC offers its experience and perspectives on the issue of adoption and diffusion of technology across the NHS.

The National Innovation Centre (NIC) – key facts

- The NIC is largely industry-facing and, since 2005, has nurtured Healthcare innovations that have the potential to save the NHS over £240 million each year and every subsequent year.

- Diffusion is treated by the NIC, not as a stand-alone activity, but as the final but integrated stage of a structured and pre-planned innovation development pathway. One notable example and case study is Venous Closure, a varicose vein treatment that was not in use in the NHS when first encountered by the NIC and has since been spread across over one hundred NHS trusts. (An earlier McKinzie report had recommended cutting 80% of varicose vein operations to save the NHS £17 million p.a. After diffusion, the new Venous Closure technology enabled a new patient pathway that allowed 100% of surgical procedures to continue and, at the same time, saved the NHS £19 million pa.

- The NIC’s funding of just £3 million p.a. would have meant a focus on a limited number of products at the early or conceptual stage of the innovation development pipeline. However, the NIC has been influential in leveraging external (non-public sector) investment for many more healthcare innovations at both early and later stages in the development pipeline. This additional investment has been valued at over £350 million by the SMEs who received it. One example and case study is UK Haptics, a Northumbrian company, who received a critical development award of £40k from the NIC and, following subsequent external investment, now has an order book valued at over £70m.

The NIC approach

a) Define the need

The NIC has established a two-pronged approach to developing innovation. This ‘reactive/proactive’ approach was designed to support both innovators who approached the NHS with a product idea and, more importantly, to help develop innovations that the NHS itself had said it needed. This idea of developing innovations based on need has proved to be a key element in the subsequent spread and adoption of those innovations.
NIC experience had shown that the initial expectation that industry had a wealth of good ideas that the NHS was failing to take up was wrong. Working in 'reactive mode' (reacting to ideas received from industry and bringing those to appropriate experts in the NHS) the NIC soon realised that what at first appear to be wonderful ideas were often flawed in some significant way. For example, the cost : benefit ratio might have been too low to justify adoption, or the apparent ‘inefficiency’ the innovation purported to correct had been introduced deliberately as a clinical safeguard, or the innovation was solving a ‘problem’ that did not actually exist. In short, industry was not doing its homework properly.

On the other hand, the NIC found that industry often had no choice but to guess at what it should develop because the NHS did not tell its current (or future) suppliers what its problems were and what outline solutions might be.

[Note: compare this with the MoD who issues a "Contracts Bulletin" where it lists forthcoming tender opportunities for commodities and makes reference to opportunities for design, development, and innovation. For example, ‘We are considering a new stealth bomber having improved characteristics in .....’ There is no similar system in the NHS, leaving industry with no option but to guess at the NHS’s needs, with the result that it gets it wrong far too often.]

In response to this, the NIC developed an approach that helps the NHS to consider and articulate its unmet clinical needs and communicate them to industry. This means that the skills, expertise, and resources of the private sector have a defined focus to replace the previous ill-informed guesswork.

The key attributes of this ‘proactive’ work include:

- co-producing a functional description of the unmet need with clinical teams and industry and user networks
- identifying and agreeing the requirement - NOT the solution
- initiating a Pre Commercial Procurement (PCP) process by inviting feasibility studies against the requirement
- progressing, if appropriate, outline design(s) through to prototype, demonstration and evaluation and on to early dissemination.

Current examples and case studies are three innovative products, currently in trials in the NHS, and identified as critically needed by the Ambulance Service nationally. In the case of these three products, the time taken between identification of need, through design and production, to use in the NHS has been just two years (compared with an average of seven years for similar products).

b) Evaluate the economics

The NIC recognised that the articulation of the value of an innovative idea in health-economic terms was critical:

to the NHS - in making a decision about whether or not to buy a product, and
to industry – in making a decision about whether or not a product would be commercially viable.

The NIC co-produced, with a consortium of universities, a freely available economic evaluation tool that would provide a common language of ‘value’ between industry and the NHS.

c) Manage the development

The NIC has developed a ‘stage-gated’ innovation development model that mirrors the PCP model supported by the EU and allows public procurement bodies to stimulate and support innovation.

Internally, the process is a stage-gated development depicted by the diagram below.
What does the NIC do?

[Note: this is a Pre-Commercial Procurement process (PCP) and is different from the SBRI process that embraces only stages 2 and 3 of the above 5 stages. NIC has worked on several former SBRI projects when the project teams needed support beyond the restricted help that SBRI were able to offer.]

d) Create Demand Push rather than Demand Pull

Previous NHS innovation initiatives have been ‘push-centric’ and have, therefore, met resistance in the face of both clinical freedom and economic independence of Trusts – both of which are averse to being told what to do or how to behave! For example, NTAC’s (Adoption Hub) engagement with specific projects and products became perceived by the NHS as surrogate ‘sales’ - demand push. Similarly, iTAPP lost credibility with industry because of both the slow rate of progress and because of the selection of a short-list of just twenty existing products. This gave rise to questions around state-aid (preferential marketing) and, from an NHS perspective, it was perceived as product push.

Much effort has been, and continues to be made, in overturning the NHS’s adversity to what it perceives as push instructions. These include ‘improvement’ campaigns and methodologies, ‘leadership’ campaigns and methodologies, behavioural workshops and suchlike. In spite of this, these approaches have had little impact overall. It is time for a new approach.

Conversely, the NIC has found that identifying and articulating a genuine need creates the following benefits for the NHS:

- the NHS can nominate a ‘Clinical Champion’ to represent its interest in the ongoing development of the innovation and so retain an active involvement
- the close clinical involvement increases the propensity of the NHS to adopt the innovation when it becomes available
- demand for the innovation is created in advance of it becoming available - it creates demand pull

Creation of demand pull is the key enabler of adoption and diffusion.

Systematic barriers to adoption and diffusion, such as silo budgeting and PBR, are well known and documented. In general, these barriers have their roots in ‘risk aversion’, as expressed by "Can't do that because it contravenes Health and Safety Regulations" or "Can't do that because current practice guidelines don't allow for it."
To address this, the NIC believes there needs to be a central body which recognises that an innovation has merit - perhaps as a result of a healthcare economic analysis. This body would have the authority to create circumstances that allow new innovation procedures to be created. For example, the NIC has worked with the innovators of a product called ‘Sticksafe’. This product provides a highly effective solution to preventing needle-stick injuries. However, current protocols around the issue of needle-stick injuries prevent use of this highly effective innovation – even though the Royal College concerned recognises the benefit of the product.

NICE would be an obvious choice to carry out this function – with NICE overseeing and validating assessment work conducted by the innovator or his supporters.

NIC Recommendations - summary

* More effort is placed on helping the NHS to think about and articulate its unmet clinical needs
* Central funding is made available to conduct PCP (not SBRI) processes to fulfil those needs
* NICE to provide a rapid validation service of innovator-provided healthcare economic evaluations. This would provide tacit support for new innovations at all stages of development and signal to the NHS that they represent service improvements. In turn, this would demand a common format of economic analysis and rapid turn-around of submissions.

In all of the above, the needs of the NHS become an overt priority with central support for PULL stimulation replacing current PUSH-based approaches.

Conclusions

Previous attempts and initiatives to address the problem of adoption and diffusion of innovation in the NHS have had limited success or, for the most part, failed. The NIC team has significant previous experience working in the Healthcare innovation fields in both public and private sector organisations. In the last six years they have also worked with, through (or around!) the well-known innovation barriers in the NHS and delivered significant success disproportionate to the size of their team (six people) and budget. The NIC team believe that their observations and conclusions in this submission have relevance to the question at hand.

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