Respondent ID: 47

Organisation name: NHS Life Sciences Innovation Delivery Board

Type of response: Reports
How do innovation and improvements in health and care get adopted and spread? Framework for analysis – for discussion

Summary

Innovation is an idea, service or product new to the NHS or applied in a way which is new to the NHS, which significantly improves the quality of health and care wherever it is applied.

Often adoption and spread requires top-down decisions, as well as bottom-up pressures, to be adopted and spread at scale.

We have developed a possible framework for the adoption and spread of innovation in the NHS. There are three broad areas where alignment is required to get adoption and spread: innovation value, structural fit and cultural fit.

Innovation value - relative benefit (ROI/SROI), simplicity / transparency, good business model, trial-ability / prototyping, observability, patient perspective, adaptability

Structural fit - strategic priority, compatibility, timing, infrastructure and project management

Cultural fit - trust and clinical buy-in, risk management and allowing failure, networks and relationships, champions and leadership, capacity and capability of the workforce

Introduction

1. This conceptual framework for analysis builds upon the summary the published evidence on the adoption and spread of innovation, key policy documents, and the ideas in the NHS CEO’s Innovation Review. It has also draws upon the snowball survey described in a separate document.

2. This framework is a ‘living’ document, to be developed further based upon the experience and insight of clinical and other health service leaders captured in the survey and call for evidence.

3. In thinking about how innovations get effectively adopted and spread within the National Health Service (NHS), we need to clear about:
   - What we mean by innovation in the NHS?
   - What makes for effective demand for innovation in the NHS?
   - What makes for the effective supply of innovation to or within the NHS?
   - How might we promote adoption and spread of innovation in the NHS?

What do we mean by innovation in the NHS?

4. We define innovation in the NHS as: ‘an idea, service or product new to the NHS or applied in a way which is new to the NHS, which significantly improves the quality of health and care wherever it is applied’. That means the innovations
have to be in part new (rather than improvements); have to be taken up (rather than just being a good idea); and have to serve a purpose (or generate value).

5. Innovations come in many different shapes and sizes as the classification and categories below illustrates.

**Types and degrees of innovation**

6. Innovation is not limited to the laboratory. It also refers to changes in thinking, products, processes, or organisations. Innovations could be in the form of **technology** (such as mobile healthcare apps); **devices** (such as the Oesophageal Doppler) or **care pathways** changes (for example, reducing unnecessary length of hospital stays). Care pathway changes can include the introduction of a new device or use of a new drug.

7. There are different degrees of innovation, with very different consequences. Innovation can be:
   - **incremental** (building on and improving existing practices), this is closer to what might be called improvement;
   - **radical** (a completely new approach to solving existing problems), or
   - **disruptive** (an innovation that creates an entirely new market).

8. We can also recognise a spectrum in the drive for innovation between the more organic, evolutionary uncontrolled approach and more top-down managed approaches. ‘Uncontrolled’ innovation bottom-up or a ‘let a thousand flowers bloom’ approach is very different from more directed diffusion, managed by a ‘parent’ organisation. Often adoption and spread requires top-down decisions, as well as bottom-up pressures, to be adopted and spread at scale.

**Stages of innovation**

9. We have arrived at a five-stage process of innovation that was used in the online snowball survey, as illustrated in figure 1 below.

**Figure 1: Steps of innovation**

10. The scope of this review focuses on **adoption and spread** (or diffusion) of innovations ie stages two to five in figure 1. Whilst it does not look in detail at the level or nature of inventions or ideas it does explore whether new innovations are designed and communicated in a way that is right for the NHS.
11. **Whatever the degree and type of innovation, it has to add value.** That is how we know it is a good idea. In the commercial sector, value is relatively straightforward to measure. In the NHS, we use a range of indicators for improved value - value in health care is ultimately related to health outcomes.

12. Whilst wanting to improve quality and health outcomes – this cannot be at any cost. Indeed, with productivity challenges against a backdrop of rising demographic pressure, cost reduction is a priority for many within the NHS. While innovation can add value for patients and managers, it can also add value to the economy as a whole. This points to the balance of three rationales for innovating in the NHS: quality, productivity and growth.

**Conceptual Framework: pushing and pulling innovations**

13. The NHS CEOs review has identified a number of factors which need to be taken into account in supporting adoption and spread. These include:
   - Common language and metrics
   - Pressure for change
   - Appropriate rewards
   - Organisational cultures supportive of new ideas
   - People with the capacity and capability to promote change
   - Effective data
   - Effective risk management

14. These are consistent the conceptual framework for our analysis see Figure 2. This brings ideas together to enable us to make sense of the huge variety and complexity of innovations and improvements which have been identified in the Regional Innovation Fund applications, snowball survey and from many other sources where no two innovations are the same.

**Figure 2: Possible framework for the adoption and spread of innovation in the NHS**

15. The remainder of this paper looks at what the potential barriers and solutions are for more effective supply of (push) and more effective demand for (pull) innovations. It explores the potential factors that enable good adoption and spread: features of the innovation itself and a mix of both structural and cultural fit between those supplying the innovation and those who might adopt and
spread it. A safe space to grow is thought to be important in proving the value of innovations and getting a good fit, both in terms of structures and cultures.

What makes for effective demand for innovation in the NHS?

16. How do these broad reasons to innovate translate into motivations to adopt and spread innovations within NHS practice?

17. The reasons we want to innovate from a system-wide perspective may look rather different from the perspective of individual teams within the NHS, or service users. Recognising these different motivations is important to understand effective demand for innovation. Individuals within the NHS may want to adopt innovations – but that does not necessarily mean they are able to do so (in terms of power, ‘cover’ and/or resource).

18. As a ‘demander’ of innovations, the NHS might play direct or more indirect roles in adoption or spread. The NHS might play a role as a direct adopter, bringing in innovations within its core practice, but also as an investor or facilitator of innovations. The NHS might also help innovations adopt and spread through contracting or sharing in-kind resource with other organisations and bodies in different sectors.

19. It is helpful to think about the different motivations for someone who ‘demands’ innovation – or is looking for best practice.
   - At the national level, these will be closely allied to the broad rationales of quality, productivity and growth highlighted above. Within these are specific policy objectives, such as increasing patient power.
   - At the level of individual organisations within the NHS, the key incentives that might lead to innovation are around key performance measures, including quality and clinical outcomes. Competition with other Trusts could also affect the demand for innovations, whether competition is direct through patient choice, or indirect through peer comparison.
   - For clinicians and clinical teams within the NHS, key motivations will be around patient outcomes, but also status and reward and incentives, not necessarily financial.
   - Patients, their families and representatives (for example in charitable health groups such as Macmillan Cancer Care), may also demand innovations that improve health outcomes and patient experience.

20. However, unless motivations that might encourage innovations can fit easily alongside other incentives for those that ‘demand’ innovation in the NHS, it will remain hard for innovations to get adopted and spread. Sometimes it can be a case of just too many competing agendas and objectives on the NHS leaders’ plate.

21. Innovation that fits well with the structural incentives and cultures of organisations within the NHS are more likely to be effectively ‘pulled’ by those demanding it, and therefore adopted and spread.

What makes for effective supply of innovation to the NHS?
22. Innovations get adopted and spread in the NHS when an effective innovation is supplied that meets the demand for those innovations. However, how these innovations are developed, designed, evidenced, tested and marketed impacts upon their chances getting adopted and scaled.

23. A diverse range of people and organisations might ‘supply’ innovation to the NHS. Alongside commercial suppliers, many will come from within the NHS. Patients and civil society groups might also come up with ways to add value to the health service – whether in quality or efficiency.

24. What are the key pressures on and motivators for those developing and selling innovation to the NHS? While some individual innovators in the life sciences may be primarily motivated by the advancement of science, prospects of financial or other rewards (in return for managing risk) will be important. For others, in particular clinical practitioners, the key motivators might be professional status and promotion prospects, while the big concerns will be time and risk.

25. Those innovations that have been successfully scaled are those that have been communicated well, had public visibility and are led by and communicated through trusted sources. But above all they have to solve a problem for those that might ‘demand’ it. Better dialogue between innovators and commissioners, providers, clinicians within the NHS might help identify and spot innovations that might help solve the problem. Time to develop, test and prototype innovations is key not only to proving value but getting support. Involving those ‘pulling’ innovations at this stage (co-production) might help increase the chances of innovations getting spread.

Effective supply and demand: initial survey evidence

26. Our snowball survey suggests key barriers for those supplying or demanding innovation in terms of the evidence of their effectiveness and potential savings (value), how they fit with system incentives, payments and commissioning (structures), and in involving, accessing and convincing the right people (cultures). These largely reinforce our analysis of the literature.

Innovation’s value
- 80% of managers agreed that innovators lack convincing evidence of savings. For commissioners of NHS services, National NHS organisations academics, and civil society organisations, that figure rose to 90%.
- 70% of clinicians, 75% of managers, and 80% of commissioners thought that innovators lack rigorous effectiveness data.
- 68% of commissioners, providers and NHS organisations thought that it was difficult to measure return on investment for an innovation

Structural fit
- Only small proportions of all stakeholder groups surveyed thought that payments and tariffs encourage adoption and spread of innovation. This was the case for less than 25% of commissioners, academics, clinicians and managers. National NHS organisations were the least likely to think that payment structure supported innovation – just 14%.
- 75% of NHS national organisations and academics thought that there were poor incentives and rewards for those that do adopt innovations.
• 50% of national and academic groups – but 86% of civil society groups – thought that the commissioning processes do not support innovation.

Cultural fit
• Roughly half of respondents thought that innovators had not involved clinicians, patients or family in the design process. More commissioners than providers and more managers than clinicians thought this.
• The vast majority of clinicians, managers and commissioners (79-84%) thought that innovators lacked access to the right people.
• About two-thirds of National NHS organisations and commissioners thought there was resistance from professional groups.

Summary of issues for adoption and spread

27. Previous work on adoption and spread and our initial analysis of the survey data above has confirmed that Innovation Value, Structural fit and Cultural fit are three grounds on which ‘pushing’ and ‘pulling’ innovations can be misaligned.

28. Findings from the NHS Institute have identified relationships, risk taking, resources, knowledge, goals, rewards and tools as dimensions of innovation culture - which supports the conceptual framework set out here.

29. Bringing these ideas together we can break down Innovation Value, Structural fit and Cultural fit into sub categories (see table below) - some of these factors are already very familiar from the evidence and survey findings.

<table>
<thead>
<tr>
<th>Innovation Value</th>
<th>Structural Fit</th>
<th>Cultural Fit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative benefit</td>
<td>Strategic priority</td>
<td>Trust and clinical buy-in</td>
</tr>
<tr>
<td>Simplicity/transparency</td>
<td>Compatibility</td>
<td>Risk management and allowing failure</td>
</tr>
<tr>
<td>Good business model</td>
<td>Timing</td>
<td>Networks and relationships</td>
</tr>
<tr>
<td>Trial-ability/Prototyping</td>
<td>Infrastructure and project management</td>
<td>Champions and leadership</td>
</tr>
<tr>
<td>Observability</td>
<td></td>
<td>Workforce capacity and capability</td>
</tr>
<tr>
<td>Patient perspective</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adaptability</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

30. The framework suggests structural incentives work best when they release the potential value of innovation, and support cultures and behaviours that get good ideas taken up in practice. Whilst less visible, cultural factors and motivations can be hugely important to getting innovations adopted and spread.

Next steps

31. The challenge now is to test and refine this framework in light of the experiences of people responding to the NHS CEO’s Call for Evidence and Ideas. This analysis will be completed by October 2011.

Mark Wilkinson
Director – Life Sciences Innovation
14 July 11
Analysis of snowball survey about adoption and spread of health and care innovation & improvement

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5.4 Analysis of snowball survey about adoption and spread of health and care innovation & improvement

Executive Summary

This paper presents the results of an online survey on adoption and spread which is part of the Gap analysis of the adoption and spread of health and care innovation/improvement project. The Young Foundation was commissioned to undertake this work.

There were a total of 444 responses to the survey of which 58% described specific innovation/improvements. There was wide variety of innovations and improvements in progress. Most responses described innovations for adults, older people and those with long term conditions.

The majority of respondents described themselves as clinicians and managers, were working as providers of NHS services and considered themselves as frontline innovators (67%). There were a significant number of responses from industry partners (11%). The main findings included:

- **Actions to increase adoption and spread** The main actions identified as the best ways of increasing adoption and spread:
  - Evidence of effectiveness,
  - Incentives,
  - Allowing risking taking/sharing,
  - Innovation pathway processes and support mechanisms

- **Barriers:** Over 80% of respondents said that there were barriers to adoption and spread of innovation and improvements. The most common barrier cited was behaviour change/resistance.

- **Reasons for innovation failing to spread:** The commonest reasons for innovation and improvements failing to spread were identified as poor incentives and rewards and not allowing people to take risks

- **Ways of overcoming barriers:** The most commonly cited ways of overcoming these barriers were: Evidence of effectiveness; engagement with stakeholders.

- **Support for innovators:** There was consensus around the need to empower innovators to take risks.

- **Actions to take to increase adoption and spread:** Funding mechanisms, Innovation pathway process and support mechanisms and Information and evidence of effectiveness were the most commonly cited actions that required to support adoption and spread, accounting for 54% of the responses
Analysis of snowball survey about adoption and spread of health and care innovation & improvement

1. Introduction

This paper presents the results of an online ‘snowball’ survey concerning the adoption and spread of innovation, which is part of the Gap analysis of the adoption and spread of health and care innovation and improvement project. The Young Foundation was commissioned to undertake this work by the NHS Life Sciences Delivery Board in April 2011.

It is one of 4 components to the Gap analysis of the adoption and spread of health and care innovation/improvement project, which covers:

- A summary of published literature
- Online snowball survey
- Capacity and competencies to support more adoption and spread
- Call of evidence of adoption and spread

The work on the Gap analysis of the adoption and spread of health and care innovation and improvement project started in April 2011 and will be completed by end of Oct 2011. It will inform the recommendations made to the NHS Chief Executive’s Innovation Review and contribute to his response to the Plan for Growth due in November 2011.

The Department of Health has identified from previous work that the following factors need to be taken into account.

- common language and metrics
- pressure for change to stimulate innovation
- appropriate rewards (and incentives)
- organisational cultures supportive of new ideas
- People with the capacity and capability to promote change
- Effective data
- Effective risk management

The analysis below reviewed whether these factors or others have also emerged from the snowball survey.
2 Methods used for the snowball survey

The survey consisted of 16 questions, some with menus of answers, some with free text and some Likert (rating) scale questions. This resulted in 64 possible data points for each respondent.

The questionnaire used in the survey can be found in Annex 1.

The analysis is based on 444 survey results received by 17 June 2011. The survey was live from 4 May to 17 June 2011 (just over 6 weeks).

The survey was created and hosted on the online system Survey Monkey and a link distributed across health and care networks. Individuals and networks were asked to forward the survey to their members – a list of networks is included in Annex 2.

Respondents were asked to ‘snowball’ or forward the survey link to people interested and involved in innovation/improvement to achieve as large a response as possible - this is the snowball survey methodology. In this way it was possible to achieve some ‘viral’ spread of the survey to a wide group of innovators across the healthcare innovation/improvement landscape. However, the group responding has been self-selecting and it has not been possible to calculate a response rate.

The analysis used the following filters/lenses to explore differences in responses from the following groups:

- **Organisational** (NHS providers, NHS commissioners, Industry partners, Other);
- **Role** (Clinicians, managers, others);
- **Innovation/improvement role** (Frontline innovator, Innovation/improvement enablers, other);
- **Type of innovation/improvement** (Medical technologies, Service pathway redesign, Pharmaceuticals).

The free text response was analysed in an iterative bottom up process to produce a summarised list of responses to 5 questions which were drawn from the free text.
3 Respondent profile

In total 444 people accessed the survey from across the health and care innovation/improvement landscape including providers of NHS services, Industry partners, commissioners and other partners. There were 329 (74%) fully complete responses – with the remaining 115 respondents answering some, but not all, questions.

Table 1 below summarises who responded to the survey by organisation, profession and role with respect to innovation/improvement

**Table 1: Profile of respondents**

<table>
<thead>
<tr>
<th>Role</th>
<th>Clinician</th>
<th>Manager</th>
<th>Other</th>
<th>Total n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinician</td>
<td>86%</td>
<td>7%</td>
<td>1%</td>
<td>120 (100%*)</td>
</tr>
<tr>
<td>Manager</td>
<td>48%</td>
<td>23%</td>
<td>16%</td>
<td>209(100%*)</td>
</tr>
<tr>
<td>Other</td>
<td>56%</td>
<td>11%</td>
<td>16%</td>
<td>55 (100%*)</td>
</tr>
<tr>
<td>Totals</td>
<td>235</td>
<td>63</td>
<td>44</td>
<td>384</td>
</tr>
</tbody>
</table>

*Percentages were rounded up.

The majority of respondents describing themselves as clinicians (86%) and managers (48%) were working in NHS providers.

**Table 2: Profile of respondents, Innovators or innovation/improvement enablers**

<table>
<thead>
<tr>
<th>Role</th>
<th>Providers of NHS services</th>
<th>Commissioners</th>
<th>Industry partners</th>
<th>Other organisation</th>
<th>Total n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front line innovator</td>
<td>67%</td>
<td>10%</td>
<td>16%</td>
<td>8%</td>
<td>180(100%*)</td>
</tr>
<tr>
<td>Innovation/improvement enabler</td>
<td>59%</td>
<td>20%</td>
<td>5%</td>
<td>16%</td>
<td>133 (100%*)</td>
</tr>
<tr>
<td>Other</td>
<td>52%</td>
<td>22%</td>
<td>13.%</td>
<td>13%</td>
<td>77 (100%*)</td>
</tr>
<tr>
<td>Totals</td>
<td>238</td>
<td>62</td>
<td>45</td>
<td>45</td>
<td>390</td>
</tr>
</tbody>
</table>

*Percentages were rounded up.

The majority of respondents were working in NHS providers and considered themselves as frontline innovators. There were a significant number of responses from industry partners (11% or 45 respondents). For those in ‘other’ roles (13%), the majority of respondents were researchers, managers at director level or above. For ‘other’ organisations (11%) the majority were from academia, the voluntary sector or a national NHS organisation.

---

1 4 responses came from the same company about the same product
4 About the innovation and improvements

The following section is provides information given by respondents about innovation /improvements that they knew about or had worked to try and get adopted and/or actively spread.

A total of 265 respondents (59%) described innovation/ improvements they were trying to spread across the healthcare system. Respondents who did not describe an innovation/improvement were asked to skip directly to the last section of the questionnaire - dealing with levers for change.

The graphic below (a wordle) was used to analyse the free text of the innovation/improvements. Wordles use word frequency to determine the size of text which gives an indication of the content of the innovation/improvements described.

Fig1; Wordle summary of innovation descriptions

Patients and care were the most prevalent words used about the innovation or improvements, along with community, health, services, people and management. The smaller the words, the less frequently they were used by respondents e.g. technology, evidence, admissions, diabetes, COPD
a. Type of innovation - pathways, devices or medicines?

The respondents who described innovations were asked to self code these into pathways, devices or medicines or other. The table below summarises their responses against type of organisation.

Table 3; Type of innovation

<table>
<thead>
<tr>
<th>Type of Innovation</th>
<th>Provider NHS services</th>
<th>Commissioners</th>
<th>Industry</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pathways</td>
<td>61%</td>
<td>56%</td>
<td>23%</td>
<td>60%</td>
</tr>
<tr>
<td>Devices</td>
<td>18%</td>
<td>20%</td>
<td>23%</td>
<td>14%</td>
</tr>
<tr>
<td>Medicines</td>
<td>7%</td>
<td>6%</td>
<td>43%</td>
<td>9%</td>
</tr>
<tr>
<td>Other</td>
<td>15%</td>
<td>18%</td>
<td>11%</td>
<td>17%</td>
</tr>
<tr>
<td>Total n</td>
<td>191 (100%*)</td>
<td>50(100%*)</td>
<td>35 (100%*)</td>
<td>35(100%*)</td>
</tr>
</tbody>
</table>

*Percentages were rounded up.

The majority of the innovations/improvements were concerned with pathways (56%) and the fewest concerned medicines (11%). Industry partners self coded 23% of their innovations as pathways confirming that scope of innovations from all perspectives included pathways.

15 % of the innovation/improvements were self coded as ‘other’ and comprised a wide range of poorly defined ideas including carbon reduction, mandatory training, awareness raising, and ‘technology’.

However, unsurprisingly, while Providers, Commissioners and Others (National NHS Organisations, Academic, Voluntary sector organisations) were predominantly focused on service pathway redesign, industry partners were more focused on innovation/improvements relating to medicines.

b. Impact of the innovation and improvements

Respondents were asked to categorise the impact of the innovation and improvement that they had described. There were 261 responses and results are given below.

Figure 2; which of the following best describes the innovation/ improvement that you have outlined? (Tick all that apply) (n=261)
Of the innovation and improvements described by respondents, 78% covered service redesign and sought to improve patient experience and increase efficiency of a care pathway. There were fewer innovation/improvements that sought to change who delivered care or dealt with the prevention of ill health.

c. Care group affected by innovation and improvement

Respondents were then asked to indicate which patient group their innovation/improvements affected and could give multiple answers. There were 277 responses and the results are given below:

Unsurprisingly the innovation and improvements described focused primarily on adults and the elderly (over 75), and those with a long term conditions, all of whom have been the focus of recent work on priorities. Relatively few innovation/improvements focused on children, people with learning disabilities or mothers and babies.

d. Stage of maturity of innovation/improvement

The 5 stage innovation and improvement process was mapped against the Department of Health’s 3 stage definition. Respondents were asked to indicate what stage their innovation/improvement had reached. Results are given below.
Figure 4 what stage has your innovation/improvement reached? (n=277)

Stages of innovation/improvement

Despite asking respondents to describe innovation and improvements which they were trying to get adopted or to spread, 6% of the innovation/improvements were self coded as ‘very early’.

However, the vast majority of innovation/improvements described were considered to be early stage or later of which 10% had self coded by respondents as ‘mainstreamed’. All these were valid responses to the survey.

A very wide variety of innovations were described. This is illustrated by the mainstreamed ones described briefly in Annex 4.

e. Which were the most ‘interesting’ innovations?

Using the 150 word summaries (very limited information) the innovations and improvements were subjectively categorised and given simple ratings 3-1 or high, medium or low against the following criteria.

1. Likely speed of adoption and spread
2. Impact – number of people likely to be affected by the innovation/improvement
3. How well developed idea was
4. Strategic fit with current policies (e.g. QIPP)

These categories were ‘added up’ and the resultant few innovation/improvements that were the rated most highly against all 4 categories are listed in Annexe 5. None are ‘new ideas’:
14 July

- Online research platform for patients with serious illnesses to track progress and share with patients like them
- A medicine labelling device which is voice recordable to make it patient specific
- Enhanced outcomes and reduced lengths of stay using Doppler
- An electronic dashboard for service performance
- E consultations – clinician to clinician
- Care bundles for COPD and Heart Failure
- Coating for reducing HIA in healthcare environments
- Electronic health records which cross organisational boundaries seamlessly

These innovations could be further investigated and possibly used as case studies.
5 About barriers to adoption and spread for innovations and improvements

This section describes the responses about barriers and about how people are trying to overcome them.

a. What are the barriers?

The 265 respondents who had described innovation/improvements were asked to answer the following free text question:

Apart from lack of money and time, please describe another barrier to adoption and spread of innovation/improvement that you have encountered.

Up to 2 barriers were identified in each answer. The table below gives the rank order of the barriers cited most commonly across the whole survey.

Table 4 Top ten barriers to adoption and spread of innovation/ improvement n=267

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Percentage (Frequency)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behaviour change/resistance</td>
<td>11% (29)</td>
</tr>
<tr>
<td>Lack of leadership</td>
<td>6% (15)</td>
</tr>
<tr>
<td>Risk taking</td>
<td>5% (14)</td>
</tr>
<tr>
<td>Lack of recognizable innovation/improvement process</td>
<td>5% (13)</td>
</tr>
<tr>
<td>Reforms &amp; reconfiguration</td>
<td>5% (12)</td>
</tr>
<tr>
<td>Lack of engagement of clinicians</td>
<td>4% (11)</td>
</tr>
<tr>
<td>Crossing organisational boundaries</td>
<td>4% (10)</td>
</tr>
<tr>
<td>Silo budgeting</td>
<td>4% (10)</td>
</tr>
<tr>
<td>Lack of evidence</td>
<td>3% (9)</td>
</tr>
<tr>
<td>Resources</td>
<td>3% (9)</td>
</tr>
</tbody>
</table>

The most common barrier cited by respondent was behaviour change. This was summed up as:

General cultural resistance - “well it wouldn’t work for us would it”

When the barriers were looked at in more detail differences appeared between groups of respondents. Clinicians and Managers largely agreed on barriers with ‘behaviour change/resistance’ top with 12% and 10% respectively, although for ‘others’ (comprising mainly academics, researchers and senior management) crossing organisational boundaries (11%) was the commonest barrier reflecting the more strategic focus of this group.

Industry partners identified the lack of a recognisable innovation/improvement process (18%) as their main barrier.

Innovators and innovation/improvement enablers identified Behaviour change/resistance as their top barrier – but their other responses differed, with enablers identifying as barriers lack of leadership, risk taking, and lack of engagement of clinicians, and innovators identifying resources, crossing organisational boundaries, and lack of recognisable innovation/improvement process as their main barriers.
Of the 265 people who described an innovation/improvement that they were trying to spread, all indicated the extent to which they agreed with a series of statements around perceived and actual barriers to innovation/improvement. The results are illustrated below—split into positive and negative statements.

**Figure 5 to what extent do you agree with the following statement... (n=265):**

![Bar chart showing agreement levels for various statements]

Overall all, 80% of respondents said that there were barriers to adoption and spread.

Respondents were also asked to indicate their agreement or disagreement with following statements concerning adoption and spread.

**Figure 6 to what extent do you agree with the following statement... (n=265):**

![Bar chart showing agreement levels for various statements]

The strongest consensus was around barriers relating to empowerment of innovators to take risks and the incentives and rewards for innovation and improvements.
There was some difference in view between the groups.

- Industry partners felt most strongly that championed innovations and incentives were the most important factors (over 88%)
- Commissioners and providers and managers felt strong support from top team and support from patients/patient organisations were the most important factors.
- Clinicians felt that innovation would succeed if it was championed by clinicians (82%) and if there were better incentives and rewards (74%)

b. Overcoming barriers to adoption and spread

The 265 respondents who had described barriers were asked to answer the following questioned in free text:

For one of these barriers above please tell us what has been the most successful way of overcoming this difficulty.

Up to 3 solutions were identified for each of the respondents with a total of 213 responses – clearly a difficult question to answer.

Table 6 Top 13 solutions to barriers identified n=213

<table>
<thead>
<tr>
<th>Ways of overcoming barriers</th>
<th>Percentage (Frequency)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence of effectiveness</td>
<td>10% (21)</td>
</tr>
<tr>
<td>Engagement with stakeholders</td>
<td>9% (20)</td>
</tr>
<tr>
<td>Communications</td>
<td>6% (13)</td>
</tr>
<tr>
<td>Networks</td>
<td>6% (12)</td>
</tr>
<tr>
<td>Good leadership</td>
<td>5% (10)</td>
</tr>
<tr>
<td>National push</td>
<td>5% (10)</td>
</tr>
<tr>
<td>Specialist support mechanism</td>
<td>5% (10)</td>
</tr>
<tr>
<td>Stamina/persistence</td>
<td>5% (10)</td>
</tr>
<tr>
<td>Patient pull</td>
<td>4% (9)</td>
</tr>
<tr>
<td>Senior level support</td>
<td>4% (9)</td>
</tr>
<tr>
<td>Training and education</td>
<td>4% (9)</td>
</tr>
<tr>
<td>Visibility</td>
<td>4% (9)</td>
</tr>
<tr>
<td>Clinical engagement</td>
<td>4% (8)</td>
</tr>
</tbody>
</table>

The most common solutions to the barriers described were evidence of effectiveness and engagement with stakeholders. As two respondents commented:

“The is great value in spending the time to explain the benefits, improve evidence base and find real life examples of patient care”

“... By gathering key insights from a wide range of stakeholders in the pathway and keeping them engaged. We were thorough in our considerations of what the innovation could look like and modelled and tested this with key stakeholders. We took on board feedback and then developed a prototype which we are now piloting.”
Although there were a wide range of responses, evidence of effectiveness and engagement with stakeholders were the top solutions cited for overcoming barriers. Within the different groups of respondents there was also overall agreement that these two were the most important.

c. What support do innovators need?

All the 444 respondents to the survey were asked to agree or disagree with statements below which sought to identify what support innovators need. 334 responded and the results are summarised in the table below.

Figure 7 in your view, innovation / improvements often fail to spread because... (n=334)

![Bar chart showing reasons for innovation/improvements failing to spread](image)

The commonest reasons for innovation/improvements failing to spread were identified as poor incentives and rewards and not allowing people to take risks.

From the statements included above in the survey to describe why innovation/improvements fail to spread, the most widely accepted view was that innovators lack access to the right people to support the innovation/improvement process. This was closely followed by innovators’ lack of evidence of savings and rigorous effectiveness data.

- Enablers (84%) saw lack of convincing savings as the main reason innovations fail whereas front-line innovators and others identified lack of access to the right people.
- Industry disagreed with the statement that innovators lacked rigorous effectiveness data (61%), while everyone else agreed with this statement.
- Industry and providers saw lack of access to the right people as the most important factor, while commissioners identified the lack of convincing evidence of savings.
6 What actions encourage adoption and spread?

This section describes the actions which might support adoption and spread.

a. What were the most common actions cited?

424 respondents gave their views in free text about what commissioners and other national bodies needed to do to increase successful adoption and spread of innovation/improvements. Up to 3 actions were identified from each response.

There were 16 substantially different responses to this question. More detail about the response is given in Appendix 5. The table below gives the most common actions cited.

**Table 7 Actions are needed by commissioners or other national NHS bodies to increase the successful adoption and spread of proven innovation/improvements? (n=434)**

<table>
<thead>
<tr>
<th>Future adoption and spread actions</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding mechanisms (including invest-to save, cross organisational)</td>
<td>73</td>
<td>18%</td>
</tr>
<tr>
<td>Innovation pathway process and support mechanisms</td>
<td>71</td>
<td>18%</td>
</tr>
<tr>
<td>Information and evidence of effectiveness</td>
<td>71</td>
<td>18%</td>
</tr>
<tr>
<td>Incentives and rewards</td>
<td>28</td>
<td>7%</td>
</tr>
<tr>
<td>Risk management</td>
<td>27</td>
<td>7%</td>
</tr>
<tr>
<td>Culture and behaviours</td>
<td>19</td>
<td>5%</td>
</tr>
<tr>
<td>Supply factors (including business case, kite-marking)</td>
<td>17</td>
<td>4%</td>
</tr>
<tr>
<td>Training and education</td>
<td>18</td>
<td>4%</td>
</tr>
<tr>
<td>Patient and user pressure</td>
<td>15</td>
<td>4%</td>
</tr>
<tr>
<td>Regulation/performance management? (Comply or explain)</td>
<td>15</td>
<td>4%</td>
</tr>
<tr>
<td>Leadership (including effective change management skills; perceived importance of innovation, champions)</td>
<td>14</td>
<td>3%</td>
</tr>
<tr>
<td>Demand factors (top-down and bottom up)</td>
<td>12</td>
<td>3%</td>
</tr>
<tr>
<td>Clinical engagement</td>
<td>8</td>
<td>2%</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>2%</td>
</tr>
<tr>
<td>Procurement</td>
<td>4</td>
<td>1%</td>
</tr>
<tr>
<td>Language and metrics</td>
<td>2</td>
<td>0%</td>
</tr>
</tbody>
</table>

Funding mechanisms (including invest-to save, cross organisational), Innovation pathway process and support mechanisms and Information and evidence of effectiveness were the most commonly cited actions required to support adoption and spread, accounting for 54% of the responses. Despite the availability of NHS Evidence, many people wanted a focus on workability rather than clinical effectiveness and to have standard templates to be adapted for local circumstances.
As two respondents said:

...provide sufficient funding and support to allow innovations to be piloted so essential evidence as to its effectiveness and efficacy can be gathered and a business case developed which can then be used by other NHS organisations to implement that innovation.

Commissioners need to be more responsive to developing evidence of the efficacy of new treatments/processes. Look for mechanisms to encourage innovation rather than reasons not to adopt.

For those that focused on Med tech (19%) and Pharma (16%) clarity about innovation pathway process and support mechanisms was top. Those that described pathway redesign (21%) identified funding mechanisms as their top action.

b. What system wide rules inhibit adoption and spread?

331 (75%) of people responded to the request to agree or disagree with statements below. These sought to identify what system wide rules inhibit the spread of innovation and improvement.

**Figure 8 what system wide rules inhibit the spread on innovation/ improvement in the following areas? (n=331)**

![Bar chart showing system wide rules and their impact on innovation and improvement]

Financial and accounting protocols were seen as the main system wide rules that inhibit innovation/improvement. Intellectual property rights were the least widely accepted inhibitor of innovation/improvement.

Industry (83%) and commissioners (77%) agreed most strongly with procurement requirements being the system wide rule that inhibits innovation, whereas providers thought financial and accounting protocols were more important (72%).
7 Conclusions

There was a good response from a wide variety of people to the snowball survey. It is a substantial body of evidence about what people involved in innovation and improvement in health care feel are the real issues.

The 256 innovations and improvements that the respondents described were mainly focused on increasing the efficiency of patient pathways to improve the patient experience for adults and those with long term conditions, which is in tune with recent health and care priorities.

There was 80% consensus that there were barriers in spreading an innovation/ improvement outside an originating organisation. The best ways of improving this would be to increase effectiveness and leadership.

The most commonly cited actions that respondents felt would be required to support adoption and spread and which accounted for 54% of the responses were

- Funding mechanisms,
- Innovation pathway process and support mechanisms
- Information and evidence of effectiveness

There was more agreement than disagreement between different groups as to the main factors to be taken into account in increasing adoption and spread.

The survey findings supported most of the factors to promote adoption and spread already identified by the Department of Health (DH), but also identified a number of new ones. The list below is a composite list of new drivers and factors supported both by this work and by DH

1. Appropriate rewards (and incentives)
2. Effective data, information and evidence of effectiveness
3. Effective risk management
4. Patient and user pressure
5. Leadership (including effective change management skills; perceived importance of innovation, champions)
6. Culture and behaviours; organisational cultures supportive of new ideas
7. Innovation pathway process and support mechanisms
8. Demand factors (top-down and bottom up)
9. Supply factors (including business case, kite-marking)
10. Funding mechanisms (including invest-to save, cross organisational)
11. Training and education
12. Clinical engagement
13. Procurement
14. Regulation/performance management
15. Common language and metrics
16. Pressure for change (to stimulate innovation)
17. People with the capacity and capability to promote change

The findings from the survey will strengthen the actions taken by the National Commissioning Board, NHS organisations and industry partners in scaling innovation and in maximising the impact of innovations and improvements
Annex 1; Snowball Survey Questionnaire

Dear Colleague,

Adoption & spread of innovation and improvement in health and care; Deadline 3 June

We are sending this ‘snowball’ survey to anyone working on the adoption and spread of health and care innovations. The results will inform Sir David Nicholson’s response to the Plan for Growth due in November 2011 and what needs to be done by the future National Commissioning Board (NCB) and other national NHS organisations to increase the successful adoption and spread of proven innovations and improvements in the new NHS landscape.

The NHS has a long history of service improvement and innovations, technological advance and pharmaceutical progress. There has been significant and sustained investment into understanding and growing capacity and competencies in this area. This has focused on new technology and drugs and devices but less on the adoption and spread of change in health and care pathways. We need to understand more about how to spread of improvements and innovations more effectively.

This survey seeks your views, as an innovator in the health and care, about how the adoption and spread of innovations and improvements can be enhanced. It should take no longer than 10 minutes to complete.

Once you have completed the survey, please could you ‘snowball’ it by sending the survey link (on the last page of the survey) to one or more colleagues who are knowledgeable about trying to spread a innovation or enabling others to increase adoption and spread.

Please complete the survey as soon as possible and the survey will end on 3rd June 2011.

Your answers will be treated in the strictest confidence, will be non-attributable and will only ever be published at the aggregate level in our final analysis. If you have any further questions about this survey please do not hesitate to contact Mark Wilkinson at NLSIDR or Sylvia Wyatt at The Young Foundation.

Mike Farrar
Chair – Life Sciences Innovation Delivery Board

Key contact details
Mark Wilkinson (mark.wilkinson@northwest.nhs.uk) - Life Sciences Innovation Delivery Board
Sylvia Wyatt (sylvia.wyatt@youngfoundation.org) - Project lead, The Young Foundation
QUESTIONNAIRE

About you

Please can you tell us something about your work and organisation?

For the purposes of this survey, innovation can be defined as a new idea, service or product which improves the quality of health and care wherever it is applied.

1. Chose the description that best covers the majority of your innovation/improvement work:
   - ‘Front line innovator’ working on specific innovations.
   - ‘Innovation enabler’ working with one or more projects to support others to spread their proven innovation
   - Other - working on innovation adoption and spread

2. What is the name of the organisation you work for?

3. What best describes your organisation...
   - Provider of NHS services
   - Industry - pharmaceutical, medical technologies, consultancies, pathway redesigners etc
   - Commissioner of NHS services
   - National NHS organisation eg NICE, NPSA
   - Local or Metropolitan Council
   - Voluntary, charitable or civil society organisation
   - University / Other academic
   - Other (please specify)

4. Which best describes your role within your organisation...
   - Clinician
   - Manager
   - Other

Innovations/ Improvements in health and care

1. Please describe in 50 words one innovation/improvement that you are trying to spread across the healthcare system

2. Is the innovation/improvement covering...?
   - Medical technology
   - Service pathway redesign
   - Pharmaceutical
   - Other (please specify)

3. Which of the following best describes the innovation/improvement that you have outlined above? (Tick all that apply)
   - Increases patient involvement in their own care (e.g. care planning, self care)
   - Changes the setting of care (e.g. from hospital to home)
   - Increases the efficiency of a care pathway (e.g. fewer staff required)
   - Changes who delivers care (e.g. from doctor to nurse)
   - Avoids adverse events (e.g. reduces the risk of falls or infection)
   - Prevents ill health in the future (e.g. reduces obesity)
   - Improves patient experience (e.g. allows people to stay at home for longer)
• Increases the clinical effectiveness of care (e.g. helps people take their medication at the right time)
• Increases the timeliness of care (e.g. earlier access to diagnostics)
• Other (please specify)

4. Which patient groups does the innovation/improvement affect? (Tick all that apply)
• Mothers and newborn babies
• Children
• Adolescents
• Adults
• Older people (over 75)
• People in the last 12 months of life
• People who have a long term condition
• People with learning disabilities
• People with mental health issues
• All of these

5. Please review the lifecycle diagram of innovation below. What stage has your innovation/improvement reached?
• 1. Very early
• 2. Early
• 3. Piloted
• 4. Scaled
• 5. Mainstreamed

Barriers (only for people who described an innovation)

1. Please read the statements about barriers below and then, from your experience, indicate how much you agree or disagree with each statement. (Strongly agree, agree, disagree, strongly disagree, don’t know)
• a) There are no barriers to spreading an innovation outside the originating organisation
• b) There is resistance from professional groups to spreading this innovation
• c) There is strong support from the ‘top team’ for spreading this innovation
• d) There is good access to adoption and spread expertise and support from outside the organisation
• e) Commissioning processes do not encourage adoption and spread of this innovation
• f) There are good incentives and rewards for innovators
• g) There are poor incentives and rewards for adopters of innovation
• h) The innovation has been championed widely by a respected clinician(s)
• i) Innovators lack access to evaluation skills to measure the impact of the innovation
• j) It is difficult to measure of return on investment for an innovation
• k) Innovators are not empowered to take risks
l) Payments and tariffs strongly encourage adoption and spread of this innovation
m) The innovation has been supported by a national NHS organisation
n) The innovation has received support from patients / patient organisations

2. Apart from lack of money and time, please describe another barrier to adoption and spread of innovation/improvement that you have encountered

3. For one of these barriers, giving the letter, please tell us what has been the most successful way of overcoming this difficulty?

For everyone

1. What system wide rules inhibit the spread on innovation/improvement in the following areas?
   - Meeting data protection and confidentiality requirements
   - Meeting procurement requirements
   - Financial and accounting protocols
   - Getting enough evidence of improved outcomes to satisfy clinicians
   - Intellectual Property Rights
   - Getting ethics approval
   - Other (please specify)

2. In your view, innovations/improvements often fail to spread because...
   - Innovators lack convincing evidence of savings
   - Innovators lack rigorous effectiveness data
   - Innovators lack access to the right people to support the innovation process
   - Innovators have not involved clinicians, patients or family in the design process
   - Other (please specify)

3. In the future NHS landscape, what needs to be done by commissioners or other national NHS bodies to increase the successful adoption and spread of proven innovations/ improvements?

4. What other features of an innovation/improvement make it most likely to spread easily/widely/quickly?

Thank you

1. We are developing online communities of innovators and enablers in health and care who are keen to learn more about adoption and spread. Would you like to join this community and benefit from exchanging ideas with other innovators and enablers? (if yes please include your name and email below)
   - Yes
   - No

2. About you...
   - Name
   - Job title
   - Email
   - Telephone

3. We may wish to explore your responses further in a telephone interview, please tick the box below if you are happy to be contacted by a member of the project team
14 July

- Happy to be contacted

Now, please 'snowball' this survey by forwarding the link below to 1 or 2 people knowledgeable about adoption and spread of innovation/improvement in health and care services.

http://www.surveymonkey.com/s/YWLZX72

Thank you for responding. Your answers will be treated in the strictest confidence, will be non-attributable, and only ever be published at the aggregate level in our final analysis.

If you have any questions – please contact Sylvia Wyatt (sylvia.wyatt@youngfoundation.org) or Mark Wilkinson (mark.wilkinson@northwest.nhs.uk).
Annex 2: List of people/networks asked to respond to snowball survey

<table>
<thead>
<tr>
<th>Network</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHS confederation</td>
</tr>
<tr>
<td>BHTA</td>
</tr>
<tr>
<td>BIA</td>
</tr>
<tr>
<td>EMIG</td>
</tr>
<tr>
<td>BIVDA</td>
</tr>
<tr>
<td>ABPI</td>
</tr>
<tr>
<td>NIHR</td>
</tr>
<tr>
<td>ABHI</td>
</tr>
<tr>
<td>RIFAS applicants</td>
</tr>
<tr>
<td>CHAIN</td>
</tr>
<tr>
<td>Dotlab</td>
</tr>
<tr>
<td>Royal Colleges</td>
</tr>
<tr>
<td>Foundation Trust Network</td>
</tr>
<tr>
<td>Patients Like me</td>
</tr>
<tr>
<td>LGID</td>
</tr>
<tr>
<td>Equator Network</td>
</tr>
<tr>
<td>NHS networks</td>
</tr>
<tr>
<td>HIEC Network</td>
</tr>
<tr>
<td>Challenge Prize Panel</td>
</tr>
<tr>
<td>SHA Medical Directors</td>
</tr>
<tr>
<td>National Clinical Directors</td>
</tr>
<tr>
<td>SHA Innovation/improvement Leads</td>
</tr>
<tr>
<td>Young Foundation networks</td>
</tr>
<tr>
<td>Nuffield Trust</td>
</tr>
<tr>
<td>CLARCs</td>
</tr>
<tr>
<td>Kings Fund</td>
</tr>
<tr>
<td>NHS LSIDB Members</td>
</tr>
<tr>
<td>BIS</td>
</tr>
<tr>
<td>QIPP Leads</td>
</tr>
<tr>
<td>Specialised Service Commissioners</td>
</tr>
<tr>
<td>Directors of Commissioning Development</td>
</tr>
<tr>
<td>Directors of Provider Development</td>
</tr>
<tr>
<td>Health Education England</td>
</tr>
</tbody>
</table>
### Annex 3: List of mainstreamed innovation and improvements

The following list of well described innovation/improvements were self coded as already mainstreamed (unedited from survey)

<table>
<thead>
<tr>
<th>A range of new medicines for diseases including cancers, serious eye disease, multiple sclerosis and respiratory disease.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fast implementation of innovative medicines approved by NICE</strong></td>
</tr>
<tr>
<td>Production of the injectable medicines guide website which is recommended by NPSA Alert 20 as a suitable source of information for people preparing and administering injectable medicines</td>
</tr>
<tr>
<td>Communication processes through a Commissioning Network and service provider Forum that directs partnership working and service-user voice to improve efficiency and user outcomes.</td>
</tr>
<tr>
<td><strong>Integrated care pathway for patients with heart failure across the city of Liverpool. This will transcend primary, secondary and tertiary care. It will be supported by electronic communication and sharing of information between clinicians at all levels.</strong></td>
</tr>
<tr>
<td>Implementation of DNA CPR policy across 4 organisations using a standard form to record the decision &quot;do not attempt cardio pulmonary resuscitation&quot;. This will prevent inappropriate 999 calls, treatments and admission and may support a more peaceful death.</td>
</tr>
<tr>
<td>Oesophageal Doppler Cardiac Output monitoring for the intraoperative optimisation of cardiac output and intravenous fluid management. An essential component of enhanced recovery in all surgical specialities. As recommended by NICE (2011) on over 800,000 patients a year. It is clinically proven to reduce post operative complications, reduce hospital length of stay and save over £1100 per patient.</td>
</tr>
<tr>
<td>Implementation of the Productive Ward series</td>
</tr>
<tr>
<td>The use of Functional Electrical Stimulation to assistive walking and hand/arm function in people with neurological disabilities.</td>
</tr>
<tr>
<td>Implementation of the RiO electronic Care Records System, replacing 19 old IT systems and paper case notes.</td>
</tr>
<tr>
<td>Very simple drinking system that attached to beds/chairs enabling patients to drink at any time without needing to call for help to do so. This massively reduces dehydration incidence</td>
</tr>
<tr>
<td>Increasing employment, qualifications, work experiences and sense of value in people with mental health problems and learning disabilities. 'Tukes' schemes run almost all of our own ancillary services (catering, cleaning, facilities, maintenance, reception, portering etc) to all of our units and facilities. They also run services to the public such as cafes, conference centres and facilities contracts in NE Lincs. This creates high quality services, purpose, qualifications and skills and real work for large numbers of people.</td>
</tr>
<tr>
<td>Award winning new dementia services including primary care based memory clinics, carer training &amp; dementia advisors. Also integrated working with locality teams across social care &amp; PCT staff. Home Oxygen rationalisation.</td>
</tr>
<tr>
<td><strong>PACE Post acute care enablement programme. We are working with our acute physicians in acute medicine and older peoples’ medicine to identify patients with IV antibiotics or other treatments which can continue at the patients home in partnership with our community colleagues; care responsibility is with the GP who has 24/7 access to an acute physician to discuss appropriate care bundles.</strong></td>
</tr>
<tr>
<td><strong>NHS 111 Ability to identify calls that come in via the NHS 111 service that are assessed as requiring an NHS response to be transferred to the Ambulance Service dispatch queue without the need for retriage or delay and only enabling those calls that need to be seen OOH to reach that setting</strong></td>
</tr>
<tr>
<td>South east coast normalising birth project. spreading best practice initiatives across the region using tailored comparative clinical data as a driver and multi-professional clinical champions in each trust with expert facilitation from NHS-I</td>
</tr>
</tbody>
</table>
# Annex 4: List of possible case studies

<table>
<thead>
<tr>
<th>Case Study</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A single electronic health record which crosses organisational boundaries</td>
<td>A single electronic health record which crosses organisational boundaries in a seamless way; that supports clinical decision making and improved communication between professionals and underpins research; audit; process change and target agendas as a by-product of delivering clinical care.</td>
</tr>
<tr>
<td>Online research platform for patients with serious illnesses to track their progress and share it with patients like them, in order to accelerate research, improve health literacy, and improve outcomes.</td>
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</tr>
<tr>
<td>A medicine labelling device that is voice recordable. A message can be recorded on to the label with specific info pertinent to that patient. This can be played back to reinforce verbal info supplied at the time of supply. The device also carries a code which can be registered via a mobile phone text to a database that then generates an SMS text to remind the patient to take their next does of medication.</td>
<td>A medicine labelling device that is voice recordable. A message can be recorded on to the label with specific info pertinent to that patient. This can be played back to reinforce verbal info supplied at the time of supply. The device also carries a code which can be registered via a mobile phone text to a database that then generates an SMS text to remind the patient to take their next does of medication.</td>
</tr>
<tr>
<td>CardioQ-ODM enables better care during surgery leading to fewer complications and shorter lengths of stay. Also a core component of enhanced recovery surgical programmes. NICE guidance recommends use on 837,000 patients a year at a saving of £1,100 per patient.</td>
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</tr>
<tr>
<td>Developed a dashboard for service performance relating to efficiency eg capacity and demand, finance, cancellations, DNA’s, pathways and so on</td>
<td>Developed a dashboard for service performance relating to efficiency eg capacity and demand, finance, cancellations, DNA’s, pathways and so on</td>
</tr>
<tr>
<td>An electronic clinician to clinician advice service (e-consultations), currently mostly used by primary care clinicians seeking specialist advice from secondary care for borderline or complex cases, as an initial alternative to referral into outpatient. This has been shown to avoid referrals and admissions and to enable knowledge transfer into primary care.</td>
<td>An electronic clinician to clinician advice service (e-consultations), currently mostly used by primary care clinicians seeking specialist advice from secondary care for borderline or complex cases, as an initial alternative to referral into outpatient. This has been shown to avoid referrals and admissions and to enable knowledge transfer into primary care.</td>
</tr>
<tr>
<td>Care bundles for COPD and Heart Failure</td>
<td>Care bundles for COPD and Heart Failure</td>
</tr>
<tr>
<td>Prophylactic Liquid Glass coatings for coating most surfaces in the healthcare environment. This easy to apply, low cost technology is being adopted by many health services in Europe and beyond.</td>
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</tr>
</tbody>
</table>
## Annex 5: Actions to increase adoption and spread by level

<table>
<thead>
<tr>
<th>All</th>
<th>National</th>
<th>NHS commissioners</th>
<th>NHS providers</th>
<th>Innovation teams</th>
</tr>
</thead>
<tbody>
<tr>
<td>risking taking/sharing</td>
<td>align incentives</td>
<td>monitoring of implementation innovation/improvements</td>
<td>Motivation and skills of staff to implement</td>
<td>Include all relevant professionals</td>
</tr>
<tr>
<td>Evidence of effectiveness</td>
<td>cross organisational working and budgeting</td>
<td>importance of small scale innovation/improvements</td>
<td>Encourage ‘stealing’ and replicability of innovation</td>
<td>Recognise importance of patient perspective</td>
</tr>
<tr>
<td>communications</td>
<td>centralising cost effectiveness analysis &amp; evidence</td>
<td>invest-to-save mechanisms - covering more than 12 months</td>
<td>Encourage co production with patients and users</td>
<td>avoid conflicts of interest</td>
</tr>
<tr>
<td>education and training</td>
<td>importance of research and evaluation skills to support clinicians</td>
<td>Harness the capability and capacity of higher education</td>
<td>Use rapid testing and prototyping</td>
<td>Ensure skills of non medical professionals are fully recognised</td>
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<tr>
<td>transparency, simplicity, openness</td>
<td>NICE approved medicines to go direct to NHS formularies</td>
<td>Better links between innovators and procurers</td>
<td>Actively manage adoption and spread</td>
<td>use problem orientated innovation</td>
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<tr>
<td>link between quality and cost</td>
<td>encourage organisational cooperation</td>
<td>Join up commissioning</td>
<td>increase staff competency and capacity</td>
<td>Ensure highest possible profile eg awards</td>
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<td>unified NHS voice</td>
<td>commissioning for outcomes</td>
<td>Reduce GP control of commissioning.</td>
<td>Identify high level champions</td>
<td>Ensure clinical engagement</td>
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<td>networks for sharing</td>
<td>clearly defined innovation pathway</td>
<td>Stop doing pilots - start running long term programmes</td>
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<td>kite mark approved innovation/improvements</td>
<td>decommissioning/allow failure</td>
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<td>Ensure right people, in the right place at the right time.</td>
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<td>standardised robust business case templates</td>
<td>allow realistic timescales</td>
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<td>Avoid innovation becoming a grant driven scheme for academic research.</td>
<td>empower innovators and adopters</td>
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<td>strategic focus on innovation/improvement</td>
<td>Allow local freedom</td>
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<td>include recognised innovations in national guidance</td>
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5.5 HEALTHCARE SCIENTISTS INNOVATION WORKSHOP

Introduction

1. On 23 June the Board, working with Sue Hill the NHS Chief Scientific Officer, held a workshop with a number of local NHS leaders of diagnostic services and healthcare scientists across the NHS to identify the key factors to support adoption and spread of diagnostic-related innovation. Industry was also represented via BIVDA.

2. The key themes that emerged from the discussion are summarised below. Also included, as an appendix, is a list of participants.

Adoption / Diffusion Supporting Mechanisms

3. Need one stop shop for evidence / strong business cases – the principle should be to do it once across the NHS and share (one way to do this would be to develop the output of NHS Evidence). It was felt that common standards on evidence for innovations were needed.

4. There is a potential role for clinical senates and health & well being boards to support whole pathway not silo approach and to challenge local decision making.

5. Strengthening patient power can improve adoption and spread of innovation.

6. Need champions and leaders to endorse and promote innovation.

7. Need comparable Information to identify where innovations would help most. In that sense IT and connectivity are important.

8. Need capability / enabling support in NHS to support adoption & spread.

9. The creation of an innovation team in trusts to project manage innovations as there is no capacity to do this – this would help the evidence and business case.

Financial and Market Issues

10. Changes in tariff are too slow (up to four years) to reflect innovation adoption and spread – need to work to see how it can support innovation.

11. Market fragmentation may impede spread of innovation – need clinical senates, National Clinical Directors and health & well being boards to address this.

12. Need to strengthen commissioning in relation to innovation.

13. Change the business structure so that we look at diagnostics across the whole health economy (end to end care) – move away from 'silo' working.
14. Silo accounting was a major problem where the cost reductions produced in one part of the pathway were realised in another but the benefits were not shared. Pump priming may be needed.

15. IP ownership. NHS funding goes into university research – when universities apply for patents developed via NHS resources the NHS shouldn’t lose out.

Specific Improvements to Access

16. Need to take the middle man out of the process and allow patients to access and undertaken tests themselves e.g. anticoagulation). This should reduce cost, timeframe and improve outcomes – allowing GPs to manage the whole pathway

17. Need to support improved access – GP access, earlier diagnosis etc.

18. GP gate-keeping can be too strong – if patients refer themselves for scans this can speed up treatment and not necessarily lead to inappropriate tests.

Mark Wilkinson  
Director - Life Sciences Innovation  
13 July 11
## Appendix – Workshop Participants

<table>
<thead>
<tr>
<th>Name</th>
<th>Role/Organisation</th>
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<tbody>
<tr>
<td><strong>Endoscopy</strong></td>
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</table>
| 1. Dr Andrew Veitch      | • Consultant Gastroenterologist -  
• Clinical Director of Endoscopy and Bowel Cancer Screening, New Cross Hospital, Wolverhampton  
• Chair of the BSG Endoscopy Research Network,  
• Gastroenterology representative on the NICE Interventional Procedures Advisory Committee. |
| 2. John Stebbing         | • JAG Chair                                                                                                                                        |
| **Imaging**              |                                                                                                                                                   |
| 3. Philip Webster        | • Imaging Technical Lead, DH                                                                                                                                 |
| 4. Anne Shaw             | • Professional Officer, SCoR (The Society and College of Radiographers)                                                                                                                                   |
| 5. Tony Newman-Sanders   | • Consultant Radiologist  
• Clinical Director for Emergency Care, Croydon Health Services  
• National Clinical Lead for NHS PACS  
• Chair, Informatics Sub Committee of National Imaging Clinical Advisory Group |
| 6. Peter Sharp           | • Chief Executive, Cobalt  
• Director of Breast Screening for the NHS Breast Screening Programme in Gloucestershire |
| **Pathology**            |                                                                                                                                                   |
| 8. Dr Rick Jones         | • Assoc Clin Director, Yorks and Humber SHA NPfIT  
• Sen Lect, Yorkshire Centre Health Informatics, Uni of Leeds  
• Consultant Chemical Pathologist, Leeds Teaching Hospitals Trust |
| 9. Prof Gifford Batstone | • National Clinical Lead for Pathology, Clinical Division, DH Informatics Directorate                                                                                                                        |
| 10. Prof Chris Price     | • Clinical Lead, Cumbria & Lancashire Pathology Commissioning Network  
• Member, NIHR Horizon Scanning group, Dept of Primary care, Uni of Oxford  
• Visiting Professor in Clinical Biochemistry, Uni of Oxford. |
| 11. Adrian Newland       | • Chair Stratified Medicine Advisory Group, Haematologist at Bart's and London                                                                                                                              |
| 12. Joanne Rogers        | • Association of Clinical Biochemistry                                                                                                             |
| **Physiological Diagnostics** |                                                                                                                                               |
| 13. Louis Merton         | • Neurophysiology lead clinician                                                                                                                |
| 14. Martin Allen         | • Respiratory/Sleep Physiology lead clinician  
• Consultant Physician  
• Clinical Director Cardiothoracic Medicine, University Hospital of North Staffordshire |
<p>| 15. Pat Ward             | • National Programme Director, NHS Fetal Anomaly Screening Programme, UK National Screening Committee                                                |</p>
<table>
<thead>
<tr>
<th></th>
<th>Name</th>
<th>Position</th>
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<tbody>
<tr>
<td>16.</td>
<td>Georgina Fenwick</td>
<td>Head Clinical Vascular Scientist, Royal Free</td>
</tr>
<tr>
<td>17.</td>
<td>Doris-Ann Williams</td>
<td>Director General BIVDA</td>
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<tr>
<td><strong>Genetics</strong></td>
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<tr>
<td>18.</td>
<td>Colin Pavelin</td>
<td>Head of Genetics &amp; Advanced Therapies, DH</td>
</tr>
<tr>
<td>19.</td>
<td>Trevor Cole</td>
<td>Chair, Joint Committee on Medical Genetics / Royal College of Physicians</td>
</tr>
<tr>
<td>20.</td>
<td>Rob Elles</td>
<td>Clinical Director &amp; Business Development and External Affairs Manager, Genetic Medicine, Manchester Academic Health Sciences Centre, Central Manchester University Hospitals NHS Foundation Trust</td>
</tr>
<tr>
<td>21.</td>
<td>Ian Young</td>
<td>Department for Business Innovation and Skills</td>
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<tr>
<td><strong>Senior Scientists</strong></td>
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<tr>
<td>22.</td>
<td>Fiona Carragher</td>
<td>SHA Senior Lead Scientist – London</td>
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<td></td>
<td></td>
<td>Consultant Clinical Scientist, Director of Biochemical Sciences, GSTT</td>
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<tr>
<td>23.</td>
<td>Tony Gibson</td>
<td>SHA Senior Lead Scientist - North East</td>
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<tr>
<td></td>
<td></td>
<td>North East Pathology Network Coordinator</td>
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<tr>
<td></td>
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<td>Pathology QIPP lead</td>
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<tr>
<td>24.</td>
<td>Angela Douglas</td>
<td>SHA Senior Lead Scientist – North West</td>
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<tr>
<td></td>
<td></td>
<td>Consultant Clinical Cytogenetician</td>
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<td>Medical Genetics Laboratory Director</td>
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<tr>
<td>25.</td>
<td>Jo Nightingale</td>
<td>SHA Senior Lead Scientist – SEC</td>
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<tr>
<td></td>
<td></td>
<td>Head Biomedical Scientist, Haemophilia Centre, East Kent Hospitals University NHSFT</td>
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<tr>
<td>26.</td>
<td>Avril McCarthy</td>
<td>Medical Physics, Sheffield Teaching Hospital</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rep for SHA Senior Lead Scientist – Humber &amp; Yorkshire</td>
</tr>
<tr>
<td>27.</td>
<td>Fiona MacDonald</td>
<td>West Midlands Regional Genetics Laboratory, Birmingham Women’s Hospital</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rep for SHA Senior Lead Scientist, West Mids</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
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</tr>
<tr>
<td>28.</td>
<td>Nick Crabbe</td>
<td>Manager, NICE diagnostics assessment programme</td>
</tr>
<tr>
<td>29.</td>
<td>Lesley Wright</td>
<td>Director of Diagnostics, NHS Improvement</td>
</tr>
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</table>
7. IMPLEMENTATION OF SYSTEMATIC ADOPTION AND DIFFUSION OF INNOVATIVE MEDICAL AND DIAGNOSTIC TECHNOLOGIES

Introduction

1. The attached report was commissioned by the Board in May 2010 and a steering group was set up shortly thereafter to oversee the work.

2. The necessity of bringing the report to this meeting of the Board has meant that it has not been possible to secure the written support of every steering group member. Annex B lists steering group members as well as clarifying who has confirmed their support for the report as it now stands. The recommendations were discussed, in workshop session, and had widespread support.

3. A number of the recommendations are addressed to DH and other stakeholders. It will therefore be necessary to undertake a separate consultation with those concerned.

4. Other recommendations could, if accepted, be adopted and acted on by the Board.

5. A proposed action plan in respect of those recommendations that fall in the second category, and the results of the wider discussions on those in the first, will be brought to the next meeting.

Mark Wilkinson
Director – Life Sciences Innovation
9 February 2011
IMPLEMENTATION OF SYSTEMATIC ADOPTION AND DIFFUSION OF INNOVATIVE MEDICAL AND DIAGNOSTIC TECHNOLOGIES

January 2011
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Questions or comments on this report should be directed to Mark Wilkinson, NHS Director of Life Sciences Innovation, mark.wilkinson@northwest.nhs.uk
1. SUMMARY OF RECOMMENDATIONS

1.2 Create an “electronic marketplace” for evaluated and ready-for-market medical technology innovations. This could be hosted by NHS Evidence and would complement its existing information sources on newer technology innovations.

1.3. Develop plans for closer collaboration between clinicians and industry, based on:

   1.3.1 The success of existing networking sessions in cardiology
   1.3.2 Existing activities such as the Health Tech & Medicines Knowledge Transfer Network Special Interest Group.

1.4 Develop plans for a more transparent and widespread sharing initiative between NHS horizon scanning organisations / processes and the NHS on promising new medical technology innovations which are in the late stages of development. This would stimulate early NHS interest in these promising technologies.

1.5 Develop and maintain a high specification database about the uptake of technologies evaluated and recommended by NICE or supported by NTAC.

1.6 Better align innovation adoption and diffusion systems and NHS payment and tariff mechanisms. To start off this work, it might be most effective to focus on one particular adoption / diffusion process in the first instance (such as products which have been assessed through NICE’s new medical technology and diagnostics evaluation pathways). Another useful connection would be to align to the implementation of the NHS Outcomes Framework.

1.7 Explore whether an incentive/reward for innovation implementation could be adopted as part of the CQUIN scheme, or as a separate initiative

1.8 Adopt a similar approach regionally with goals to achieve agreed uptake and diffusion of innovative technologies reflecting regional needs and priorities.

1.9 Reinforce the adoption of Best Practice within the NHS by rewarding other aspects of best practice adoption which are not currently included in the NHS Best Practice Tariffs. For example:

   1.9.1 Encouraging implementation of a best practice goal within an agreed timescale;
   1.9.2 Focusing on other relevant aspects of the pathway not covered by the best practice tariff, such as community services.

1.10 There needs to be a radical change in the role played by procurement in the innovation landscape, particularly clinical engagement, the early involvement in the innovation pipeline, and a simplification of the procurement landscape itself to make it more open to innovation.
1.11 The NHS (perhaps via the QIPP procurement workstream) needs to provide better guidance and engagement on the procurement of key items. This might result in simplification and better utilisation of procurement landscape, thus enabling innovative technologies of proven benefit to be introduced more effectively.

1.12 Under the new NHS structure, it is important to establish consistent policy and/or standards relating to commercial behaviour within the NHS.

1.13 Following iTAPP in attracting significant response from industry and in identifying innovations with ‘universally agreed’ clinical needs and implications into the system, it is suggested that:

   1.13.1 The dynamic approach to accelerate the adoption pathway for such technologies might provide valuable lessons for streamlining the overall system in the long run;

   1.13.2 Proper facilities need to be developed for such lessons to be incorporated for the benefit of the innovation pathway.

1.14 Exploring with TSB and NIHR whether a structured Small Business Research Initiative (SBRI) allocation plan (for example, one SBRI per region etc), can help increase the scale and scope of benefitting from it.

1.15 A full numerical volume–capacity analysis of the activities of organisations within the medical technology innovation landscape should be undertaken. Relevant activities include assessments, applications, technology scans etc. It is possible that that this can be undertaken as part of the organisational review of the innovation landscape about to be commissioned by the NHS Life Sciences Innovation Delivery Board.

1.16 The Department of Health will need to give timely consideration to what market characteristics will be required to facilitate and encourage innovation adoption and diffusion in the reformed NHS. Much of this thinking will come in the framing the role of R&D and innovation in the new NHS: duty to innovate, role of regulators in innovation, system incentives for innovation, and focus on developing innovation capabilities. The proposed organisational review of the innovation adoption and diffusion landscape may also be a useful vehicle to implement this recommendation.
2. INTRODUCTION

2.1 The NHS Life Sciences Innovation Delivery Board was set up in late 2009 with the aims of increasing the use of cost effective medicines and medical technologies, improving relationships between the life sciences sector and the NHS and increasing the attractiveness of the UK as a site for clinical trials and product development.

2.2 Despite the UK being a leader in the invention and generation of ideas, the NHS lags behind in the final two phases of the innovation pathway, namely, adoption and diffusion. Many reasons have been put forward for this, including clinical resistance to change, financial considerations and payment mechanisms, need for service redesign, creating motivation etc. In order to address the different aspects of this problem, the Life Sciences Innovation Delivery Board has taken up a number of work streams, one of which is the Innovation Landscape Project.

2.3 A Project Steering Group was established to look at the:

2.3.1 Innovation adoption and diffusion process for medical and diagnostic technologies - including an overview of the current system, the barriers and their causes; and

2.3.2 NHS business processes and policies directly affecting and governing the functioning of the adoption and diffusion systems.

2.4 The Group considered the above in the context of the NHS reforms as set out in the White Paper: “Liberating the NHS – Equity and Excellence” and the subsequent consultations. The full terms of reference are at Annex A.

2.5 This is a report of the Project Steering Group’s work. It describes the methodology used within the project, and it summarises the key findings and the evidence behind the findings. It also includes the recommendations arising from this work.

Scope

2.6 The NHS Life Sciences Innovation Delivery Board commissioned the Innovation Landscape Project Steering Group (members at Annex B) to consider barriers to the systematic adoption and diffusion of innovative medical and diagnostic technologies; and propose solutions to address the barriers. (Full terms of reference at Annex A).

2.7 The emphasis in this project has been on addressing the practical issues affecting the process of adoption and diffusion. Its work areas have been determined keeping in mind the objectives of the project, the time frame and also the issue of the forthcoming NHS Reforms.

2.8 It was agreed that to maximise the outcomes of the project, attention should be paid to the functions of the different components of the innovation adoption-diffusion process (“what adds value and what causes problems”) thus attempting to determine “those areas where there is real possibility where changes can be achieved”.

Page 6 of 34
2.9 The project has addressed the following issues:

2.9.1 Overview of the innovation landscape as it exists and operates now (with the key decision points and bottlenecks).

2.9.2 Barriers in the process
   - Their ranking according to the most negative impact caused by them
   - Recommendations to overcome these barriers and also to address other areas of recognised problems

2.10 Core business processes

2.10.1 The role they play in facilitating or hindering the process of adoption and diffusion.

2.10.2 Identification of opportunities and flexibilities that exist within the remits of the processes in the current system.

2.10.3 Recommendations about adaptations and feasible changes in the processes to make them more conducive to innovation.

2.11 An analysis of the process which is required to ensure a systematic and streamlined approach to innovation adoption-diffusion. This includes

2.11.1 An analysis of the functions required within this process

2.11.2 The capabilities required to deliver this process.

2.11.3 The organisations currently involved in delivering the process.

2.12 This project should not be regarded as a formal academic study of the subject. However it is based on detailed discussions with experts in the subject, together with a review of the relevant literature, including academic studies, and private sector and government reports. Some of these reports were generic or cross-sector in nature, others were focussed on healthcare/NHS.

2.13 The Steering Committee believes that the report and recommendations represent an accurate view of the current state of adoption and diffusion of medical technology within the NHS.
3 METHODOLOGY

3.1 Discussions with experts involved in all stages of the adoption and diffusion process

3.2 Structured Delphi survey with a panel of experts

3.3 To develop an understanding about the opinions of people directly involved in the various stages of adoption-diffusion, the Delphi technique was considered a useful way to address the objectives of the project.

3.4 It has been described as ‘a method of structuring a group communication process so that the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem’ (Linstone and Turoff 1975:3). Delphi has been used in various healthcare-related researches with considerable success with the objective to convert opinions from a panel of experts into group consensus regarding a particular or multiple related problems. In this project, the survey involved the following stages:

3.5 Selection of a panel of experts to complete the Delphi survey

- 3.5.1 Steering committee members.
- 3.5.2 Senior clinicians with experience of implementation or the adoption process of innovations.
- 3.5.3 Senior PCT managers/officials with experience of decision-making/commissioning for the adoption/diffusion of innovation.

3.6 Identification of the research problems / areas to be addressed

- 3.6.1 The key organisations and their alignment in the process of adoption and diffusion.
- 3.6.2 Effects of financial incentives / considerations on the process.
- 3.6.3 The most important barriers and the crucial steps needed to overcome them.
- 3.6.4 Appreciative enquiry: what the panel feels should be the ideal structure facilitating the effective adoption/diffusion.

3.7 Structured Questionnaire Process - First round

- 3.7.1 A structured questionnaire, with mix of open and closed questions.
- 3.7.2 Conducted through a combination of face-to-face interviews, teleconference and email. As is the essence of Delphi, the responses were kept anonymous.
- 3.7.3 Collation and summary of these responses with presentation to experts for consideration.

3.8 Second round

- 3.8.1 A questionnaire based on recommendations and their prioritisation was sent to the same group as the first round. Mostly conducted through e-mails.
- 3.8.2 Summary and collation of these with presentation of the results.
4 LITERATURE REVIEW

4.1 Desk based research was carried out to assimilate the evidence and information already available. A brief summary of the research work most relevant to the project is described here.

4.2 Barriers to adoption and diffusion are faced by all professionals involved in the process, in many cases by processes built into the system. As pointed out in the paper “Organisational and behavioural barriers to Medical Technology adoption (NIII and YHEC, Sept 2009)”, [DN standardised approach to citing references needed here and throughout] there is also awareness of these barriers and the need to overcome them. Relevant works by John Warrington and Margaret Horton in the papers “Breaking down barriers: How NHS is opening up to innovation”, and “The UK approach to Procurement and Innovation” respectively, point out the obstacles in the procurement landscape.

4.3 “Ensuring rapid and effective diffusion” (Innovation Professional Leadership Group, David Albury and Alastair Liddell) discusses about the vital roles of culture and leadership, support and investment (push factors), shape and openness (supply), rewards and incentives (pull factors), and citizen and user engagement in the process. In “Beyond Light Bulbs and Pipelines: Leading and Nurturing Innovation in the Public Sector” the authors emphasize the necessity of considering innovation as a linked process from invention to large scale diffusion and suggest the use of different innovation models for maximum effectiveness. In the “Blueprint for the Dissemination of Evidence-based Practices in Healthcare” (The Commonwealth Fund, May 2010) there is mention of key strategies from improving the dissemination of best practices by national quality improvement campaigns.

4.4 This report also looked at studies describing the role of procurement functions and how proper utilisation of the system can facilitate adoption and diffusion. “A summary of NHS Procurement Practices and their implications for innovation adoption (Dr Christopher Herbert, Medipex Ltd, January 2009) and “Policy through procurement - the introduction of digital signal process (DSP) hearing aids into the English NHS” (Phillips W, Knight L, Caldwell N, Warrington J) were particularly relevant.

4.5 Another relevant study is the NIHR Service Delivery and Organisation programme’s “Organisational factors influencing technology adoption in the NHS: a systematic literature review”, published in October 2008. This review focused on studies of the adoption and assimilation of non-pharmaceutical technological innovations in healthcare organisations. It made recommendations intended to facilitate the increased adoption and use of beneficial technological innovations in NHS organisations.

RESULTS

4.6 Whilst the Steering Group was keen to focus upon the future needs of the NHS and Industry some time was spent during the early stages of the project clarifying the current position and identifying key players within the innovation landscape. The information gleaned during this stage has helped to shape the recommendations of the report.
4.7 As the group considered the innovation landscape it quickly identified the need for “an ideal” of the innovation continuum which progresses from an original idea through to widespread dissemination. It was with this notion in mind that the Group approached the project.

4.8 A first stage therefore was to “map” the landscape as it currently exists from the perspective of the key organisations’ that play a role. This included clarifying the roles of each organisation, their capacity to support the innovation agenda (in their current form). No formal attempt was made to chart the linkages between them in terms of either their complementarity or duplication of effort although some of these issues came to light during the investigative phase.

4.9 Those organisations’ most frequently identified as currently playing a role in the innovation process included:-
- The National Horizon Scanning Centre
- The National Innovation Centre
- NHS Innovation Hubs
- The National Institute for Health and Clinical Excellence (NICE)
- The NHS Institute
- The NHS Technology Adoption Centre (NTAC)

4.10 The degree of influence and impact of each organisation is clearly influenced by the size, remit, resources and skill set of each. Whilst “on paper” it would appear that all the elements of an innovation continuum exist within the NHS the approaches to supporting innovation vary widely and the level of collaboration and co-operation between them appears to be based upon individual relationships and historical practice rather than through deliberate strategic intent.

4.11 As per the Terms of Reference the prime focus of the work was to consider the main barriers to the adoption and diffusion of technologies and this therefore received the greatest attention during the project.

4.12 The decision of the group to use the Delphi methodology to elucidate these barriers from both practical and process perspectives provided valuable data about the issues that impact upon adoption and diffusion. When considered in the round the report provides indications of steps that if pursued are likely to improve the adoption and diffusion of technologies in the NHS.

4.13 A full account of the Delphi survey is contained in Annex C. In essence, the findings to emerge rom it were that:

4.14 The barriers to adoption and diffusion of innovation include:
- Availability and accessibility of information (fragmented, inaccessible, sporadic).
- Communication gaps between different stakeholders in the process.
- Leadership, accountability and the issue of knowledge sharing and spread
- Procurement roles.
- Financial considerations and incentives.
4.15 The core system elements to be in place to support the adoption and diffusion of innovation include:

4.16 Innovation activities

- Accessing new ideas
- Selecting and developing ideas
- Implementing ideas
- Diffusion of ideas that work

4.17 Innovation capabilities

- Enabling innovation
- Management of Innovation
- Leadership and culture

4.18 System levers for Innovation

- Incentives
- Autonomy

4.19 The project team produced a report based on the results of the Delphi survey, Literature review, discussions with experts and further research and analysis. This report was further refined following discussions with the DH and BIS representatives of the Life Sciences Innovation Delivery Board. The report was then formally submitted to the Steering Committee in January 2011.

Analysis of Future Requirements

4.20 The Delphi approach confirmed the continued existence of a number of well know barriers to adoption. These do not stand on their own however and as evidenced by the Cooksey Report (2005) and Derek Wanless’s work (2005 & 2007) the NHS lacks systematic and co-ordinated approaches to not only the adoption of technologies but in reality across the breadth of the innovation landscape.

4.21 During 2010/11 NTAC was commissioned to develop a Generic Adoption Model for Technology Adoption based upon the learning gleaned during the organisation’s experience of supporting implementation of a number of technologies in a number of settings. This work is shortly to conclude and will be published at the EXPO in March 2011.

4.22 The scope of this work has included:-

- Identification of the key elements of the adoption process.
- Development of a robust and systematic adoption process.
- Production of analytical and practical adoption tools.
- Creation of a metrics programme with which to measure uptake and success.
4.23 As stated above this systematic adoption process identifies the key elements necessary for successful adoption. The Generic Adoption Process includes ways to analyse the potential value of new technologies and the extent to which they will meet the needs of the NHS. It will offer guidance about procurement and the key factors for consideration as well as aiding both Industry and the NHS to collate the evidence necessary for successful adoption and diffusion.

4.24 What it cannot do however is resolve all of the known barriers that exist and which have been documented here. For example findings related to financial barriers, the complexity of procurement, the use of incentives and the scope and capacity of the adoption landscape. Each of these will require more detailed evaluation of the future needs of the NHS to improve its ability to adopt and diffuse technology but most importantly perhaps will be the integration of the various functions into a cohesive and efficient system.
5. FINDINGS AND RECOMMENDATIONS

Information and Communication

Findings

5.1 A significant barrier for adoption and diffusion is the fragmented nature of information available about innovations. Greater availability and consistent information about evaluated and market ready devices could:

- enable people involved in the decision making process (ie clinicians/trusts/providers) to have speedier and simpler access to relevant information;
- promote greater knowledge sharing and co-ordination of activities within different NHS organisations;
- encourage local level prioritisation of adoption and diffusion of infrastructure.

5.2 Greater information about promising near market medical technology innovations could

- help prioritise the process of evaluation;
- facilitate forward planning for the redesigning of services and facilities, where this is needed for innovation implementation.

5.3 Better communication and information sharing between clinicians and industry could:

- increase the chances for innovations by industry to be more readily and widely accepted by the NHS;
- facilitate feedback about necessary modification of innovative products from the expert/clinician perspective at a very early stage;
- stimulate greater cohesion among clinicians by opinion and knowledge sharing.

5.4 Improving availability and accessibility of information about medical technologies for patients could:

- create awareness about available treatments and technologies;
- develop ‘expert patients’ who can be instrumental in creating demand and pulling innovations from the systems.

5.5 The lack of information about the uptake and impact of innovative medical technologies risks keeping providers/trusts/clinicians in the dark about the real clinical impact and financial implications as experienced by a user. Benchmarking organisations (using innovative technologies) in terms of clinical results and cost savings can be:

- a strong motivator for adoption;
- vital for trusts for planning their clinical and financial activities;
• crucial for long term evaluation of a product/technology as well, from both finance and clinical perspectives.

In many cases the only available information is from industry/manufacturers’ databases.

Evidence

5.6 Discussions in the Delphi panel revealed several concerns about the lack of evidence, information and knowledge base about innovations and implementation.

5.7 Lord Darzi’s 2008 report on his NHS Next Stage Review “High Quality Care for All” identified the importance of developing ways to benchmark and monitor the successful uptake of innovative technologies.

Recommendations

5.8 Create an “electronic marketplace” for evaluated and ready-for-market medical technology innovations. This could be hosted by NHS Evidence and would complement its existing information sources on newer technology innovations.

5.9 Develop plans for closer collaboration between clinicians and industry, based on the success of existing networking sessions in cardiology and existing activities such as the Health Tech & Medicines KTN Special Interest Group.

5.5 Develop plans for a more transparent and widespread sharing initiative between the National Horizon Scanning Centre and the NHS on promising new medical technology innovations which are in the late stages of development. This would stimulate early NHS interest in these promising technologies.

5.6 Develop and maintain a high specification database about the uptake of technologies evaluated and recommended by NICE and NTAC.

FINANCIAL MECHANISMS

Findings

5.12 The coding system—establishing the tariff for technologies and treatments—is vital. However there is difficulty in acquiring new codes for evaluated innovations and new treatments/devices.

5.13 “There are time lags built into the tariff production system because of the timing of cost collection and the need to issue a tariff in good time to allow the NHS to plan effectively. There are ways in which the time lags can be shortened, for example by fast tracking changes to the HRGs and in developing Best Practice Tariffs.

5.14 Attempts to shorten the time-frame are being undertaken, often by fast tracking changes in the HRG groupings, and in the calculation of Best Practice Tariffs.

Evidence
These issues were discussed in detail through the Delphi process. In the survey, 66% of experts identified it as a barrier and all of them considered it to be one of the top 3 barriers with the most negative impact.

Recommendations

Align innovation adoption and diffusion systems and NHS payment and tariff mechanisms. It is important to explore current flexibilities in the PBR system and also look for ways to adapt the payment mechanism to support the implementation of innovative products and technologies. To start off this work, it might be most effective to focus on one particular adoption / diffusion process in the first instance (such as products which have been assessed through NICE’s new medical technology and diagnostics evaluation pathways). Another useful connection would be to align to the implementation of the NHS Outcomes Framework.

FINANCIAL INCENTIVES – CQUIN

Findings

The idea of providing financial incentives for rewarding quality improvement at a local level as an agreed scheme between commissioners and providers has been tried as part of the CQUIN scheme. A CQUIN scheme is the agreed package of goals and indicators, which enables the provider to earn up to its full CQUIN payment (1.5% of contract value in 2010/11), paid on top of the provider's actual outturn value. It provides a national framework for locally agreed ambitious quality improvement schemes.

In addition to the locally agreed schemes, in 2010-2011, CQUIN schemes for acute providers include two specified national goals on venous thromboembolism (VTE) and improving responsiveness to personal needs of patients, constituting 20% of the CQUIN payment. The criteria for choosing VTE include:

- Cost implications;
- Recognised as a key area requiring quality improvement effort by the NHS (National Quality Board);
- Already included in many local CQUIN schemes in 2009/10.

Evidence

Discussions on financial incentives were held during the Delphi process where many participants argued that financial incentives for innovation would be beneficial.

The importance of connecting payment mechanisms to desired behaviour change (financial incentivisation) has been seen in numerous settings over the last decade in the NHS including QOF payments driving the compilation
of primary care disease registers, CQUIN payments raising the importance of tackling VTE.

Recommendation

5.22 Explore whether an incentive/reward for innovation implementation could be adopted as part of the CQUIN scheme, or as a separate initiative.

5.23 Adopt a similar approach regionally with goals to achieve agreed uptake and diffusion of innovative technologies reflecting regional needs and priorities.

5.24 Reinforce the adoption of Best Practice within the NHS by rewarding other aspects of best practice adoption which are not currently included in the NHS Best Practice Tariffs. For example:

- Encouraging implementation of a goal within an agreed timescale;
- Focusing on other relevant aspects of the pathway not covered by the best practice tariff, such as rehabilitation.

Procurement - Findings

5.25 NHS procurement capabilities are not being utilised to support innovation. According to those consulted as part of this work, procurement is frequently perceived as a back room operation with little or no clinical engagement and hence little involvement in key decision making processes. Procurement issues arising later in the pipeline, often stalling the innovation, are a direct fall-out of such late involvement.

5.26 The procurement landscape itself is not conducive to innovation. The limits of framework contracts, and the internal processes of the NHS trusts usually mean that the current practices are more of a hindrance to implementation of innovation. In public sector procurement, including the NHS, the opportunity to take full advantage of the benefits of a professional and collaborative relationship with the private sector is not fully realised.

5.27 In industry’s view, the NHS is large and diverse and has business processes which vary enormously, whether concerned with prompt payment, terms of contract, e-procurement or fees charged by the many NHS intermediaries. This incurs additional costs for suppliers (and therefore also for the NHS) and is a particular barrier for SMEs, for which the NHS is a very significant public sector market. Under the proposed reforms, it is likely that there will be an even greater level of diversity within the NHS and increased fragmentation of procurement channels. This risks increasing the level of costs for suppliers and thus for the NHS.

5.28 There are two major current initiatives regarding procurement of medical technology in the NHS

- **iTAPP** (Innovative Technology Adoption Procurement Programme)
5.29 The programme has been focused on identifying high impact innovative medical technology that can raise the quality of care for patients, while releasing productivity gains.

5.30 Following a call for industry to submit details of innovative and cost effective technologies129 proposals were received from 68 companies.

5.31 The 129 proposals were subject to a centrally conducted high level evaluation which led to a short list of the 24 highest impact technologies. Together the NHS wide adoption of these 24 technologies would, according to industry, provide £5bn of annual efficiency savings to the NHS.

5.32 Working with NTAC SHAs have been visited to advise regarding potential benefits of these high impact innovations and to secure commitment to adopt a number (typically 2-3) in their area. There has been considerable success so far in securing SHA commitment and the project is currently oriented towards identifying trusts implementation sites.

5.33 National QIPP plans include £0.5bn of annual recurrent savings to be secured during 2011/12.

5.34 Agreement from BSA (Business services Authority) that NHS Supply Chain will undertake national procurement of the highest impact technologies to enable providers acquire these against a compliant procurement framework. There may need to be specific strategies for NHS-wide adoption of i.e. technologies which have clear clinical benefit, though maybe smaller financial implications.

5.35 Procurement work stream (part of the QIPP Programme) to engage with NHS providers to help develop better understanding of non-pay expenditure (30% of hospital operating costs, estimated to be £17bn annually) and provide guidance on how to leverage the existing structure for more efficient procurement of key items, thus optimising the expenditure by 10-20%. The objective is to encourage providers realise the significance of efficient procurement operations and the need to use the department more effectively for cost savings without compromising quality of patient care.

Evidence

5.36 The role of procurement in facilitating Innovation Adoption and diffusion has been debated and discussed from many perspectives. “Innovation Nation” (DIUS) highlights the importance of the strategic role of procurement in creating demand for innovation adoption and diffusion.

5.37 However the evidence gathered during this project indicates that the current role of NHS procurement does not fully assist innovation adoption-diffusion. In the Delphi Survey 42% of respondents (almost all who have contact with procurement function) selected its role as a barrier to innovation implementation and also considered it to be one of the top 3 barriers with the most negative impact.
5.38 The recommendations from the expert panel emphasised the necessity for a radical change in the role played by procurement in the innovation landscape, particularly clinical engagement, the early involvement in the innovation pipeline, and a simplification of the procurement landscape itself to make it more open to innovation.

Recommendations

5.39 There needs to be a radical change in the role played by procurement in the innovation landscape, particularly clinical engagement, the early involvement in the innovation pipeline, and a simplification of the procurement landscape itself to make it more open to innovation.

5.40 The NHS (perhaps via the QIPP procurement workstream) needs to provide better guidance and engagement on the procurement of key items. This might result in simplification and better utilisation of procurement landscape, thus enabling innovative technologies to be introduced more effectively.

5.41 Under the new NHS structure, it is important to establish consistent policy and/or standards relating to commercial behaviour within the NHS.

5.42 Following the success of iTAPP in attracting significant response from industry and in identifying and fast tracking innovations with ‘universally agreed’ clinical needs and implications into the system, it is suggested that:

5.43 The dynamic approach to accelerate the adoption pathway for such technologies might provide valuable lessons for streamlining the overall system in the long run;

5.44 Proper facilities need to be developed for such lessons to be incorporated for the benefit of the innovation pathway.

Small Business Research Initiative – co-ordinated approach

Findings

5.45 The SBRI initiative has been playing a role in co-ordinating “demand-pull” by government departments with procurement activities, and providing support to the SMEs for the critical phase of product development.

5.46 A more planned approach might improve such co-ordination among clinical needs, procurement, evaluation capacities and financial systems as well as increase the scale and scope of benefitting from it.

Evidence

5.47 Models of innovation (Albury and Liddell) emphasise the importance of creating ‘demand pull’ for innovation as well as ‘supply push’. The SBRI has been one of the very few examples of demand pull that exist within the current NHS innovation landscape.

5.48 The Office for Life Sciences Blueprint emphasised the importance of the SBRI and recommended it be developed more widely across the NHS.

Recommendation
5.49 Exploring with TSB and NIHR whether a structured SBRI allocation plan (for example, one SBRI per region etc), can help increase the scale and scope of benefiting from it.

Adoption and Diffusion Innovation and Landscape - Determination of scope and capacity

Findings

5.50 Mapping the innovation process and pathway is a challenge due to the highly complex and non-linear nature of activities and contributions by involved organisations.

5.51 However it is necessary to understand:

- The respective roles of these organisations;
- The capacity available to these organisations to undertake these roles, e.g. the number of assessments that they can undertake per year;
- The volume of activity (such as assessments) that each of these organisations may be expected to undertake.

5.52 It therefore follows that it would be beneficial to undertake a numerical volume–capacity analysis of these activities. This would:

- help determine what level of activities are necessary to have a pro-active dynamic innovation system in operation;
- help prioritise evaluation and implementation activities according to clinical priority;
- help identify the capacity of end users for utilisation of information and services in order to benefit from them.

Evidence

Some initial evaluation of organisations undertaking these functions is below:

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Functions</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Horizon Scanning Centre</td>
<td>Accessing new ideas</td>
<td>Scans for technologies in the later stage of development. NHSC has a company contact programme, and also identified via journal searches etc</td>
</tr>
<tr>
<td>National Innovation Centre</td>
<td>Accessing new ideas Selecting and developing ideas Enabler of innovation</td>
<td>Innovation Scorecard (in conjunction with NHS Supply Chain), Supply Chain Scorecards, Applications for pre-market innovative ideas</td>
</tr>
<tr>
<td>NHS Innovation Hubs</td>
<td>Selecting and developing ideas</td>
<td></td>
</tr>
<tr>
<td>NICE</td>
<td>Selecting and developing ideas</td>
<td>Selecting and routing medical technologies (timescale 10 weeks); Evaluation (38 weeks)</td>
</tr>
<tr>
<td>iTAPP</td>
<td>Accessing new ideas</td>
<td>129 submissions received; 24 high</td>
</tr>
</tbody>
</table>
### NHS Life Sciences Innovation Delivery Board

<table>
<thead>
<tr>
<th>Selecting and developing ideas</th>
<th>Impact innovations. Specific strategies for NHS technologies which have clear clinical benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHS Institute</td>
<td>Implementing ideas</td>
</tr>
<tr>
<td>NHS Technology Adoption Centre (NTAC)</td>
<td>Implementing ideas</td>
</tr>
<tr>
<td>Academic &amp; Health Science Centres (AHSCs)</td>
<td>Accessing new ideas</td>
</tr>
<tr>
<td>Health Innovation and Education Centres (HIEC)</td>
<td>Management of Innovation</td>
</tr>
<tr>
<td>Training for Innovation</td>
<td>Management of Innovation</td>
</tr>
</tbody>
</table>

### Recommendation

5.53 A full numerical volume–capacity analysis of the activities of organisations within the medical technology innovation landscape should be undertaken. This analysis should be carried out in consultation with the organisations in question. Relevant activities include assessments, applications, technology scans etc. It is possible that that this can be undertaken as part of the organisational review of the innovation landscape about to be commissioned by the NHS Life Sciences Innovation Delivery Board.

### Market Characteristics

#### Findings

5.54 Various factors in the external environment including market structure shape the effectiveness of an organisation or system to innovate or respond to innovation.

### Evidence

5.55 Two recent academic studies were examined in detail. These were:

- “The wider conditions for innovation in the UK, NESTA, 2009”
A full discussion of the findings of these reports is at Annex D

5.56 A further source of useful information was the innovation index developed by Ernst & Young, in response to a commission from NESTA on behalf of the Department of Business Innovation and Skills. It draws on global innovation literature to describe the different elements/activities of innovation in the public sector. The innovation index has evaluated health and local government organisations against the framework identifying areas of relative strength and weakness.

Recommendation

5.57 The Department of Health will need to give timely consideration to what market characteristics will be required to facilitate and encourage innovation adoption and diffusion in the reformed NHS. Much of this thinking will come in the framing the role of R&D and innovation in the new NHS: duty to innovate, role of regulators in innovation, system incentives for innovation, focus on developing innovation capabilities. The proposed organisational review of the innovation adoption and diffusion landscape may also be a useful vehicle to implement this recommendation.
ANNEX A – Terms of reference

Relevant extracts from the Board paper initiating this project are set out below:

1. To establish a project steering group to work with all key stakeholders to:
   a. document current NHS adoption and diffusion processes, and any perceived barriers
   b. work with stakeholders to identify what improvements need to be made to accelerate uptake and systematic diffusion
   c. evaluate the extent of any necessary or desirable enhancement to/improvement of the current landscape for the adoption and diffusion of clinically and cost effective medical technologies
   d. produce a report which documents the above and includes a timed implementation plan to deliver any recommended developments within the NHS

2. The steering group will be chaired by Giles Denham and will include, amongst others:

3. The relevant work on the development of CSUs, PICD’s list of technology solutions suggested by industry, implementation of NICE recommendations on medical technologies, the future outputs and business model of NTAC and the new metrics system need to be integral to the project to ensure alignment.

Scope

4. Engagement with identified NHS organisations, industry leaders, clinical policy leads and those parts of DH involved with assessment, adoption of dissemination of clinically and cost effective medical devices and technologies, including diagnostics. These include:

5. PCTs, Trusts, SHAs, covering relevant functions eg healthcare professionals who use medical technologies, finance, commissioners, pathologists, regional QIPP leads, Innovation Leads, Commercial Support Unit representative, etc.

6. The steering group will identify any additional stakeholders.

Deliverables

7. By September 2010, the project steering group will provide a report to the NHS Life Sciences Innovation Delivery Board that:
   a. identifies the essential steps in the adoption process, including the key decision points
   b. outlines the generic adoption barriers
   c. recommends mechanisms for managing these successfully
   d. includes a commentary on what might be needed to sustain an active adoption conduit responsive to the needs of the system and patients
   e. explores how NTAC might better position itself in the future to develop its outputs to improve consistent diffusion
f. takes account of how links will be made with the workstreams on the single evaluation pathway, PICD’s priority list of technology solutions, and development of the uptake metrics which will provide measures of success of the project, plus any other relevant changes to the landscape

g. takes account of the drivers that stimulate a successful, innovative medical technology industry

Outcome

8. By September 2010, improved clarity will be available to the NHS, through the Delivery Board, on the systematic mechanisms required to support increased uptake of clinically and cost effective medical and diagnostic technologies for the benefit of patients, the NHS and industry.

Role for the Delivery Board

9. The Delivery Board’s responsibility is:

   a. sponsorship of the project
   b. to receive the steering group’s report and if the recommendations are accepted, champion their acceptance and implementation across the NHS

Action required by Delivery Board

10. Champion the project, provide strategic steers, receive regular progress reports and provide other support/advice as necessary to ensure successful delivery of the project.
ANNEX B – Steering Group Membership

1. Sue Hill, Chief Scientific Officer, Department of Health
2. John Warrington, Procurement, Investment and Commercial Directorate, Department of Health
3. Eileen Robertson, Payment by Results Development Branch, Department of Health
4. Giles Denham, Medicines, Pharmacy and Industry Group, Department of Health (Chair) *
5. Sally Chisholm, Chief Executive, NHS Technology Adoption Centre *
6. Mirella Marlow, NICE *
7. Sarah Pinto-Duschinsky, Commissioning Support for London
8. Peter Houghton, Innovation Lead, NHS South East Coast *
9. Mark Wilkinson, NHS Director of Life Sciences Innovation *
10. Doris Ann Williams, British In Vitro Diagnostics Association *
11. Andy Taylor, Association of British Healthcare Industries *

* denotes those members of the Steering Group who have explicitly confirmed their support for this report being presented to the Board.
ANNEX C – Delphi Survey Questionnaires

In this project, adoption of this technique involved the following stages:

1. Selection of a panel of experts:
   a) Steering committee members.
   b) Senior clinicians with experience of implementation or the adoption process of innovations
   c) Senior PCT managers/officials with experience of decision-making/commissioning for the adoption/diffusion of innovation.

2. Identification of the research problems / areas to be addressed (as identified in the teleconference)
   a) Key organisations and their alignment in the process of adoption and diffusion.
   b) Effects of financial incentives / considerations on the process.
   c) The biggest barriers and the crucial steps needed to overcome them.
   d) Appreciative enquiry: what the panel feels should be the ideal structure facilitating the effective adoption/diffusion.

3. Steps
   a) First round: A structured questionnaire, with mix of open and closed questions conducted through a combination of face-to-face interviews, teleconference and e-mail. As the essence of Delphi, the responses were kept anonymous.
   b) Collation and summary of these responses with presentation to experts for consideration.
   c) Second round: A questionnaire based on recommendations and their prioritisation. Mostly conducted through e-mails.
   d) Summary and collation of these with presentation of the results.

Round 1 – Delphi Questionnaire

Introduction:

4. The Innovation Landscape project aims to address the different areas affecting innovation adoption and diffusion for medical and diagnostic technologies in the NHS by:
   a) Process mapping within the NHS and identifying key features and functions involved;
   b) identifying perceived barriers and making tentative recommendations for overcoming them;
   c) Highlighting areas for improvement to facilitate the process of uptake of clinically efficient and cost-effective medical technologies.

5. The Delphi technique has been described as ‘a method of structuring a group communication process so that the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem’ (Linstone and Turoff 1975:3). In this project, this technique is being used with the objective to convert opinions from the panel of experts into group consensus to address different
issues vital for the improvement of the adoption-diffusion process within the
NHS.

6. All responses will be anonymous with only collected information being circulated
amongst the panel for the successive iterations.

**QUESTION 1 - Barriers to innovation adoption and diffusion in the NHS**

7. Considerable work has been done to highlight the major barriers faced by
different organisations/functions/individuals in the process of adopting/implementing innovative technology within the NHS.

8. The list below is a summary of the barriers mentioned in all these works and also
includes those picked up during the process of discussions/interviews with
people involved in the project. (In random order).

1) Lack of evidence / knowledge base about innovations and implementation.
2) Lack of skills/expertise among managers to use the evidence base.
3) Financial considerations involved in adoption eg tariff. Costs may fall in
    one organisation and benefits in another, perverse budgeting finance
    framework leading to silo structure and mentality.
4) Lack of resources / infrastructure available for implementation.
5) Time constraints.
6) Absence of capacity for organisational learning and issues with staff
    training and education. (Lack of facilities/motivation).
7) Professional/staff resistance to change and problems perceived in the need
    for service redesign to support an innovation.
8) Communication within and between organisations (including external
    organisations involved in the process).
9) Lack of robust decommissioning plan/support.
10) Lack of innovative culture and lack of facilitators / champions for
    innovations.
11) Risk aversion.
12) High public and political profile and accountability.
13) Procurement activities for technologies appearing to work in isolation, with
targets interpreted as price savings. Focus on purchase price instead of
    cost in use. Lack of business case for implementation of innovations.
14) No definition of best practice for procurement in the NHS and rigid
    adherence to procurement regulations.
15) Lack of enforcement/ robust guidance regarding evaluation to proceed to
    the next stage of implementation.
16) Absence/lack of support/facilities for external (private sector) innovations to
    gain entry into NHS for effective consideration on a shared platform.

a) From this list, which are the barriers you have experienced in your
capacity, or you think are relevant from your perspective? (1, 4, 5 etc)

b) From the ones you have chosen, which 3 have the greatest negative
impact and why? Any other comments about them?

c) Can you think of any other barrier(s) you have come across or consider
relevant which is not mentioned in the list?

d) In your opinion what should be done/what steps should be followed to
overcome the 3 most important barriers you have chosen?

**Question 2 - Critical functions/features/capabilities in the process of innovation**
9. As part of its scoping work for developing an agreed methodology for public sector innovation, Ernst and Young have developed an innovation index mentioning the different elements/activities of innovation framework for public sector use. Those different elements have been considered here to take into account the different aspects of innovation which are deemed vital for an organisation, and as they are practised within the NHS.

a) From the list below, select the functions / capabilities you think are vital for NHS to facilitate successful innovation adoption and diffusion. (ex A1, B2 etc)

b) For each of the ones you have chosen rate how NHS organisations individually or as a composite interdependent system, is doing in those activities from 1 to 5 (5 being excellent)? Why did you choose this score?

c) In your opinion how could NHS improve in these areas?

d) Can you describe an industry/ organisation/ individual (within or outside NHS) who does the particular activity well or has the particular feature/capability?

Innovation Activity:

10. Provides a view of the current innovation activity of the organisation. These activities are thought to be most likely to impact future performance in the short-medium term.

a) Accessing new ideas: The process of accessing and identifying a sufficient number of different types of ideas from a range of sources like frontline staff, consumers, senior management, collaborations and alliances, research, etc.

b) Selecting and developing ideas: The process of selecting the best new ideas for development, allocating resources appropriately and working collaboratively for their development. It also involves developing the ideas as a team and carrying out piloting/testing activities.

c) Implementing Ideas: The process of converting developed and tested ideas to fully implemented solutions, including allocating appropriate resources. It may also consist investing in the ideas, training people for implementation, and securing and measuring benefits from them.

d) Diffusion of Ideas that Work: The process of sharing and disseminating successful ideas within and outside the organisation.

Innovation Capability

11. Provides a view of the key underpinning capabilities of the organisation that can sustainably influence innovation activity and performance in the medium-longer term. The ability to develop these activities is within the control of the organisation.

a) Enablers of Innovation: The main enablers of innovation can be quality of staff, connectedness among the staff and between organisations, incentives and rewards for innovation, access to support and development of necessary skills.
b) Management of Innovation: Refers to the quality of organisation and planning for innovation activities and takes into consideration whether innovation activities are linked to performance priorities, the intensity of the investment undertaken in the process, professional engagement etc.

c) Leadership and culture: Refers to the behaviours and conditions required to exist in an organisation for innovation to flourish including prioritisation of innovation, vision and spirit of decision makers, attentiveness to views of users, (front line staff) and middle managers, and attitude to learning.

System Levers for Innovation

12. This part of the framework provides a view of how well the system in which an organisation operates helps it to innovate. These are policy levers that can facilitate or hinder innovation and are within the control of the policy makers but outside the control of the organisation.

a) Incentives: This refers to the existence and effectiveness of a system of incentives which can include recognition and reward, targets, performance management process, professional recognition etc.

b) Autonomy: The responsibility and freedom to innovate including flexibility to shape local strategy, flexibility of budget (finance), freedom to use rules and guidance.

Question 3

13. Can you think of any other areas in the process of innovation adoption and diffusion that are relevant and that NHS needs to address?

Question 4

14. Would you like to

a) Make any additional comment or share any additional view about the process of innovation adoption and diffusion within the NHS.

b) Give some real life example/s of adoption of technology (successful or otherwise) which could provide us with better understanding of relevant issues.

Round 2 – Delphi Questionnaire

15. Many thanks to all of you who have given us your valuable time in responding to the first round of Delphi questions. By compiling the answers, and discussing with the steering committee about issues brought up by the expert panel, we have created a 2nd and final round questionnaire for this project.

16. This questionnaire mainly wants the strength of your opinion about the potential recommendations brought forward by the panel to address the barriers identified. It also includes some initial recommendations by the steering committee and some new measures suggested in the light of the publication of the White Paper.
17. The main issues identified in the previous round were:
   a) Availability and accessibility of information (fragmented, inaccessible, sporadic)
   b) Communication gaps between different stakeholders in the process.
   c) Leadership, accountability and the issue of knowledge sharing and spread
   d) Procurement roles.
   e) Financial considerations and incentives.

18. In order to address these issues some initial recommendations brought forward by yourselves and the steering committee are summarised as follows:
   a) For each, please state whether you agree (Y or N) and, if yes, to what degree (1= just agree, 2= agree, 3= strongly agree)
   b) In either case (Y or N) please share with us any comments you might have. (i.e, any views about how to implement a recommendation, why do you think it is not needed/valid etc).

Bridging the gaps:

Between industry/innovations and the NHS.

19. Should there be a common platform for industry, especially small and medium sized enterprises) to communicate/discuss possible innovations with NHS representatives, including clinicians, procurement and finance experts, management staff etc, to explore and ascertain feasibility of ideas at a very early stage. Such discussions could agree on the feasibility or recommend changes/modifications to the innovations so they meet robust clinical/financial specifications.

20. Is there need for much greater communication between clinicians/NHS personnel and industry representatives to discuss clinical needs for better outcomes for pre-commercial innovations (creating a “pull”).

Between different organisations within/associated with the NHS

21. Does NICE and NTAC need to be more responsive to the NHS regarding the technologies to be evaluated or included in implementation pilots.

Improving availability and accessibility of information at different levels:

22. For NHS:
   a) Should horizon scanning activities be developed to facilitate collection and compilation of information about innovative technologies (which may have significant positive effect on service delivery) from UK and abroad, for easy access by NHS staff ie clinicians, management, procurement etc.
   b) Should the work done by NTAC, NHS Institute and NICE about innovations and their implementations be publicised and made more easily available to promote adoption and diffusion.

For Commissioners and Providers:
23. Should the uptake metrics of different innovations to track NICE and NTAC recommendations be published periodically to commissioners and providers with outcome- benefits described in terms of what has been achieved.

24. **For Professionals**: Should aggregated, accessible information about innovations be available for professionals from a single source/portal to scan for required innovations along with relevant information/evidence/implemention guidelines.

25. **For patients**: Should comprehensible and comprehensive database about available innovations or best practice be made available for patients to access and consult, to enable them to ask for and “pull” innovations into actual clinical practice in the NHS. (Expert patients).

**Specific measures to address the system to facilitate adoption and diffusion**

26. Is there a scope for encouraging small scale business research initiatives within the NHS to try attract innovative ideas, foster an innovative culture and “pull” innovations with clinical needs within the NHS?

27. Should NICE recommendations be better aligned with the tariff to encourage payment mechanisms to reflect the evaluations of specific technologies?

28. Should financial incentives play a role in encouraging uptake of clinically proven innovative technologies. If yes, could you give us your opinion about how such incentives could be included in the payment mechanism.

29. Should CQC (care quality commission) monitor and publish compliance to and uptake of NICE/NTAC recommendations and guidelines, and should such information be used to encourage and promote adoption and diffusion.

**Knowledge Sharing and Spread**

30. Is there scope for improvement in the way knowledge and expertise is shared and corroborated? Attention to this might be a way forward to overcome some of the professional resistance and inertia regarding adoption of innovative procedures/technology.

**Leadership and Motivation**

31. Lot of expertise at different levels is necessary to facilitate innovation in the NHS. Consolidation of such roles to create Innovation Specialist Teams/Committees responsible for practical implementation of innovations, including horizon scanning, liaising with clinicians to identify clinical needs, collaborating with finance and procurement departments, and providing the infrastructure needed for change at the ground level, can encourage innovation adoption and diffusion by creating accountability at some level.

What conditions or factors in an organisation/system like the NHS, in your opinion, motivate leaders or people in decision-making capacity?

**Procurement**
32. Should the role of procurement in the NHS be reconsidered and modulated to play an active part in innovation uptake. Clinical engagement with procurement from a very early stage can boost the process by bringing together feedback about clinical and pricing specifications at the outset, thus avoiding unnecessary repetitions and stalling in the later stages.

33. There are 15 recommendations in the above list. Which 3, in your opinion could have the maximum impact in facilitating adoption-diffusion in the short-medium term?
Annex D – Market Conditions for Innovation

1. Various factors and conditions in the external environment including market structure affect the ability and effectiveness of an organisation or system to innovate or respond to innovation.

2. In a study conducted by NESTA titled ‘The wider conditions for innovation in the UK: how companies in the UK compare to leading innovation nations, seven such wider conditions were identified covering, in totality, 35 indicators.

   a. Public Research: Including both the resources spent and the Strength of collaboration between industry and business
   b. Openness: Refers to how quickly and effectively good ideas can be diffused in the system. Can depend on the availability of physical infrastructure as well as social factors (ie hierarchy etc)
   c. Entrepreneurship: How strong the culture of entrepreneurship is and how ready people are to take the risk to innovate
   d. Demand: How willing customers are to try and test innovation and what role government plays in the procurement of innovative products
   e. Competition: How competitive is the economy
   f. Access to finance: To what extent and how easily is Finance available to risky but potentially effective innovative ideas in the form of venture capital, business credit etc
   g. Skills: Level of skills available for working on innovative ideas.

The list of indicators from the NESTA paper:

**Openness**
- Openness to foreign ideas
- Social capital
- Broadband penetration
- Broadband speed
- Broadband price
- Business satisfaction with ICT infrastructure

**Public research**
- Quality of public research – scientific publications
- Accessibility of public research – collaboration
- Relevance of public research – commercial exploitation
- Quality of public research – citations
- Relevance of public research – patents
- Relevance of public research – invention disclosures

**Entrepreneurship**
- Attitude towards risk of business failure
- Early-stage entrepreneurial activity

**Competition**
- Intensity of local competition
- Intensity of foreign competition
Demand

- Consumer confidence index
- Demand as innovation source
- Firm-level technology absorption
- Size and inclination to buy innovation
- Uncertainty of demand as an obstacle to innovation

Skills

- Expenditure on education as a percentage of GDP
- Share of population with tertiary education
- Percentage of high-skilled labour in the workforce
- Human Resources in Science And Technology (HRST)
- Intensity of researchers in industry
- Adaptability of the workforce
- Employees' ICT skills
- Training – availability and usage
- Training needs for innovators
- Participation in life-long learning

Access to finance

- Availability of credit
- Stock market capitalisation
- Availability of venture capital
- Access to finance

3. Upon carrying out a survey of 1500 UK companies it was found that UK performs well in Competition and Entrepreneurship, with scope for improvement in Public research and Openness. But compared to other developed innovation nations, UK lags behind in Access to Finance, Skills and Demand.

(www.nesta.org.uk/library/documents/wider-conditions.pdf)

4. In a research paper, ‘Systems thinking, market failure, and the development of innovation policy: the case of Australia’ written by The Centre for Business Research, University of Cambridge, Working Paper No. 397, the authors have explored the validity of the widely accepted hypothesis that the “free market” helps in the promotion of innovation. It has looked into the case of Australia, where in spite of a successful economy, there have continuing challenges with innovation and productivity.

5. The paper draws attention to the importance and evolution of a complex, co-ordinated systems thinking for facilitating innovation which can be described as a significant shift from the “free market trajectory of policy making” of the past.

6. It re-iterates the importance of systemic connectivity, and organisational capabilities in the process of innovation. But still the main focus of policy making remains towards addressing market failure, rather than addressing systemic capabilities and demand-led approaches.

7. In essence it reaches the conclusion that:
• Markets are useful, but necessarily incomplete, arrangements that are heavily influenced by a range of social, political and legal institutions.
• Markets are emergent instruments which often require the support of government to develop and then work effectively.
• Government can play a crucial coordinating and facilitating role by enabling the necessary network connections within the complex systems of production that deliver new products and services by supporting national institutions and infrastructure, and encouraging organizational skills and capabilities.

8. In another paper (Product market reform and innovation in the EU), it has been concluded “that the EU single market programme reduced the average level of profitability in those industries and countries that were affected, and that this had a positive impact on innovative activity in these industries and countries, which in turn affected total factor productivity growth. These relationships accord well with economic theory.”
# REPORT
## NHS/Industry Payment by Results Workshop

Thursday 14 January 2010  
Wellcome Trust, London

Chair: Andrew Donald, Birmingham East and North PCT

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Executive Summary

The workshop held on 14 January 2010 brought together a wide range of Life Sciences Industry representatives and commissioners, clinicians and finance managers from the NHS and asked them to discuss two central questions: (1) How can use of the flexibilities in PbR, such as pass-through payments, be optimised to support the Quality and Productivity agenda? (2) In supporting this agenda, are there other ways in which PbR could work better (including with other parts of the system)?

Introduction

The day was chaired by Andrew Donald. In his introduction he emphasised that it would be important to think differently about the alignment of industry with the NHS in the context of the current financial climate. The day’s workshop was an example of the new alignment which was emerging. This would take the form of a strategic partnership, and be focused on providing maximum benefit to patient populations. The purpose of the day was to consider how Payment by Results (PbR) could be better deployed to accelerate innovation within the NHS to deliver the QIPP agenda. This purpose goes to the heart of the current changes in the culture of how the NHS interrelates with the organisations which support it.

After two short presentations from the PbR and QIPP teams, participants were divided into three broadly representative groups and asked to come up with a number of implementable ideas in response to the above questions. The resulting ideas and the issues considered in the discussions, are represented in more detail in the body of this report.

(1) Existing Flexibilities

There was agreement across all the groups was that PbR already had a variety of useful flexibilities. However, the perception was that full use was not currently being made of these. This was attributed to a number of factors, notably ignorance about what was possible and the slowness and complexity of the system. There was also common agreement that Best Practice Tariffs had potential advantages. The most frequently expressed ideas, in summary, were as follows:

1. The current PbR system, with its pass through payments, exclusions and local flexibilities, was a system that when used properly supported the uptake of cost effective medical technologies. Attention could be focused on making the system quicker to respond and easier to use, thereby facilitating diffusion

1 The term “medical technologies” here includes pharmaceuticals.
of innovative technologies across the NHS.

2. There was currently little known about how PbR flexibilities were used from one region to another, but participants suspected that there was a large degree of variation nationally, and agreed that it would be helpful to gain a fuller understanding of this. To this end PCTs could be reminded of their responsibility to let DH know when a pass through payment is used.

3. Use of PbR flexibilities could be facilitated by a more joined up approach by financial, commissioning and clinical teams, to allow more creative, long term responses to controls on costs. This would address the concern that investment and planning tended to focus on cost containment rather than whole system impact.

4. Some commissioners do not use the pass through system and could be informed of this flexibility and supported and encouraged to use it.

5. The time lag between a new medical technology coming to market and being reflected in the tariff can be an issue for the NHS and for industry. This can be up to five years. Options for reducing this time lag could be explored.

6. There could be difficulties in agreeing tariffs locally where a technology/procedure is excluded from PbR. Network systems and sharing of information could be useful to prevent duplication of effort at a local level.

7. The introduction of best practice tariffs has the potential to be extremely beneficial and in due course could be expanded to other areas.

(2) Better working with other parts of the system

With a much wider question to consider, each group discussion took a slightly different direction. However, again, there was much agreement between the conclusions of the three groups, with all groups acknowledging that the current system needed to be able to support, where appropriate, the shift of care from acute to community settings. To do so, PbR needed to take account of whole patient pathways, encompassing the whole of the NHS, not only secondary care. Another key idea put forward was that PbR ought to drive improvements in treatment quality by acknowledging patient outcomes, and not only procedures. The following is a brief summary of the main ideas expressed:
1. It would be helpful if the Payment by Results system could recognise patient outcomes and not merely that a procedure takes place. For example, the payment could be for achieving regained patient mobility rather than for conducting a hip replacement operation.

2. Best practice tariffs offered an important opportunity to drive up quality, increase efficiency and improve the patient journey.

3. Many modern technological advances offered important opportunities for simple treatments and diagnoses to be undertaken in GP surgeries which were once only available in secondary care. To allow these opportunities to be taken, reimbursement mechanisms need to work cohesively across all NHS settings, including primary care.

4. It would be useful for PbR to be aligned with the new NICE evaluation pathway for medical devices and diagnostics, and with a current project under QIPP where companies were invited to submit a proposal for cost effective innovative technologies to be introduced with the help of regional CSUs.

5. A separate tariff for diagnostics could be considered, to take into account the important role to be played by early and accurate diagnosis.

6. The NHS and life sciences industries were encouraged to look for opportunities to work together, within current guidelines, to improve service delivery and to meet the quality and productivity challenge.

Conclusions

The conclusions were drawn together by the Chair, who emphasised the agreement between the groups and the fact that the discussion had been drawn to the issue of patient care pathways, with all groups agreeing that the QIPP agenda would primarily be furthered by changes to these pathways. The groups suggested that it would be helpful if reimbursement mechanisms were able to better reflect care pathways (rather than procedures considered in isolation) in order to improve support for the introduction of those innovative medicines and technologies which would allow pathways to be shortened or re-routed.

The Chair emphasised that from his perspective one of the key benefits of the day had been the bringing together of people in the NHS and representatives of the life
sciences industry and improving understanding on all sides about the complex process whereby innovative technologies are taken up by the NHS.

In conclusion, the Chair suggested that the QIPP agenda provided an important opportunity for the life sciences industries to work with the NHS to help it to realise the efficiencies that innovation can provide. It was now time to recognise that the NHS and industry can develop a business to business relationship which improves patient care, increases the use of cost effective innovative technologies, and realises the efficiencies released through using these innovations. In this context, there would be real benefits to building on what had been achieved at the workshop.
Breakout Session 1
How can better use be made of the existing flexibilities in PbR?

Summary of Recommendations

Group A:

1. There is a time lag of up to five years from a medical technology entering the market and it being included on the national tariff. Options for reducing this time lag could be explored.
2. Best practice tariffs could be used more widely.
3. Commissioners could be encouraged to use flexibilities where appropriate and PCTs could be reminded of their responsibility to notify DH when PbR flexibilities are being used.
4. DH could consider whether anything can be done to address the duplication of effort when each Trust negotiates with the PCT its own case for the use of pass through payments.

Group B:

1. Best practice tariffs could be used more widely.
2. Research into whether the system is currently flexible enough to help drive uptake of cost effective innovation could be considered. It might be useful to include patient groups.
3. A consistent approach to flexibilities taken across PCTs would mean that best practice could be shared and replicated – reducing the time required for negotiating a flexibility.

Group C:

1. An early list of technologies eligible for pass through payments could be provided to PCTs to aid forward planning.
2. An information drive could be undertaken, to promote knowledge and understanding of the flexibilities that exist and drive forward their appropriate use.
3. A terminology change could be considered to improve understanding, for example, “pass through payment” could be changed to “innovation payment”.
Chair's response to recommendations:

- The PbR system clearly does work; the real issues now are around speeding up pace in the system and overcoming barriers to the use of flexibilities.
- There is evidence that the use of flexibilities is discouraged in some PCTs. Where this is the case the culture needs to change.
- The time-lag identified above needs to be improved.
- Use of pass-through payments needs to be reviewed and rationalised.
- We could consider whether it would be possible to clarify, for PCTs, whether PbR and overseeing the use of flexibilities falls under the jurisdiction of finance teams or commissioning teams.
Notes from Group Discussions

Group A

The group considered whether the current PbR system supported the uptake of innovative cost effective medical technologies. It was felt that the mixture of national tariffs, the use of exclusions and local flexibilities provided a system that when used properly supported the uptake of these products.

The view of the group was that it was best if the medical technology was included in the national tariff but saw the reason for excluding products that were very expensive. However, they did not want to see too many exemptions as this could clog the system and delay the use of technologies.

The group questioned how often local flexibilities, such as pass through payments, were used. The use of this flexibility should be notified to the Department of Health, but to date this has not happened. The group wanted to see more transparency in how the flexibilities are used and the Department could look at how it can encourage commissioners to provide this information. This could then be communicated to the NHS.

There was a view that not all commissioners used the pass through system and that the Department could look at educating them about this flexibility and encouraging its use.

The group identified the time lag between a new medical technology coming to market and it being reflected in the tariff as an issue. This could be from 3-5 years. This is sometimes because there is a need for a new code or the HRG design does not fit well with the new technology. These could be resolved closer to the time the technology enters the market place. NICE guidance could include the procedure code and HRG to make implementation easier for providers/commissioners.

One NHS representative explained that in some cases there are difficulties in agreeing tariffs locally where a technology/procedure is excluded from PbR. The example of drug eluting stents was given. It was felt that similar exercises were happening across the NHS to work out a local tariff. The group suggested that some guidance was needed to prevent duplication of effort.

The group highlighted that there was a great deal of activity around designing services closer to patients homes but the tariff did not generally cover this. There was a suggestion that this activity could at a minimum be coded so that the NHS could measure the activity and refocus its services accordingly.
The group strongly supported the introduction of best practice tariffs. It did caution against the setting of reference prices that promoted average practice compared to best practice.

**Group B**

The group questioned whether the issue really was about changes required to the PbR system or whether it was more about other issues such as implementation of best practice and how to replicate and scale this up rapidly.

The importance of added benefit being on a large scale was highlighted – there needed to be a significant return investment if efficiency savings were to be released in the system. The question then was how to use flexibility in the payment system to underpin this.

A key problem identified was that Commissioners did not have time to look for flexibilities in the system. Also acute Trusts were limited in how much they could experiment within the system. The health system was not thinking as a collaborative whole and the concerns seemed to be more about cost control than innovation. There was also very disparate activity across PCTs making it very difficult to harness best practice.

Furthermore, the diagnostics sector raised that when innovative technologies/solutions were developed, there was no mechanism to integrate these into existing pathways as Commissioners did not want to accept them.

It was agreed that a systematic process was required – although there was a system which it was possible to work within, it did not allow much flexibility. The PbR mechanism needed to be used to inject scale and pace into the process.

It was agreed that PbR should not be seen in isolation but as part of a whole – CQUIN schemes and regional strategic innovation funds were also part of the overall landscape.

The group thought that the key would be to use industry as strategic partners to identify where the key efficiency gains were to be made, and it was thought important to involve patient representative groups in the negotiations as this would be a visible way to drive forward innovation.

One suggestion was that an innovative pay mechanism to be used across different regions could be developed – the national mechanism would remain but there would be more flexibility around using it. There was also discussion around whether more best practice tariffs could be introduced.
Group C

A key feature of the group discussion was the compartmentalism created by the way that decisions on spending are made in the NHS, where the individuals concerned often lack an awareness of the workings and requirements of other parts of the process. In particular, they noted that knowledge of PbR systems and flexibilities is largely confined to the finance department, which sometimes leaves service commissioners unable to use this knowledge in decision making.

The group discussed how many exclusions there are from the tariff. It was reported that in one Trust there were over two thousand per year. This was considered by some group members to be a surprisingly high number. There was agreement that how the PbR system was used from Trust to Trust was very little understood.

The group also noted that some items, for example insulin pumps, have been issued with an HRG code, however no one appears to know about it so they are processed as a pass-through payment. The group agreed that it would be useful to everyone if there could be more understanding of how exclusions are decided. The PbR team informed the group that the team has been trying to reduce the exclusion list. He added that exclusions are a sign that the flexibilities are not being used. The group also noted that industry often petitions to get its technologies onto the exclusion list on the (often mistaken) assumption that reimbursements under PbR will not be adequate to encourage take up of the technology.

The group agreed that they were not clear why exclusion is considered an attractive option. They noted that if there is a case for a pass through payment then that would appear to be the best approach to adopt. They also noted the relative rarity of pass-through payments. There was agreement in the group that the system for pass through payments wasn’t working particularly effectively at the moment. It is to this lack of effectiveness to which the popularity of exclusions was attributed. The group observed that in many areas of the country, the relationship between PCTs and Trusts is not smooth and positive.

To improve the operation of pass through payments, the group made three suggestions: firstly they agreed that a list of technologies qualifying for pass-through payments could be published as early as possible to help forward planning; secondly that decision-makers could be better informed about how the pass-through system works; and thirdly they agreed that the terminology could be modified to send a clear message; specifically, the term “innovation payment” could be used instead of “pass through”.

The group discussed the time lags associated with pass though payments, which they identified as a substantial impediment to their use. The group further discussed
the length of time taken to get a technology onto the tariff. They noted that it is difficult to establish a tariff price for a newly introduced technology whose price is liable to change; accordingly, the device is not assigned an HRG code until the price becomes stable. The group wondered whether a new technology could automatically be put on the exclusion list for three to four years to allow time for the price to settle.
Breakout Session 2
Are there other ways that PbR could work better (including with other parts of the system) to support the Quality and Productivity agenda?

Summary of Recommendations

Group A:

1. There could be more consideration of how PbR could take into account the issues relating to reimbursement in relation to longer-term conditions
2. PbR could identify questionable clinical practices, often those funded on a price per volume basis (such as tonsillectomies), and strive to reduce their number by systematically asking: was this procedure really necessary? This could work, for example, by substantially reducing the payment for treatment following the first 100 procedures in any 12 month period.
3. The Department could widen the use of best practice tariffs, and ensure that tariffs are not merely geared to recognise that a particular procedure has taken place but rather recognise a quality-related health outcome.
4. There could be better sharing of best practice between Trusts. Possibly NHS Evidence could provide a vehicle for this.

Group B

1. Patient care pathways could be analysed, and, where appropriate, resources could be redistributed to the areas on the pathway where they can be most effective. This could be achieved by extending PbR or a similar system to GPs and other primary care providers.
2. The incentives inherent in the PbR system need to be passed on to the appropriate organisational levels. In particular, surpluses and savings gained through performing a procedure at a cost less than the PbR tariff price could be put at the disposal of the teams who produced the savings; and not held centrally by directors of finance.
3. Additional modifications to tariffs could be considered to stimulate the uptake of innovative, cost-effective products.
4. Advice provided by NICE following positive appraisals of technologies, to assist NHS officials in more easily securing pass-through payments and local exemptions.
Group C:

1. DH could work with NICE to ensure that MTAC guidance includes simple one-page advice on how use of the technology will be coded and how it will be reimbursed. The guidance could also include an “action for commissioners” section which would detail any service changes which would need to be implemented in order to get full value from the product.

2. Because good and early diagnoses have been identified as an important way to improve the efficiency of the healthcare system, thought could be given to whether diagnostics are sufficiently well catered for in the current PbR system or whether a separate tariff could be considered for diagnostics.

3. Tariffs could be created to cover whole care pathways

4. Everyone could play their part in fostering better engagement and collaboration between the Life Sciences industry, commissioners and SHAs. New ways could be developed for industry to play its part in driving efficiency savings while improving quality.

5. The role of Regulators could be explored, for example the CQC could possibly look at the uptake of innovative products in carrying out their regulatory duties. Furthermore, horizon scanning organisations could possibly play a part, for example by alerting the PbR team about forthcoming technologies which may require the development of new codes.

Chair's Response to Recommendations:

- The need for analysis and redesign of pathways (and more broadly the overarching system) to improve patient access to technologies and care was a key point raised by most of the groups.
- The day had seen a strong endorsement on all sides of the value of joint working by industry and the NHS at events such as this workshop, and a recognition of the value of continuing this process of exploring together how innovation can be fostered to the benefit of the NHS.
Notes from Group Discussions

Group A

The group recognised that the NHS had to make real cash savings. To achieve this the group initially looked at how prevention could produce efficiencies.

They suggested that earlier intervention with medical technologies could reduce activity further down the clinical pathway. There was good evidence that CHD preventative care has been shown to work, and the Wanless report provided a steer on improving public health. Social care was also identified as an area where medical devices help to prevent hospitalisation.

Another technology that could help ensure that patients were sent down the right clinical pathway is a cardiology test that could assist with identifying what treatment a patient requires, and help to prevent unnecessary hospital admissions. However, funding for this is in competition with other priority areas and a CHD tariff was proposed.

There was a suggestion that there was a tension in the system in the financial planning process. The Department of Health advises the NHS to plan on a longer term basis but middle management continues to work on a yearly basis. However, a number of commissioners said that when they introduce a change to the service or a new medical technology, their plans recognise that there will not be efficiencies for between 3-5 years. It was noted that Foundation Trusts held reserves and part of this could be reinvested in the Service to support innovation.

The group suggested that incentives in the system for unnecessary procedures could be removed. For example, a variable tariff could be introduced where a trust is paid at a certain amount for the number of procedures they are expected to undertake but if it goes over the expected number it would be reimbursed at a lower rate. This would be written into the contract with the trust.

The group was of the view that payment for services could be outcome related. (UCL currently looks at outcome results and these are published.) To achieve this information is crucial and this needs to be linked to outcomes. The coding needs to reflect this and data was needed on outpatients, community, and mental health services. There was a suggestion that the NHS could reclassify what it pays for and the tariff reflect outcome over a period of time. For example, hip replacement operations could be renamed as patient mobility.

The best practice tariff programme was strongly supported. It was suggested that this could be extended to day cases, length of stay and then linked to PROMS.
There was a wider proposal that PbR could be system wide, and that it could cover social care and primary care.

The group flagged that to drive innovation, managers had to take reasonable risks. The NHS could support these managers in taking these risks. The group proposed the continued sharing of best practice, which can be facilitated by NHS Evidence.

**Group B**

The group identified one key issue as the inability of GPs to deploy resources and gain access to technologies which would assist in diagnosis and patient care. The PbR system and its basis in secondary care was prompting GPs to continue to refer patients to hospital diagnostic services because of guaranteed reimbursement, as opposed to investing in point-of-care diagnostic facilities for use in the GP’s surgery. Other ‘perverse incentives’ of a similar nature were cited, where patients would benefit from treatment by GPs, and treatment was inappropriately distributed along the pathway. These examples were symptomatic of a more general issue: restriction of the PbR system to the secondary care setting was an encumbrance to the deployment of resources to other points of care along the patient pathway.

Two types of solution to this problem were discussed:

1) One suggestion revolved around altering the payment and commissioning system for GPs. Two options were discussed:
   - Firstly, the PbR system (or some close analogue) could be extended to GPs. A national, setting-independent tariff would allow GPs greater freedom to apply the appropriate procedures and diagnostics without restriction.
   - Another suggestion discussed was the transfer of payment for GPs to an outcomes-based framework, giving GPs a greater accountability for the ongoing health of patients.

2) Another potential way to address the above issue would be to improve communication across the entire pathway, with the resultant discussion informing the redistribution of resources to the places on the pathway where they were most appropriate and effective. Better communication between GPs, consultants and other individuals on the pathway would help to create an idea of where efficiencies could be found and improvements could be made in the system; and these could then inform a transfer of funding to the appropriate bodies to make the improvements in question. One particular difficulty in effectively implementing this idea would be the system’s tendency to restructure itself to absorb and redistribute any efficiencies created.
Another issue was identified in the distribution of incentives. Any income gained through payment by results is received by the organisation and may then be used for other programmes or initiatives (potentially removing the incentive for individual teams to seek rewards). One suggestion was made to address this by distributing the additional money to specific teams, allowing them to decide where to spend the money. This would serve to both incentivise the improvement of services, and ensure that those with first-hand experience of their service area were in a position to deploy resources as they thought appropriate.

A simple solution raised in the group involved a system which rewarded quality of outcomes. Money would be diverted from those who performed poorly to those who performed well. This proposal was rejected as it would most likely lead to a widening of the gap between good performers and poor performers: those who were performing poorly would perform even worse with reduced resources, and those performing well would perform even better with the increase in resources available to them.

A comment was made that many incentives systems have a negative element, punishing poor performance and using terminology like “penalties” and deductions. One proposal for an incentive mechanism with a more positive onus suggested “hiving off” a proportion of an individual’s pay, and making it performance-related. Equal performance would result in all of the hived-off area being paid out, worse performance would lead to a lesser payout of the hived-off pay, and better performance would lead to bonus money in addition to all of the hived-off pay. It was thought that this would encourage consistency and improvement, without connotations of negativity or punishment.

The general point was also made that an ideal system could direct resources to the people who had made improved the patient’s health; irrespective of position on the pathway.

Another issue identified by the group revolved around the uptake of innovative technology. A system needed to be put in place to feed innovation into the NHS (above and beyond business cases and guidance) and ensure that uptake of these innovations is broad and consistent. Suggestions were made that perhaps tariffs could be introduced or adjusted to incentivise the uptake of these cost-effective innovative products. An industry “list” of around 100 innovative products that could help the NHS meet its quality and productivity goals could be “fast-tracked” or “supercharged” through amendments to the tariff. A general complaint at centrally-driven guidance was also noted, where central recommendations clashed with local opinion (and central recommendations were driven through anyway).
Group C
The group noted that currently it can take well over a year to develop an HRG code. They questioned whether the process needs to be this long and whether the problem is the coding process or the pricing system. The group also noted that there is a need to start OPCS process for new technologies at least a year earlier – which would mean even before it is known whether it needs a licence or not.

The group noted that it was important for PbR to be aligned with the new NICE evaluation pathway for medical devices and diagnostics, so that delays in the coding process do not impede the rapid take up of NICE evaluated products. The group agreed that NICE recommendations could provide advice on any existing HRG code and reimbursement arrangements, and that NICE could work with the PbR team in cases where a different approach to reimbursement was considered helpful to support uptake of the technology. The group thought that the guidance could be correctly pitched for key decision-makers, for example presented as a business case for Trusts but as a health economics case for commissioners. Furthermore, NICE could work with PCTs to ensure that the information provided is precisely fit for purpose.

The group noted that diagnostics are exceedingly important for the Quality and Productivity challenge but currently they are only reimbursed in relation to their use in a procedure. The group wondered whether there could be a separate tariff for diagnostics – particularly in light of the new diagnostics assessment programme.

The group noted that the quality and outcomes framework (QOF) currently rewards the procedure but not the treatment. It agreed that the mechanics of QOF and of PbR need to be aligned with NICE guidance. In some instances there may be a case for a local QOF.

The group noted that PbR serves to maintain a barrier between primary and secondary care. If QIPP is to achieve its goal of moving healthcare into cheaper settings the funding barriers which work against this need to be addressed. The group wondered whether personal health budgets might help to bring about this shift. It noted that pilots for such budgets for people with long-term conditions have been begun.

The group agreed that reimbursement systems need to be able to take into account the care pathway as a whole rather than simply thinking in terms of one-off procedures or interventions. This would help drive uptake as true costs were identified for each intervention.
The group agreed that whereas PbR might be one impediment to innovation, there is also a culture of commissioners accepting the status quo as opposed to challenging providers to work with suppliers in order to improve on what can be provided.

The group also discussed the regulatory framework and noted the possibility of a future role for regulation in the QIPP programme. It noted, in particular, that Care Quality Commission NHS performance management could take into account uptake of innovation. The group also suggested that there could be earlier application for OPCS codes by companies in anticipation of successful completion of the regulatory process, rather than applying once this process is completed.

The group noted that innovation in the NHS is sometimes perceived to be about new technologies rather than new approaches to patient care. Whereas the two often come together, it is possible to look innovatively about patient care in abstraction from innovative technologies, although it can sometimes be easier to engineer system change around a new widget.
## Attendees listed by workgroup

### Morning

**Group A**
- Paul Woods
- Jenni Field
- Andy Bufton
- Duncan Jenkins
- Kieron Hughes
- Susan Devlin
- Andy Taylor
- Jon Sussex
- Nathalie Verin
- Rodney Franklin
- Mark Wilkinson

**Group B**
- Priya Goyal
- Matthew Stork
- Rob Checketts
- Bill Todd
- Eileen Robertson
- Steve Graham
- Paul Henrikson
- Mike Galloway
- Mike Wallace
- David Jeanes
- Anita Nathan
- Kerry Tomaszewski

**Group C**
- Martin Campbell
- Judith Sharp
- Christine Richardson
- Ed Hair
- Richard Phillips
- Phil Hayward
- Peter Huskinson
- Claudia Lally
- Jonathan Storey
- Chris Bantock
- Marg Parton
- Colin Andrews

### Afternoon

**Group A**
- Martin Campbell
- Andy Bufton
- Rob Checketts
- Colin Andrews
- Judith Sharp
- Jenni Field
- Duncan Jenkins
- Bill Todd
- Kieron Hughes
- Matthew Stork
- Paul Woods
- Priya Goyal

**Group B**
- Andy Taylor
- Paul Henrikson
- Susan Devlin
- Mike Galloway
- Peter Huskinson
- Richard Phillips
- Jon Sussex
- Steve Graham
- Phil Hayward
- Jacky Readings
- Ed Hair

**Group C**
- Anita Nathan
- Jo Wildy
- Nathalie Verin
- Rodney Franklin
- Mark Wilkinson
- Mike Wallace
- Marg Parton NTAC
- Jonathon Storey
- David Jeanes
- Chris Bantock
- Claudia Lally
- Eileen Robertson