# Evaluating the role and contribution of innovation to health and wealth in the UK

## A review of Innovation, Health and Wealth

### Phase 1 Final Report

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This report is independent research commissioned and funded by the Department of Health Policy Research Programme (Innovation, Health and Wealth - a formative and summative evaluation, PR-R7-1113-22001). The views expressed in this publication are those of the author(s) and not necessarily those of the Department of Health.

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Published by the RAND Corporation, Santa Monica, Calif., and Cambridge, UK



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# Preface

The *Innovation, Health and Wealth: Accelerating Adoption and Diffusion in the NHS* strategy set out the Department of Health's delivery agenda for spreading innovation at scale and pace throughout the NHS. The Department of Health Public Research Programme has commissioned a three-year evaluation to determine whether the strategy is (i) working as planned and (ii) delivering its intended outcomes.

This report, prepared by RAND Europe in collaboration with Professor Ruth McDonald at the University of Manchester, presents the findings from the Phase 1 of that evaluation. It presents an assessment of progress towards the Innovation, Health and Wealth strategy and its component actions, in particular drawing on the perceptions of key stakeholders. This report draws conclusions related to the evaluation's key research questions and presents discussion of how to explore the identified issues more deeply and inform the NHS more fully through the use of case studies in the Phase 2 of the evaluation. A comprehensive overview of the findings that informed this report is presented in the accompanying document *Evaluating the role and contribution of innovation to health and wealth in the UK: A review of Innovation, Health and Wealth. Phase 1 Appendix*. The findings from Phase 2 will be presented separately in a subsequent report.

The evaluation aims to be as helpful as possible to the primary users – decision makers in the Department of Health and the English NHS. In that sense, it aims to be what Patton & Horton (2009) describe as a 'utilisation-focused evaluation'. Consequently, the evaluation team has aimed not only to maintain scientific rigour but also to meet the needs of the Department of Health, as articulated through the steering group.

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# Abstract

The Department of Health's Innovation, Health and Wealth (IHW) strategy aimed to inform a more strategic approach to the spread of innovation across the NHS. This report represents the first phase of a three-year evaluation aimed at mapping progress towards the IHW strategy and its component actions. This mapping was informed by a combination of quantitative and qualitative methods, using three principal approaches to data collection: (i) document review; (ii) key informant interviews; and (iii) stakeholder survey. This report is also a basis for selecting the case studies that are planned for phase two of the evaluation.

Our findings from the interviews and survey data suggest broad stakeholder support for the overarching ambitions of the IHW strategy, and highlight that there is a clear appetite for a national approach to putting innovation at the forefront of healthcare in order to incentivise its uptake and diffusion within the NHS. However, we find progress towards the overarching objectives of the eight IHW themes is variable and for a number of themes there appears to be an ambiguous relationship between their objectives and their component actions.

At the action level it has proved difficult to conclusively assess the progress made given that IHW's commitment to actions, its implementation guidance and the expected outcomes of the actions were not clearly articulated. Among those actions identified as a high priority by the Department of Health, the Academic Health Science Networks (AHSNs) and the Small Business Research Initiative (SBRI) were reported to be working particularly well. Our findings suggest that this is in part because they have clear structures of accountability and specific earmarked budgets. However, survey respondents and interviewees raised concerns that the impact of both AHSNs and the SBRI may be limited by budgetary pressures. In general, the main challenges identified for those actions for which some activity is ongoing were the resources available for their implementation (e.g. Medtech briefings), lack of awareness of the initiative (e.g. the NICE Implementation Collaborative), and the design of the actions (e.g. the Innovation Scorecard, web portal and High Impact Innovations).

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# Summary

The National Health Service (NHS), in common with most other healthcare systems in high-income countries, is under pressure to meet the growing demand for healthcare services with limited resources. NHS England anticipates that the population's need for healthcare services will continue to grow faster than the funding available for those services. The Department of Health has identified improving the uptake and diffusion of innovation within the NHS as a potential solution to this increasing demand. The Innovation, Health and Wealth (IHW) strategy makes the case that innovation can improve both quality and productivity and that, in the context of increasing demands for care in a financially constrained system, innovation can help improve efficiency, and thus the sustainability of the NHS. However, there is no single and agreed strategy to deliver innovation. Instead, a more plausible way forward may be to develop a variety of approaches, monitor and evaluate these, and ensure that learning is fed back into future actions. This variety of policy instruments and actors characterises IHW. Whether the IHW actions have been designed and planned effectively, and whether they were well delivered and actors effectively mobilised, are questions addressed in this evaluation.

This report covers the first phase of a three-year evaluation to determine whether IHW actions are (i) working as planned and (ii) delivering their intended outcomes.

## Innovation, Health and Wealth: a welcome attempt to address a complex policy agenda

IHW is made up of eight core themes relating to different parts of the health system: 1) reducing variation and strengthening compliance with NICE guidance; 2) improving innovation uptake; 3) metrics and the accessibility of evidence and information about new ideas; 4) establishing a more systematic delivery mechanism for diffusion and collaboration within the NHS; 5) aligning incentives and investment to reward and encourage innovation and improving procurement; 6) encouraging a change in culture within the NHS and embedding innovation into training and education for both managers and clinicians; 7) strengthening leadership for innovation throughout the NHS and increasing local accountability; and 8) identifying and mandating the adoption of high impact innovations in the NHS. Under these eight core themes, the IHW strategy identified 32 actions that collectively aimed to improve the adoption and diffusion of innovation in the NHS.

Doubts were expressed by some interviewees and survey respondents about whether the package of measures and actions considered in this evaluation will in future be packaged within the IHW framework or whether the current alignment of policy initiatives will be reconfigured. However, there appears to be a consensus that innovation is vital to the NHS and that a variety of new actors and actions are necessary to understand how best to maximise positive benefits from technical and social change.

Interviewees echoed the view put forward in IHW documents that innovation is essential for the sustainability of the NHS. Interviewees were positive about the objectives that IHW set out to achieve and its recognition of the need to improve the uptake and diffusion of innovation in the NHS. Some survey respondents highlighted that IHW was an ambitious and innovative strategy in and of itself. However, underlying these positive views there is very limited available evidence that innovations have improved the quality of care in the NHS, improved productivity or saved costs. This report details both positive and negative feedback on IHW and also makes the case that shortage of evidence is in part a reflection of gaps in the available data, which raises the question of whether existing mechanisms for data collection and analysis are sufficiently well developed.

## Was IHW well designed? A need to better articulate and communicate the strategy

IHW was originally conceived as a national plan for embedding innovation into the NHS, but it evolved into a more fluid mechanism for supporting innovation. In innovation strategies there are many varied policy instruments and multiple actors that create a complex landscape where there is a high likelihood of inconsistencies and redundancies. It is important to understand the success, or otherwise, of IHW in this light and not to use a yardstick of unattainable coherence, consistency and strategic uniformity. It is unsurprising that IHW evolved in unanticipated ways and that some actions seem to have been successful while others have slipped from view.

However, from the original documentation it appears that such flexibility and adaptation was only weakly locked into the design of the programme. This is a pity because the diversity contained within IHW does appear to have been built on some sound foundations. The eight IHW themes were not arbitrary, but rather built on stakeholder engagement and judgements of what was feasible and acceptable. They also reflect an appreciation of the diverse barriers to innovation in the NHS. However, the causal chain linking the actions to delivering innovation is unclear. The current scope (or even continued existence) of IHW was also unclear.

In including a variety of actions and approaches, IHW reflected the realities of supporting innovation in the healthcare system. However, the impression from stakeholders is that the evolution of IHW has not been sufficiently informed by an overall strategic sense of direction, has not been effectively communicated and is not grounded in learning and emerging evidence which would facilitate better communication.

## Did IHW deliver its intended outcomes? Patchy evidence and a need for new frameworks and metrics

Progress towards the overarching objectives of the eight IHW themes has been variable. Interestingly, assessment of progress does not appear entirely straightforward. In the case of themes 1 (reducing variation and strengthening compliance), 2 (metrics and information) and 5 (procurement), respondents reported positive progress towards some of the actions within the themes, but not others, such that overall progress towards the theme's objectives was mixed. For themes 3 (creating a system for delivery of innovation) and 8 (high impact innovations), respondents reported some progress on almost all of the actions within the theme, and towards the theme's overarching objectives. For themes 4 (incentives and investment), 6 (developing our people) and 7 (leadership for innovation) there appears to be an ambiguous relationship between the theme's objectives and its actions. For themes 6 and 7 positive progress was reported towards the themes' objectives and this was attributed to IHW, even though we found little progress on the implementation of any of the actions within the themes, while for theme 4 very little progress was reported towards the theme's objective, despite positive progress being made towards two out of the three actions. For theme 1, while most respondents reported improvements in compliance with NICE guidance, few survey respondents attributed these improvements to IHW or reported there to have been overall improvements in reducing variation in care.

A number of challenges exist in the assessment of many of IHW's actions and objectives. Some actions have been completed, but IHW's ongoing involvement in, and the expected outcomes of, those actions is not clear. Similarly, some actions have been implemented, but it is often still too early to assess their impact because they were not expected to deliver measurable outcomes in the short term. This variability in the implementation of individual actions may stem in part from the paucity of implementation guidance and ongoing monitoring for the individual IHW actions.

Overall, achieving progress in terms of the aims of IHW and each of its eight themes is more complex than simply implementing the actions within those themes. The relationship between actions and achievement of intended outcomes within IHW is not linear and progress is mixed. Furthermore, where there has not been measurable progress towards actions or themes, the IHW strategy may nonetheless have been important as a symbol of the shift towards innovation in the NHS.

**Table S1. Summary of progress towards IHW actions**

| Action | Status |
|---|---|
| **Theme 1: Reduce variation and strengthen compliance** | |
| NICE Compliance Regime (Publication of NHS Formularies, NICE guidance called 'Medicines Practice Guideline') | Active |
| NICE Implementation Collaborative | Active; pilot stage |
| **Theme 2: Metrics and information** | |
| Clinical Practice Research Database (CPRD) datalink | Established March 2012 |
| Innovation Compass | Active; pilot stage |
| Innovation Scorecard | Active |
| Web Portal (Innovation Exchange) | Active |
| Which? Consumer campaign | Not implemented |
| **Theme 3: Creating a system for delivery of innovation** | |
| Academic Health and Science Networks (AHSNs) | Established May 2013 |
| Sunset Review | Not published |
| Innovation Technology Adoption Procurement Programme (iTAPP) (renamed Medtech Innovation Briefings) | Active |
| **Theme 4: Incentives and investment** | |
| Aligning incentives | Active |
| Innovation Challenge Prizes | Active |
| Never Events | List updated in February 2012 |
| Specialised Services Commissioning Innovation Fund (SSCIF) | Suspended |
| **Theme 5: Procurement** | |
| Intellectual Property Strategy | Not published |
| Procurement Strategy | Published May 2012 |
| Small Business Research Initiative | Active |
| **Theme 6: Developing our people** | |
| Hardwiring innovation into education and competency frameworks | Not documented |
| Innovation Fellowship Scheme (renamed NHS Innovation Accelerator) | Competition opened January 2015 |
| Joint industry and NHS training for senior managers – ITW Innovation Network | ITW network established. No information on content or outputs |
| **Theme 7: Leadership for innovation** | |
| CCG legal duty | Written into Health and Social Care Act, March 2013 |
| Innovation Pipeline Project | Launched in February 2012. Ongoing progress not clear |
| NHS Operating Framework | Superseded |
| Strengthening Leadership and Accountability | Strengthening Leadership and Accountability for Innovation published August 2013 |
| **Theme 8: High Impact Innovations** | |
| High Impact Innovations (HIIs) | Varies by area |
| CQUIN pre-qualification | Superseded by Service Development and Improvement Plan |

# Acknowledgements

We gratefully acknowledge the helpful and insightful comments provided by Catriona Manville and David Kryl on an earlier draft of this report. We also acknowledge the contributions of Céline Miani, Sonia Sousa and Benoit Guerin to the early stages of data collection that informed this report and thank Bryn Garrod for his involvement in the production of the many charts included in the Appendix. Similarly, we are grateful to Jess Plumridge for designing and formatting the report.

We are also grateful to the Department of Health and NHS England for their support and interest in discussing the ideas and concepts that led to this report. Finally, this work would not have been possible without the participation of the 37 interviewees and 179 survey respondents who generously donated their time to participate in our study, and we would like to express our gratitude towards them.

# Abbreviations

| | |
|---|---|
| **3ML** | 3 Million Lives |
| **ABPI** | Association of the British Pharmaceutical Industry |
| **AHSN** | Academic Health Science Network |
| **BIVDA** | British In Vitro Diagnostics Association |
| **CCG** | Clinical Commissioning Group |
| **CEO** | Chief Executive Officer |
| **CLAHRC** | Collaboration for Leadership in Applied Health Research and Care |
| **CPRD** | Clinical Practice Research Datalink |
| **CQUIN** | Commissioning for Quality and Innovation |
| **GPRD** | General Practice Research Database |
| **HEE** | Health Education England |
| **HII** | High Impact Innovation |
| **HSCIC** | Health & Social Care Information Centre |
| **IHW** | Innovation, Health and Wealth |
| **iTAPP** | Innovation Technology Adoption Procurement Programme |
| **MHRA** | Medicines and Healthcare Products Regulatory Agency |
| **MIB** | Medtech Innovation Briefing |
| **NHS** | National Health Service |
| **NIC** | NICE Implementation Collaborative |
| **NICE** | National Institute for Health and Care Excellence |
| **NICE TA** | NICE Technology Appraisal |
| **NIHR** | National Institute for Health Research |
| **OHE** | Office of Health Economics |
| **OECD** | Organisation for Economic Co-operation and Development |

| | |
|---|---|
| **SBRI** | Small Business Research Initiative |
| **SHA** | Strategic Health Authority |
| **SSCIF** | Specialised Services Commissioning Innovation Fund |
| **TECS** | Technology Enabled Care Services |

# Chapter 1 Introduction

## 1.1. Background to Innovation, Health and Wealth

The National Health Service (NHS), in common with most other healthcare systems in high-income countries, is under pressure to meet the growing demand for healthcare services with limited resources. This has resulted in substantial pressures on healthcare systems, and NHS England anticipates that the population's need for healthcare services will continue to grow faster than the funding available (NHS, 2013d). The Department of Health (DH) has identified improving the uptake and diffusion of innovation within the NHS as a potential solution to this increasing demand (NHS, 2013d, Treasury, 2011, DH, 2011). The DH's strategy, *Innovation, Health and Wealth: Accelerating Adoption and Diffusion in the NHS,* describes a number of actions that were designed to work together to support the adoption and diffusion of innovation[1] across the NHS and to increase the pace and scale of productive change (DH, 2011).

However, there is no single and agreed strategy to deliver innovation. The Organisation for Economic Co-operation and Development (OECD) comments: 'The rationales and objectives of policy intervention in support of innovation are wide-ranging, as are the policy instruments used. The large variety of policy instruments and wider number of actors involved have increased the complexity of the policy landscape and made inconsistencies and redundancies more likely' (IPP, 2013). Instead of depending on just one policy instrument, in our view a more plausible approach is to develop a variety of approaches, monitor and evaluate these, and ensure that learning is fed back into future actions. This variety of policy instruments and actors characterises the Innovation, Health and Wealth (IHW) strategy. Whether the overall strategy and its actions have been well delivered, and actors effectively mobilised, are questions to be addressed in this report.

Assessing the relevance and effectiveness of the IHW also depends upon consideration of the particular context of both health systems in general and the particular dynamics of the NHS. The importance of context in shaping the success of innovation strategies has been demonstrated (Autio et al., 2014). An evaluation of this sort must therefore seek to understand the degree to which there was a good 'fit' between IHW and its environment. There is therefore a variety of ideas informing the eight core themes of IHW and these relate to different parts of the health system context (see Box 1).

Within these eight core themes, the IHW strategy identified 25 actions that collectively aimed to improve the adoption and diffusion of innovation in the NHS, as detailed in Table 1 (DH, 2011).

## 1.2. Previous evaluations of IHW

Few evaluations of IHW have been published and, furthermore, there is only a limited evidence base to draw on when looking for independent verification of the delivery of results. A January 2014 report by LifeSciencesUK (LSUK), a consortium representing the human healthcare industry, provides a review of some of the IHW themes and actions (LSUK, 2014). The report details mixed findings regarding IHW's implementation from the perspective of industry. It found little progress towards the IHW theme 'aligning financial, operational and performance incentives'. The report states that, 'this IHW workstream has had limited traction. Despite the potential for an alignment of financial incentives and sanctions to drive change… there have not yet been any substantive changes to support implementation of innovation.' Similarly, the report also discusses progress toward the procurement theme and while it notes that a new procurement strategy was published, it found that no long-term changes in the

[1] The IHW document defines innovation as, 'an idea, practice or object that is perceived as new by an individual or other unit of adoption'.

**Textbox 1. The eight IHW themes**

**Theme 1: Reducing variation and strengthening compliance**
'We should reduce variation in the NHS, and drive greater compliance with NICE guidance'

**Theme 2: Metrics and information**
'Working with industry, we should develop and publish better innovation uptake metrics, and more accessible evidence and information about new ideas'

**Theme 3: Creating a system for delivery of innovation**
'We should establish a more systematic delivery mechanism for diffusion and collaboration within the NHS by building strong cross-boundary networks'

**Theme 4: Incentives and investment**
'We should align organisational, financial and personal incentives and investment to reward and encourage innovation'

**Theme 5: Procurement**
'We should improve arrangements for procurement in the NHS to drive up quality and value, and to make the NHS a better place to do business'

**Theme 6: Developing our people**
'We should bring about a major shift in culture within the NHS, and develop our people by 'hard wiring' innovation into training and education for managers and clinicians'

**Theme 7: Leadership for innovation**
'We should strengthen leadership in innovation at all levels of the NHS, set clearer priorities for innovation, and sharpen local accountability'

**Theme 8: High Impact Innovations:**
'We should identify and mandate the adoption of high impact innovations in the NHS'

*Source: (DH, 2013b)*

relationship between industry and the NHS had occurred. The report also provides a 'spotlight' on key IHW actions, including Academic Health Science Networks (AHSNs), the NICE Implementation Collaborative (NIC), the NICE Compliance Regime, the NHS Innovation Scorecard, and the Specialised Services Commissioning Innovation Fund (SSCIF). The report found mixed progress on all of the above mentioned actions (except the SSCIF, which was suspended). However, it did not review all of the IHW themes and actions, and so it cannot be considered a comprehensive evaluation.

In contrast with these findings, the NHS's own report (published in 2012) into IHW's first year was largely positive. Of the 31 actions identified in the initial IHW report, it found that 25 had been delivered, and the remaining six were 'on track for delivery' (DH, 2012a). However, the report does not give a clear indication of how the 25 actions had been delivered, nor does it specify the timeline for delivery of the remaining six.

A report by MHP Communications, published in 2012 gives a 'mixed picture' of IHW's implementation (MHP, 2012). The report highlights a 'worrying disconnect' between the local and national levels in terms of commitment to the initiative, noting that, in a survey of all NHS trusts, only 55 per cent of the 110 trusts that responded to the question had received communication from the NHS Commissioning Board or the Department of Health on implementation of the IHW actions and only 25 per cent of providers had developed a plan to implement the IHW actions. At the national level, the report found that only nine out of the 26 national programmes that were due to be delivered by September 2012 had been fully implemented.

There is no prior comprehensive review of the overall IHW strategy and its implementation. The MHP report looked at the IHW within months of implementation and this may account for the later report from the NHS being more positive. The LSUK document takes an industry perspective and reports some, but incomplete, progress. The wider literature on IHW is more complete in some areas than others and it appears that IHW is viewed differently from different perspectives. To develop a balanced overview to support the current report, the evaluation team triangulated previous evaluations with available grey and published literature, along with the perspectives of our survey respondents and interviewees, to inform a discussion and overall analysis. However, even though this

report only presents findings from Phase 1 of this evaluation, rather than a comprehensive and systematic review of IHW as a whole, we are satisfied that we have brought together the available evidence to provide a meaningful and informed account of the initiative.

## 1.3. Specific aims and objectives of the evaluation

This report covers the first phase of a three-year evaluation to determine whether IHW actions are (i) working as planned and (ii) delivering their intended outcomes. We have understood the 'overarching aims' of IHW to include IHW's contribution to the success of wider innovation in the NHS. For example, if an IHW action adapts or is absorbed into another policy it might be said to have 'failed' in achieving its particular aims but it might still have contributed to innovation more broadly.

Our evaluation aims to be as helpful as possible to primary users – decision makers in the Department of Health and the English NHS. In this sense, it aims to be what Patton & Horton (2009) describe as a 'utilisation-focused evaluation' (Patton and Horton, 2009). Consequently, the evaluation team has aimed not only to maintain scientific rigour but also to understand and meet the needs of the Department of Health, as articulated through the steering group.

Phase 1, reported here, is a scoping phase that has assessed the progress of the IHW strategy and individual actions, in particular drawing on the perceptions of key stakeholders. However, in balancing the need for both breadth and depth in this evaluation, we address the more important issues with longer-term implications by focusing primarily on the actions in the initial IHW document and the actions identified as high priority by the steering group. As shown in Table 1 below, the actions within the eight themes of the IHW report were classified in the tender document as high, low and out of scope (DH, 2013b). While lower-priority and out-of-scope actions were not the focus of this evaluation, we do reference these where relevant throughout the report and include all the data collected on these actions in the Appendix. Additionally, some of the initial IHW actions were not mentioned in the initial tender specifications, as indicated in Table 1, and we also report on these where relevant.

### 1.3.1. Phase 1: Mapping the IHW strategy and actions

The first phase of the evaluation, and the subject of this report, maps the IHW strategy and actions. This mapping was informed by a combination of quantitative and qualitative methods, using three principal approaches to data collection: (1) document review; (2) key informant interviews; and (3) stakeholder survey. This report is also a basis for selecting the case studies that are planned for phase 2 of the evaluation.

To deliver both robust and helpful findings, and in consultation with the steering group, this phase of the evaluation aimed to address two clusters of research questions:

(i) **Was IHW well designed?** What is the approach to innovation underlying IHW? How was the IHW strategy intended to work? What are the actions/activities that have been developed to deliver these? How (well) do these fit with the wider approach to innovation in the NHS? Was this approach founded on reliable evidence of how to innovate in complex environments? What can we learn from this evaluation that might improve current and future approaches to evaluation in the NHS?

(ii) **Did IHW deliver as intended?** (How) has this approach been implemented? (How) has this approach engaged stakeholders? What are the barriers and facilitators at the overall strategy level and the particular actions level? What can we learn from this evaluation that might improve current and future approaches to innovation in the NHS?

### 1.3.2. Phase 2: Case studies in local health economies

The first phase of this evaluation provides an opportunity to step back and view IHW as a whole (including the specific actions within it). This in itself can inform future decisions about innovation in and around the NHS. However, to fully understand the specific facilitators and barriers to developing, diffusing and embedding new ideas and ways of working in the NHS, it is necessary to delve more deeply into how innovation happens and contributes to health and wealth across different health innovation contexts. These will often be best understood by looking at the level of the local health economy, but also considering the role of national innovation contexts and initiatives and the relevance of cross-cutting issues (for example, about the engagement of the private sector, or the development and use of metrics). Therefore, in the second phase of the evaluation, the evaluation team proposes to conduct in-depth case studies that will build upon and amplify the findings reported here, and to combine qualitative research with quantitative analysis of the impacts from health innovation. We return to this in our final discussion.

**Table 1. Scope of the evaluation**

| Themes | High-priority actions | Low-priority actions | Out of scope actions | Actions from IHW strategy not mentioned in ITT |
|---|---|---|---|---|
| 1. Reducing variation and strengthening compliance | NICE Implementation Collaborative (NIC) | N/A | N/A | NICE Compliance Regime (including Publication of NHS Formularies) |
| 2. Metrics and information | Innovation scorecard<br>Innovation compass*<br>Web portal (Innovation Exchange) | Which? campaigns | N/A | Clinical Practice Research Datalink (CPRD) |
| 3. Creating a system for delivery of innovation | Academic Health Science Networks (AHSNs)<br>iTAPP Programme (Medtech Innovation Briefings) | Sunset Review | N/A | N/A |
| 4. Incentives and investment | Innovation Challenge Prize Programme<br>Specialised Services Commissioning Innovation Fund (SSCIF) | Aligning financial incentives | Never Events | N/A |
| 5. Procurement | Small Business Research Initiative (SBRI) | Intellectual property strategy | N/A | Procurement strategy (including Showcase hospital programme) |
| 6. Developing our People | N/A | Innovation Fellowship scheme (Innovation Accelerator) | Hardwiring innovation into education and competency frameworks<br>Joint industry and NHS training for senior managers (ITW Innovation Network) | N/A |
| 7. Leadership for innovation | N/A | CCG authorisation and legal duty<br>Strengthen leadership and accountability for innovation | N/A | NHS Operating Framework<br>Pipeline Projects |
| 8. High Impact Innovations | High Impact Innovations<br>CQUIN pre-qualification | N/A | N/A | N/A |

*NOTE: *Innovation Compass was not included in IHW strategy but was identified by the Steering Group as a high priority action*

## 1.4. Structure of this report

Following this introductory chapter, in Chapter 2 we briefly outline the methods used to conduct the mapping of the IHW strategy and actions. In Chapter 3, we report the main results from the document review, survey and interviews. In Chapter 4, we discuss the results and their implications and then conclude and provide recommendations for further research. A comprehensive overview of the findings presented separately for each methodology is presented in *A review of Innovation, Health and Wealth: examining the landscape of national policy contributions to health through innovation. Phase 1 Appendix* accompanying this report.

# Chapter 2 Methods and Data Collection

To trace the evolution and progress of IHW we used a combination of data collection methods, in particular document review, key informant interviews and a stakeholder survey. In collecting data we broadly distinguished between that concerning the overall approach informing IHW and the particular component themes. Understanding the overall approach, or strategy, involves identifying both the explicit and tacit ways in which IHW was designed to achieve its goals. We have not assumed that there is necessarily a single and fixed homogenous strategy underlying all IHW actions. Indeed, we were interested in seeing if (and with what consequences) there was a variety of strategic orientations and whether these evolved over time.

1. **Document review**: a targeted review of published and, where accessible, unpublished documents relating to IHW's individual actions (as well as actions that have since come under the umbrella of the IHW strategy), including: reports, strategy documents, tender documents, progress reports and published data. The focus of the document review was to identify and review published and grey literature on the design, content, progress and evaluation of IHW actions.
2. **Key informant interviews (n=37):** a series of scoping telephone interviews with key stakeholders involved in the development and/or implementation of the IHW strategy and its actions to generate understanding of the IHW landscape. Informants were identified through purposive sampling, aided by discussions with the Department of Health, NHS England and other stakeholders. The focus of the interviews was to understand the perceptions and experiences of well-informed actors who are concerned with the development and implementation of IHW actions.
3. **Stakeholder survey (n=179)**: an online survey of relevant providers, commissioners and other key stakeholders, including representatives of industry, to identify progress on IHW to date and collect views on its design, implementation and delivery. The focus of the survey was to understand how different groups of respondents with different levels of involvement in IHW understand its content, progress and consequences.

## 2.1. Document review

The document review aimed to gather background information to inform the assessment of progress on IHW and its actions and to identify the measures in place for monitoring and evaluating the strategy. This component of the data collection was undertaken to inform our answers to the first two clusters of research questions on whether IHW was well designed and whether it has delivered its intended outcomes, as outlined in Section 1.3.1 above.

In order to gain a more detailed understanding of the current level of progress towards the individual actions listed in the IHW report, we undertook a targeted review of the published evidence by manually searching the websites of organisations and initiatives involved in either the development or implementation of IHW and by following a snowballing technique, which involved checking the cited references within relevant publications. The search was complemented by a review of the documents retrieved through conversations with the steering group at the Department of Health and interviews with key informants.

For each action information was extracted on the aim of the action, a description of the action and progress towards the action since it was launched.

The document review was not limited to the original 25 actions (or 31 actions if the six High Impact Innovations (HIIs) are treated as separate actions) identified in the 2011 IHW report because additional actions seem to have been brought under the IHW umbrella. These were identified in later publications such as *Creating Change: IHW One Year On* (DH, 2012a) and through the NHS England website (NHS, 2015a).

## 2.2. Key informant interviews

As part of the initial scoping phase of the evaluation of IHW, we undertook a series of telephone interviews with senior individuals with relevant experience in the design or delivery of a particular IHW action, for a selection of the IHW actions (see the Appendix for further details on interviewees' areas of expertise). The aims of the interviews were to:

i. Obtain an understanding of perceptions and actions in relation to IHW (i.e. asking what has happened so far and why, and how interviewees see the future of IHW?)
ii. Inform the selection of topics for further scrutiny in the next phase of the evaluation

The Department of Health provided a list of initial interviewees to contact. Further interview contacts were made following suggestions made by interviewees. These contacts that were suggested by other interviewees included, for example, interviewees from CLAHRCs (Collaborations for Leadership in Applied Health Research and Care) to gain their perspectives on Academic Health Science Networks (AHSNs) and the inclusion of interviewees with expertise on the Clinical Practice Research Datalink (CPRD). Interviews were unstructured and did not follow a topic guide, allowing for reflexive questioning.

The aim of the interviews was to solicit interviewees specifically in areas relating to IHW where we felt they had particular expertise. This approach provided considerable depth to the analysis presented here, but it also removes the possibility of quantifying interview responses as a whole (since each interviewee covered different ground). Therefore, throughout the report, we do not attempt to quantify interviewees' comments.

## 2.3. Stakeholder survey

An online survey of key innovation stakeholders was undertaken to identify progress to date and to collect views on the design, implementation and delivery of IHW and its actions.

Survey questions were designed to evaluate progress towards the implementation of the IHW actions and towards the eight IHW themes. Only those actions that were identified through the document review as having been implemented or in progress were included in the survey.

Respondents were also asked questions about the organisation where they work, their role within that organisation and their knowledge of IHW. Open questions were asked about high-priority IHW areas and actions. The survey was reviewed by senior members of staff within RAND Europe, the University of Cambridge and the Department of Health and revisions were made to questions where appropriate. The survey was administered using the RAND in-house survey tool 'Select Survey' (SelectSurvey, n.d.).

The survey was distributed to senior stakeholders in the NHS, academia and industry. The following groups, individuals and organisations were identified for inclusion in the survey sampling frame because of their involvement in either the development or implementation of IHW: organisations commissioning or delivering health services, academic organisations, respondents and panel member from the NHS Chief Executive's public consultation on innovation, national senior stakeholders within the NHS and NICE, as well as innovation and IHW-specific contacts. Full details of the organisations from which individuals were sampled can be found in the Appendix. Respondents were additionally asked to forward the survey on to relevant innovation, frontline or clinical staff within their organisation.

Respondents were invited by email to participate in the survey, along with an invitation to respond from Professor Sir Bruce Keogh. The first email invitation was sent in early February 2015, and three reminders were sent, at weekly intervals, until the survey closed to responses in the first week of March 2015.

Quantitative survey responses were summarised using percentages and stratified by whether respondents had heard of IHW or not, and by whether respondents had direct involvement in patient care or not. Quantitative analyses were carried out using Microsoft Excel 2010. Responses to open-ended questions were summarised into overarching themes. Some respondents did not answer all of the survey questions; consequently, the total number of responses presented varies for individual questions as we present the results based on all those who answered the survey question.

For a more detailed overview of the survey methods, see the Appendix.

## 2.4. Synthesis of results

The findings from all three data collection methods are reported in the following chapter, with a synthesised narrative that explores the key themes emerging across all of the data and related to the IHW objectives. For a comprehensive overview of findings presented by method see the Appendix.

# Chapter 3 Results

This section comprises a high-level summary of the findings emerging from the document review, survey and interviews. In total 179 survey responses were received and 37 in-depth interviews were undertaken (see the Appendix for more details). We first present the findings in three parts: general findings relating to IHW, findings relating to IHW's actions and other challenges that are of relevance to IHW. We then detail our findings relating to the eight IHW themes: reducing variation and strengthening compliance, metrics and information, creating a system for delivery of innovation, incentives and investment, procurement, developing our people, leadership for innovation and high impact innovations. The findings from each method of data collection are provided in full in the Appendix.

## 3.1. General findings relating to IHW

### 3.1.1. The ambitions of IHW were viewed positively

IHW makes the case that innovation can improve both quality and productivity. In the context of increasing demands for care in a financially constrained healthcare system, innovation can therefore help improve efficiency and the sustainability of the NHS (DH, 2011). Interviewees echoed the view that innovation is essential for sustainability. Many interviewees were positive about the objectives that IHW set out to achieve and its recognition of the need to improve the uptake and diffusion of innovation in the NHS; equally in free text responses (to the question 'do you have any final thoughts or comments regarding IHW and innovation in the NHS?') in the survey a number of respondents highlighted that IHW was an ambitious and innovative strategy in and of itself.

However, while the interviews and survey found broad support for the ambition of IHW, the document review found limited evidence that the implementation of the IHW actions have improved the quality of care in the NHS, increased productivity or saved costs. This shortage of evidence is in part a reflection of the uneven way that data are collected and reported.

### 3.1.2. Evidence of how IHW's actions link to the overall aims of IHW is weak

The document review found little evidence of how the various IHW actions work together to achieve the overall aim of IHW: to improve the adoption and diffusion of innovation within the NHS. In addition, the document review was not able to identify why particular actions were placed under particular themes. Some of the IHW actions do not seem to be clearly related to the adoption and diffusion of innovation. For example, three survey respondents reported that although the Small Business Research Initiative (SBRI) appears to be successful, it is primarily linked to upstream innovation development rather than the adoption and diffusion of innovation. Similarly, it was not clear from the document review how the SBRI is linked to procurement, which is the theme in which the SBRI was classified in the initial IHW document.

In general, there is little documented cross-referencing between actions. There are some examples, such as the Commissioning for Quality and Innovation (CQUIN) prepayments, which are directly linked to High Impact Innovations (HIIs) and the Innovation Scorecard, which supports the NICE Compliance Regime by providing monitoring data on compliance with NICE Technology Appraisals. However, others, such as the Academic Health Science Networks (AHSNs), are categorised under one theme, but are expected to contribute to a number of actions. Of course, absence of evidence does not mean evidence of absence, but it does suggest that interactions are not being monitored and, therefore, that lessons for how to improve these may not be learned.

### 3.1.3. The scope of IHW and its actions is not clearly communicated through the relevant documents

The document review revealed that examples where the scope and actions of IHW as a whole are described are rare and there is no central database related to IHW actions. To be clear, this is only a problem for implementation (as opposed to evaluation) where awareness of the programme contributes to its success and clearly only targeted audiences need to be aware of a particular element of IHW. However, because of this relative lack of overall visibility, it is difficult to map the evolution of the strategy post-2012. Possibly the only document that clearly does this is the *Creating Change: IHW One Year On* review, which also specified a number of additional actions such as the Whistleblower hotline, the IHW and Health Education England Framework and Call for Action (DH, 2012a). While the Innovation Exchange web portal goes some way towards this database function it only pulls together ongoing NHS activity on innovation, which includes a number of the IHW actions (such as the Innovation Exchange, Innovation Scorecard and Innovation Challenge Prizes). However, it is not clear whether additional actions within the NHS programme such as 'Test Beds' are also intended to be part of IHW. Additionally, in response to the free text question 'How much is the portal being used?' 26 per cent of survey respondents (10 of 39) highlighted that to date the portal is not widely used.

Further limiting understanding of the strategy, changes in the names of some actions have not been clearly documented. For example, the Innovation Fellowship Scheme has been rebranded as the Innovation Accelerator and the Innovation Technology Adoption Procurement Programme (iTAPP) as the NICE Medical Technologies Evaluation Programme (Medtech Programme). In their new iterations, neither programme references IHW; we were only able to track these changes through communication with the steering group. This lack of clarity and consistency in the scope of IHW and its actions is in itself a finding, but the consequences of this need to be unpackaged. For example, it might be argued that while the opaque nature of IHW is a problem for evaluators, it is not necessarily a problem in terms of delivering a more innovative health economy. It pinpoints the question 'does a successful innovation strategy have to be clearly articulated, monitored and communicated?'

### 3.1.4. The current relationship between IHW and other health innovation policies and initiatives within the NHS has not been made explicit

The document review found that the current status of IHW as a strategy is not clear. None of the websites searched allowed us to confirm with certainty that the IHW strategy is ongoing. For example, NHS England previously committed to producing an 'IHW Refresh' document, but the webpage that previously referenced IHW Refresh is no longer active and we were not able to confirm its status using information available in the public domain. The steering group for this project confirmed that an IHW Refresh document will not be published. A number of survey respondents (to the question 'do you have any final thoughts or comments regarding IHW and innovation in the NHS?') highlighted that for them the relationship between IHW, the NHS Five Year Forward View (NHS, 2014a) and other innovation reviews (e.g. the Accelerated Access Review (Hawkes, 2014)) is unclear. Some interviewees believed that IHW would disappear altogether following the retirement of some of IHW's key architects, while others thought that the momentum behind IHW has dissipated because of changes in NHS leadership.

### 3.1.5. For some actions, key stakeholders in the NHS report limited incentives to implement particular IHW actions

Several interviewees recognised the positive impact of some IHW actions, such as the NICE Implementation Collaborative (NIC). Almost all interviewees reported that they could see few incentives in place to encourage the implementation of new innovations and that those bearing the costs may not be the same as those benefiting from the investment. For example, one interviewee noted that increasing funding for novel oral anticoagulants (one of the NIC pilots) would reduce the number of strokes, but that the savings would accrue in social care, rather than primary care. Some interviewees also reported that there are few incentives in place to encourage NHS managers to liaise with industry and that it is not clear what NHS managers can gain from such collaboration. Similarly, interviewees report that the financial incentives tied to particular actions, such as the CQUIN pre-qualification payment for implementation of the HIIs, were unpopular. These findings raise the issue of whether metrics exist that could both incentivise IHW actions and reflect more accurately the success of IHW.

### 3.1.6. IHW and its actions have limited visibility, particularly among frontline staff

Survey respondents came overwhelmingly from senior NHS stakeholders and from people already interested in innovation. Even in this population, 25 per cent of respondents (44 of 179) had not heard of IHW. Awareness of IHW actions was also generally low: only 33 per cent of respondents had heard of Innovation Connect (46 of 140) and 43 per cent the Innovation Compass (61 of 143); between 60 and 70 per cent of respondents had typically heard of each action, although 91 per cent had heard of AHSNs (130 of 143) (see Tables 2 to 9). Awareness of actions among frontline staff (NHS staff involved in the delivery of care) was lower than among non-frontline staff for all actions. Some survey respondents who reported they had not heard of IHW overall had heard of some of the specific IHW actions – ranging from only 3 per cent in this category who had heard of the Innovation Connect Web portal (1 of 36), to 67 per cent who had heard of AHSNs (24 of 36). Similar findings emerged from the interviews. Interviewees highlighted that there is a lack of awareness of IHW among NHS staff but that some frontline staff may be aware of particular innovations (e.g. high impact innovations), but are not aware that there is national strategy to improve the adoption and diffusion of innovation.

## 3.2. Findings relating to IHW's actions

### 3.2.1. Guidance supporting the implementation of IHW is limited

Although IHW created the legal duty for Clinical Commissioning Groups (CCG) to 'seek out and adopt best practice, and promote innovation', it did not specifically identify which actors would be responsible for implementing each IHW action (DH, 2011). In particular, it was not clear whether IHW was intended to be a top-down strategy or whether it was intended to stimulate local action and initiatives. However, the majority of interviewees who commented reported a recent change in the NHS's approach to policy in that there is now a more hands-off approach from the top. Interviewees also noted that the reorganisation of NHS England may mean less strong leadership for innovation. The findings from the interviews seem to be consistent with those from the document review regarding the lack of implementation guidance. For example, one interviewee noted that IHW does not contain guidance on how key stakeholders should implement individual actions. However, as we see below, some respondents suggested that a lack of central guidance in fact facilitated local innovation. Findings point to a need for more evidence on the diversity associated with implementation across different regional health economies and contexts.

### 3.2.2. There are mixed views on how to take IHW forward

Despite agreement about the lack of current guidance, survey respondents proposed very different models of how IHW should move forward, from a single over-arching framework to a very small number of well-resourced actions. For example, responses ranged from: *'There are a large number of IHW actions and some kind of over-arching framework showing how each relates to the innovation pipeline would be very useful'* to *'Stop spinning all these initiatives out. Pick no more than three, support them, get them known and make them work'* (both respondents from academic institutions). There was also disagreement among respondents about how IHW should best be implemented, from respondents saying that incentives and levers need to be improved and pathways need to be well defined, to those identifying the need for more flexible approaches: *'Allow some spontaneity, tempered with clear lines of responsibility'* (respondent from an NHS hospital).

### 3.2.3. There is an apparent lack of transparency and accountability for many of the IHW actions

The document review revealed a number of issues relevant to the transparency and accountability of IHW. Information related to specific actions is not stored centrally and, for many actions, data on progress are difficult to find. The responsibility for the implementation of many of the actions is not clear and, in some cases, seems to have changed over time, particularly between the Department of Health and NHS England. Lastly, IHW at the outset included a commitment to establishing task and finish groups to evaluate progress on each of the IHW actions, but no information seems to be available on the progress of these groups or their findings. Survey respondents highlighted that the availability of metrics to assess innovation uptake (and therefore improve accountability) is an area where the current situation is poor and progress and improvement has been slow. Only 3 per cent (4 of 134) of respondents rated the current situation in the NHS regarding metrics to support innovation uptake as good or very good. Some 15 per cent (7 of 47) of respondents to the question about availability of

metrics to assess innovation uptake reported positive progress and 13 per cent (5 of 39) reported that IHW had made a positive contribution. In response to the free text question about barriers to implantation of IHW actions, 5 of 105 respondents (5 per cent) commented that the absence of adequate means of measuring progress was a barrier. For example, an industry representative noted that it is unclear how the uptake of HIIs and CCGs' promotion of innovation are measured, while an AHSN member suggested that measures of progress should be linked to patient outcomes. Three respondents (an NHS England innovation lead, and two industry representatives) highlighted problems with the Innovation Scorecard, remarking that it is not well understood, that it is not suited to specialised services, and that staff are resistant to using it.

### 3.2.4. For many actions, it is still too early to tell how they are working

Although the IHW strategy was published in 2011, the document review found that some actions have only been implemented in the last two years, or even more recently (for example the Innovation Accelerator, which opened its first call for competition in January 2015), and therefore measurable change is hard to identify. Even an action that has been reported to work particularly well, the SBRI, is still in an early stage of development with only two companies having made it to market so far (SBRI, 2015). Survey respondents reported that, for many actions, particularly for large projects like AHSNs, it is still too early to assess how well they are working and the impact they have had. One interviewee echoed this finding and noted that, for many of the IHW actions, one should not expect to see any measurable impact in the short to medium term.

The document review found that, overall, information on progress was often not easy to find or not yet available. For example, the infrastructure for AHSNs has now clearly been established across the fifteen AHSN regions,[2] but it is too early to tell to what extent AHSNs are improving the adoption and diffusion of innovation in the NHS. In addition, the document review found that although IHW was successful at creating new structures, the actions specifically linked to evaluating how well existing activities were working (the Sunset Review and expanding the 'Never Events' regime) were not published or not implemented. Some interviewees noted that the IHW board has tended to focus on individual successful actions related to IHW, but that it is hard to demonstrate to industry that the pace of change, in terms of adopting new ways of working that are conducive to the rapid uptake of innovation, is satisfactory. In support of this perception, one survey respondent from industry stated that they were unhappy with the pace of change for much of IHW.

### 3.2.5. Implementation of IHW actions has been uneven

The document review found that while some actions have been completed and others are underway, many do not appear to have been implemented at all (reflected in the progress summarised in Table S1, reported in Tables 2 to 9 in Section 3.4 and reported in more detail in the Appendix). Particular actions within IHW appear to have been prioritised over others, but the rationale for that prioritisation has not been explicit. As well as variation in the implementation of individual actions, there is also local variation in how IHW has been implemented. For example, the NHS South of England developed its own implementation plan for IHW (Goodes et al., 2012). Among survey respondents perceptions of progress towards implementing change that could be attributable to IHW were low.

Despite overall mixed views, there were some positive voices, particularly regarding AHSNs, the NIC and the SBRI. Interviewees thought the NIC and SBRI were working well, and were cautiously optimistic about AHSNs. Survey respondents viewed progress on AHSNs positively (see Section 3.4 for more detailed findings on particular actions, including AHSNs, the NIC and the SBRI).

### 3.2.6. Some IHW actions are seen to have been successfully implemented locally

Some interviewees viewed the lack of clear central implementation guidance in IHW positively because it allowed for local innovative solutions where areas of clinical need were developing. Indeed, an overly centralised and specified approach would have most likely inhibited actions informed by local knowledge. For example,

[2] East Midlands, Eastern, Imperial College, Greater Manchester, Kent Surrey Sussex, North East and North Cumbria, North West Coast, Oxford, South London, South West Peninsular, UCL Partners, Wessex, West Midlands, West of England, Yorkshire & Humber.

survey respondents highlighted that AHSN models vary across the country. Overall, survey respondents were positive about local solutions that had developed to address local needs. For example, one survey respondent stated that '*the brilliant element of the AHSNs is that they allow local issues to emerge and find local solutions*'. Similarly, survey respondents were more negative about what were perceived to be top-down approaches.

### 3.2.7. The resourcing of many of IHW's actions was seen to be insufficient

Survey respondents were concerned about continued funding for particular actions, particularly AHSNs. The interviewees echoed the finding that particular actions seem to have been under-resourced. Interviewees were particularly concerned about funding for AHSNs and the NIC. Over 16 per cent (15 of 105) of respondents to the question 'Have you encountered any specific barriers to the implementation of any of these actions?' identified either the level or the management of funding as barriers to IHW actions. One respondent felt that the lack of funding reflected an absence of high-level buy-in and the level of importance placed on IHW.

## 3.3. Findings related to other challenges that are of relevance to IHW

### 3.3.1. The adoption of innovation is dependent on the nature of the innovation itself

In the survey, we asked about the adoption of innovative processes, products and technologies in the NHS. More respondents (29 per cent, 40 of 140) highlighted that the NHS was good or very good at the adoption of innovative products (e.g. drugs) than the adoption of innovative technologies (e.g. a new way of screening) (11 per cent, 16 of 141).

### 3.3.2. Pressures to meet immediate needs and austerity act as barriers to innovation

Interviewees and survey respondents noted that due to pressures to deliver care in a resource-constrained environment, NHS staff often respond to current, urgent needs rather than making long-term investments for the future. In addition, budgetary constraints mean that cost-effective technologies can be unaffordable within the financial year. One interviewee noted the disproportionate effort involved in 'chasing' dedicated pots of money in order to innovate when there is no 'slack' in budgets. Over 16 per cent (17 of 105) of respondents to the question about barriers to implementation mentioned finances, and it was raised as a concern by a number of respondents in final comments, for example one respondent stated that: *'On the front line, there is extreme fatigue and disillusionment. In managerial areas there is huge anxiety about financial and governance risk. Rather than stimulating innovation, in many cases these issues obstruct it.'* Another respondent additionally highlighted the tension between procurement for whole system, long-term savings and the need to deliver year-on-year savings within a particular budget, commenting '*Procurement has no incentive to innovate and is incentivized to work on a cost cutting basis for big acute services – which makes real change very difficult – i.e. if the whole system benefits from a change but the acute sector procurement budget is driven by year on year savings this is unlikely to happen.'*

### 3.3.3. Culture change in the NHS is thought to be necessary and, despite difficulties, IHW is thought by some to have supported positive cultural change

The document review suggests that tracking progress on the IHW actions related to culture change (under the themes 'developing our people' and 'leadership for innovation') is more difficult than for all other themes and actions. Some interviewees noted that culture change is required to support changes in both attitudes toward innovation and attitudes towards working with non-NHS partners (e.g. industry). Interviewees also acknowledged that culture change is difficult to achieve. Some survey respondents highlighted that IHW had contributed to positive change in this area. In total 42 per cent of respondents (20 of 48) identified that there has been positive change towards organisational cultures within the NHS that support innovation and 41 per cent (16 of 39) of respondents thought that IHW had made a positive contribution towards that culture change.

### 3.3.4. There is suspicion from some about the benefits of linking health to wealth

The IHW document emphasises the importance of improving health while simultaneously contributing to the wealth of society. However, in the survey there was a lack of consensus as to whether frontline staff with responsibility for patient care should be tasked with innovating to support wealth. Survey respondents noted that there is often strong resistance from frontline staff to work collaboratively with industry, or to

support an explicit wealth agenda. Interviewees highlighted that there is suspicion among some healthcare professionals towards the pharmaceutical industry.

## 3.4. Progress towards IHW themes and actions

In the sub-sections that follow, we present the findings specifically related to each of the eight IHW themes and the actions related to those themes. A summary table is provided for each subsection, followed by more detailed findings on the actions. For those actions about which we were able to collect sufficient data in the document review, survey and interviews, we report this additional data in the accompanying text.

### 3.4.1. Theme 1: Reducing variation and strengthening compliance

The first IHW theme made the following commitment: 'We should reduce variation in the NHS and drive greater compliance with NICE guidelines.' In the survey, we asked respondents whether progress had been made in limiting unwarranted variation in care since 2011 and whether IHW had contributed to the observed change. Among the respondents that answered those questions, 11 per cent (5 of 46) reported positive progress on limiting unwarranted variation in care, and in response to a separate question about the contribution of IHW to change 10 per cent (4 of 39) reported that IHW had made a positive contribution. In addition, we asked respondents whether progress had been made on compliance with NICE guidance and whether IHW had contributed to the observed change. Among those that answered, 53 per cent (27 of 51) reported positive progress. In response to a separate question about the contribution of IHW to change 22 per cent (10 of 45) reported that IHW had made a positive contribution. Survey respondents, particularly non-frontline staff, perceived the NHS as performing poorly at limiting unwarranted variation in care, but respondents rated compliance with guidance from NICE, and the related innovation process, much more positively.

The IHW strategy outlined three actions to contribute to reducing variation and strengthening compliance. It can be seen from Table 2 that all actions are still active (note that we combined two related actions) and that more than half of survey respondents reported having heard of them. However, only a minority of survey respondents reported that the actions were working well. Additional details related to the NIC are presented in Table 2, based on free text responses in the survey (n=49) and interview data, and elaborated upon below.

The NIC comprises four pilots related to specific pieces of NICE guidance (NICE, 2013). A number of respondents to the survey commented that the NIC had been too narrow in its approach; for example one industry representative felt that '*on the device side this [NIC] has been difficult and disappointing. I think there has been some limited success in pharma*'. The document review was unable to identify how these pilots were selected or whether additional pieces of guidance will be included. Likewise, one industry representative commented that '*it should have closer to 8–10 projects running every year […] the selection criteria for projects isn't always clear and seems to follow national priorities – should the NIC not focus at least 25–50% of its time and projects on lower priority areas that nevertheless impact a significant patient population across the country?*'

Two survey respondents stated that the approach to the NIC has been misdirected, reflecting that '*showcasing is of limited value*' given that '*factors are highly context specific and do not readily translate across the health system*'. One of these respondents suggested that the role of the AHSNs to engage with NIC has not been fully exploited: *'positioning of AHSNs as "honest brokers" (to inform system leaders / industry as to why NICE TAs / other are not adopted and how to make progress) remains an emerging opportunity not yet grasped.*'

Despite the overall survey finding that 67 per cent (91 of 141) of respondents had heard of the NIC, participants claimed that the reason for its lack of success resulted from the low level of awareness of the programme, particularly among frontline staff. For example, one respondent from an AHSN remarked that the NIC is '*not well understood or visible on the shop floor*'.

Both interviewees and survey respondents expressed concerns that the NIC lacks the necessary resources, both financial and human (in terms of senior leadership and individuals' capacity), to make significant progress. Findings suggest that whilst there is some positive feedback on initiatives in this theme there may be a number of problems related to the scope of actions and level of engagement and interest from key stakeholders.

### 3.4.2. Theme 2: Metrics and information

The second IHW theme made the following commitment: 'Working with industry, we should develop and publish better innovation uptake metrics, and more accessible evidence and information about new ideas.'

**Table 2. Overview of progress towards actions within Theme 1: Reduce variation and strengthen compliance**

| Action | Source | Aim | Status | Summary of findings from interviews | Summary of findings from survey |
|---|---|---|---|---|---|
| NICE Compliance Regime (Publication of NHS Formularies, NICE guidance called 'Medicines Practice Guideline')* | IHW strategy | To introduce the NICE Compliance Regime to reduce variation and drive up compliance with NICE Technology Appraisals (TAs)<br>Require that all NICE TAs recommendations are automatically incorporated into relevant local NHS formularies within 90 days<br>NHS organisations required to publish information which sets out which NICE TAs are included in their local formularies | Active | Not included | 65% (91/141) had heard of the action<br>20% (18/91) reported it is working very/ quite well |
| NICE Implementation collaborative (NIC) | IHW strategy | To support prompt implementation of NICE guidance | Active; four pilots. Implementation guidance published for 1 of the pilots | NIC outputs facilitate the implementation of new innovations, but the cost of implementing the selected pilots acts as a barrier to their uptake<br>NIC's very limited budget may restrict the volume and speed of work that can be undertaken | 67% (95/142) had heard of the action<br>20% (19/95) reported it is working very/ quite well<br>Respondents considered NIC to be a good concept<br>Initiative still in its 'infancy' and as such has not yet had a significant impact on frontline activity |

NOTE: *We have combined *two of the actions (NICE Compliance Regime and Publication of NHS Formularies) because the publication of local formularies was one of the requirements introduced by the NICE Compliance Regime*

In the survey, we asked respondents whether progress had been made since 2011 on: the availability of metrics to assess innovation uptake; access to information about new ideas, products and services; and access to evidence about new products and services. We also asked respondents whether IHW had contributed to any observed changes. Among respondents to the question about availability of metrics to assess innovation uptake, 15 per cent (7 of 47) reported positive progress and 13 per cent (5 of 39) reported that IHW had made a positive contribution. Among respondents to the question about access to information about new ideas, products and services, 43 per cent (20 of 47) reported positive progress and 32 per cent (13 of 41) reported that IHW had made a positive contribution. Among respondents to the question about access to evidence about new products and services, 45 per cent (21 of 47) reported positive progress and 29 per cent (12 of 41) reported that IHW had made a positive contribution.

The IHW strategy identified four key actions related to metrics and information, one of which has not been implemented (see Table 3). Of the remaining three actions, the CPRD was established within the Medicines and Healthcare Products Regulatory Agency (MHRA) in March 2012 (MHRA, 2012), and both the Innovation Scorecard and Innovation Exchange are active. It can be seen from Table 3 that only around half of survey respondents had heard of the Innovation Scorecard or Innovation Exchange, and very few survey

respondents reported that either was working well. In addition, as part of NHS England's actions to implement IHW, it has committed to the development and implementation of the Innovation Compass.

A prototype of the Innovation Compass has been developed as a self-assessment tool for NHS organisations, and is currently being piloted in a number of AHSNs (NHS, 2015b). There was very low awareness of the Innovation Compass among survey respondents (78 per cent (32 of 41) respondents reported they had not heard or where unclear of the Compass's contribution to supporting innovation), potentially an unsurprising result given that the Compass is still a prototype and has not been widely disseminated. Of respondents that were familiar with the Compass the majority reported it was not being used, a potential barrier to its use identified by an AHSN member was that '*the compass is seen as very cumbersome and time consuming by organisations*'. Conversely a couple of respondents identified positive achievements; one respondent from NICE considered that it has *'connected SMEs to the right part of the health system*', while the other, a member of an AHSN, thought that it has created *'an area for discussion and shared vision building across a region*'.

Survey respondents and interviewees both reported that the Scorecard is not currently being widely used. Survey respondents suggested possible reasons for this, including that it is difficult to access and understand; the presentation is too dense and confusing; it's too clumsy; and there are methodological issues associated with it.

**Table 3. Overview of progress towards actions within Theme 2: Metrics and information**

| Action | Source | Aim | Status | Summary of findings from interview | Summary of findings from survey |
|---|---|---|---|---|---|
| Clinical Practice Research Datalink (CPRD) | IHW | To establish a secure data service within the Medicines and Healthcare Products Regulatory Agency (MHRA) | Established March 2012 | The CPRD is a potentially useful tool, but buy-in from GP practices has been slow | Not included |
| Innovation Compass | Steering Group | To demonstrate how NHS organisations and health systems are currently innovating and how they can support improvements | Active; pilot stage | Not included | 43% (61/143) had heard of the action<br>3% (2/61) reported it is working |
| Innovation Scorecard | IHW strategy | To develop and publish an innovation scorecard to track compliance with NICE Technology Appraisals (TAs) | Active | The Scorecard helps track the uptake of NICE recommendations but is not currently widely used | 52% (74/142) had heard of the action<br>12% (9/74) reported it is working very/quite well<br>Respondents reported that it is underused |
| Web Portal (Innovation Exchange) | IHW strategy | To procure a single comprehensive and publicly available web portal for innovation in the NHS | Active | While the web portal may facilitate the diffusion of innovation, in the absence of large scale culture change it is unlikely to be widely used | 51% (73/143) had heard of the action<br>12% (9/73) reported it is working very/quite well<br>Not being widely used<br>The portal has a low level of visibility and the applicability of the portal as a tool for clinical staff is not clear |
| Which? Consumer campaign | IHW strategy | To raise awareness among the public and patients of innovations in healthcare | Not implemented | Not included | |

An interviewee highlighted that the Scorecard is evolving and improvements to content and presentation are ongoing. A survey respondent from the DH considered that these changes would '*make it more accessible, which may increase its impact*'.

The web portal was initially introduced in 2012, but was upgraded in 2014 and renamed the Innovation Exchange (MEDILINK, 2014). It was designed to support and develop a community of innovators, where users can share their ideas and meet with people with similar interests and expertise (NHS, 2015c). As of March 2015 there were 5,651 registered users. Interviewees had mixed views as to whether the web portal has been a useful development. While some welcomed its development, critics suggested that portals that require busy NHS staff to act proactively would be unlikely to succeed and that there are examples of such portals having failed in the past. Likewise, some survey respondents suggested that the applicability of the portal as a tool for frontline staff is not clear; for example, one AHSN respondent commented that '*the portal is great for early adopters like myself. But it is not yet in common use by most NHS staff. I think more communications is needed and case examples spread through other routes*', while an industry respondent stated that '*the tool is valuable but not known enough. The level of utilisation of this tool as a way to learn about innovation by grassroots NHS staff is not clear*'. Some interviewees suggested that on-site, as opposed to virtual, assistance would be required to implement innovative practices. Findings suggest that the development of new metrics and data collection methodologies are welcomed by some, but their relevance is not widely understood and engagement is relatively low.

### 3.4.3. Theme 3: Creating a system for delivery of innovation

The third IHW theme made the following commitment: 'We should establish a more systematic delivery mechanism for diffusion and collaboration within the NHS by building strong cross-boundary networks.' In the survey, we asked respondents whether progress had been made, since 2011, on communication about innovation within the NHS and whether IHW had contributed to the observed change. Among those that responded, 38 per cent (18 of 47) reported positive progress and 30 per cent (12 of 40) reported that IHW had made a positive contribution.

The IHW strategy identified three actions to contribute towards creating a system for the delivery of innovation: AHSNs, the Sunset Review and iTAPP (now the Medtech Programme) (see Table 4). The Sunset Review has never been publically published (Gov, 2014a). It can be seen from Table 4 that the vast majority of respondents had heard of AHSNs (91 per cent; 130 of

**Table 4. Overview of progress towards actions within Theme 3: Creating a system for delivery of innovation**

| Action | Source | Aim | Status | Summary of findings from interview | Summary of findings from survey |
|---|---|---|---|---|---|
| AHSNs | IHW strategy | To establish a number of AHSNs across the country | Established May 2013 | AHSNs facilitate the adoption of innovation in different ways, but also face financial challenges | 91% (130/143) had heard of the action<br>52% (67/130) reported it is working very/quite well<br>Broadly positive |
| Sunset Review | IHW strategy | To undertake a sunset review of all NHS/DH-funded or sponsored bodies and make recommendations as to their future form and funding | Not published | Not included | |
| Innovative Technology Adoption Procurement Programme (iTAPP) (renamed Medtech Innovation Briefings) | IHW strategy | To transfer responsibility to NICE for the evaluation of medical devices and technologies currently managed through the iTAPP programme | Active | iTAPP is building capacity among manufacturers and the Medtech briefings have been well received in the NHS | 52% (73/141) had heard of the action<br>29% (21/73) reported it is working very/quite well |

143), and just over half of survey respondents reported that they are working well (52 per cent; 67 of 130). Additional details related to AHSNs based on the document review, interview data and free text responses in the survey (n=12) are provided below.

Fifteen AHSNs were established in May 2013, with the organisational form of each AHSN decided locally. Some choose to be hosted by an NHS Trust, while others choose to be constituted as companies limited by guarantee (Fairman, 2013). The creation of AHSNs was welcomed by some, as it is thought that these bodies have the potential to bridge the gap between formal (top-down) pathways to innovation uptake, and informal (bottom-up) pathways (Anscombe, 2014, Blount et al., 2013, Stokes K et al., 2014). Published evidence of AHSNs' progress towards their objectives is limited, although an NIHR-funded project is currently underway examining progress in five AHSNs using Social Network Analysis (Ferlie, 2013). Interviewee and survey respondents both suggested that it is still too early to comment on progress.

Research by the British In Vitro Diagnostics Association (BIVDA) found that AHSNs have made the most significant advances in large urban centres, which offer abundant opportunities for collaboration with industry (Summersgill, 2014). This was supported by 33 per cent (4 of 12) of survey respondents to the question 'How well do partnership models work? How have AHSNs helped progress IHW actions? How have they led to more optimal spread of innovation? How can AHSNs improve their effectiveness and efficiency?' It was stated that AHSNs were key to creating a link between industry and the NHS, although one respondent from an AHSN added that this was *'not on the scale that industry would have liked or the NHS will significantly benefit from'*. A potential reason for this is provided by another AHSN survey respondent who suggested that the '*mechanisms available to work with industry are resource intensive and restrictive*.'

Survey respondents reported that AHSNs face funding challenges that may act as a barrier to achieving their objectives. Likewise most interviewees who commented were also concerned that the limited funding provided to AHSNs, and the AHSNs' need to generate their own funds, would skew their priorities. Some interviewees suggested that current austerity measures would make obtaining funding difficult, echoing BIVDA's findings (Summersgill, 2014). Finally, interviewees noted that the AHSNs' agenda is huge, but that because of the necessity for AHSNs to become self-funded within a short timescale, they may focus on revenue generation activities instead of improving the adoption and diffusion of innovation. This concern was also reflected on by one survey respondent '*For AHSNs to be more effective and efficient they should focus on doing a few things better and have targets / outcomes that are quantifiable and unambiguous. They are too thinly spread with a large agenda, added to the challenges they have faced over funding and sustainability.'*

Of the 40 planned Medtech briefings, 29 have been published to date (April 2015), and a further nine are in development (NICE, 2015). While interviewees reported that NICE is making good progress on building capacity among manufacturers to comply with NICE requirements and that the Medtech bulletins have been well received by NHS staff, responses to the survey gave a less clear picture of how the briefings are being used. A respondent from NICE stated that, within NICE, it is not clear how briefings are being used in the UK. A couple of respondents (one from an AHSN one from NHS England) stated that the briefings are used by industry and '*are of interest to industry who see them as very valuable but more need to be commissioned to give a larger impact back to the NHS*'. This view was not supported by the three industry respondents who considered '*industry has not embraced them as the impact they have is not quantified and they carry no real leverage to secure implementation*' and that '*these are pointless as have no recommendations*'. Whilst visibility of actions in this theme has been relatively high, findings suggest that the focus and objectives of AHSNs and Medtech briefings are questioned by many.

### 3.4.4. Theme 4: Incentives and investment

The fourth IHW theme made the following commitment: 'We should align organisational, financial and personal incentives and investment to reward and encourage innovation.' In the survey, we asked whether progress has been made since 2011 on the priorities of NHS staff and organisational incentives. We also asked whether IHW had contributed to the observed change. Among respondents to the question about the priorities of NHS staff, 15 per cent (7 of 47) reported positive progress and only 5 per cent (2 of 47) reported that IHW had made a positive contribution. Among respondents to the question about organisational performance incentives, 13 per cent (6 of 48) reported positive progress and only 5 per cent (2 of 47) reported that IHW had made a positive contribution. The findings from the interviews were consistent with these survey results in that most interviewees who

commented identified problems related to financial incentives. Interviewees reported that, in some cases, commissioners and providers have worked together to develop pathways and payment regimes outside of the national tariff arrangements. Interviewees noted that there is scope to do much more in terms of such local arrangements. Interviewees also suggested that performance incentives for IHW, compared to activities that were subject to national targets, are weak.

The IHW strategy identified four actions related to incentives and investment. After a series of delays in implementation, one of them, the Specialised Services Commissioning Innovation Fund (SSCIF) was suspended in October 2013 before any funds had been released (Calkin, 2013). In line with IHW's original commitment, the list of Never Events (another action under this theme) was updated in February 2012, although we have been informed in communications from the DH that it has now been dropped from the IHW activities. The remaining two actions remain active (see Table 5). Over half of respondents had heard of the aim to align financial incentives but less than 10 per cent considered that it was working well.

A report by the Association of LifeSciencesUK (LSUK) found that little progress had been made towards aligning incentives (LifeSciencesUK, 2014). It found that although major changes were made to the 'national tariff' and other aspects of NHS funding flows in 2013/14, these changes were largely irrelevant to the adoption of technology. LSUK also found that engagement with industry on this work stream diminished after its initial phase, and that there is confusion regarding the division of responsibility for different incentives between NHS England and Monitor.

The document review found that the initial IHW objective of announcing the second round of Innovation Challenge Prizes was achieved in June 2012 (NHS, 2012b). Since then a further four rounds have been launched and the profile of the prizes has increased. The 2013 round of challenges drew a total of 106 entries – an increase of over 25 per cent since the first awards in 2010 (HSJ, 2013). These findings were corroborated by interviewees who considered that the prize had been successful at increasing numbers of applications for the prizes and the quality of the ideas submitted.

### 3.4.5.Theme 5: Procurement

The fifth IHW theme made the following commitment: 'We should improve arrangements for procurement in the NHS to drive up quality and value and to make

**Table 5. Overview of progress towards actions within Theme 4: Incentives and investment**

| Action | Source | Aim | Status | Summary of findings from interview | Summary of findings from survey |
|---|---|---|---|---|---|
| Aligning incentives | IHW strategy | To align financial, operational and performance incentives to support the adoption and diffusion of innovation | Active | Not included | 54% (77/142) had heard of the action<br>8% (6/77) reported it is working very/ quite well |
| Innovation Challenge Prizes | IHW strategy | To increase and maintain investment in the prize | Active; five rounds of challenges have been launched | Successful in terms of increasing the numbers of applications and quality of ideas being put forward | 68% (96/141) had heard of the action<br>30% (29/96) reported it is working very/quite well |
| Never Events | IHW strategy | To extend the 'Never Events' regime and encourage disinvestment in activities that no longer add value | List updated in February 2012 | Not included | |
| Specialised Services Commissioning Innovation Fund (SSCIF) | IHW strategy | To establish a SSCIF to help speed up the integration of new innovations in clinical areas that are defined as prescribed specialised services | Suspended | Not included | |

the NHS a better place to do business.' In the survey, we asked whether progress has been made since 2011 on financial management strategies and collaboration with industry and the NHS (as a place to do business). We also asked whether IHW had contributed to the observed change. When we asked respondents about financial management strategies, 8 per cent (4 of 48) reported positive progress and no respondents (0 of 40) reported that IHW had made a positive contribution. Among respondents to the question about collaborations with industry, 37 per cent (18 of 49) reported positive progress and 37 per cent (16 of 43) reported that IHW had made a positive contribution.

The IHW strategy identified three key actions to improve procurement in the NHS (see Table 6). According to available evidence the review of the existing intellectual property strategy had been undertaken by NHS England, and was due to be revisited as part of the IHW Refresh (Gov, 2014b); however as of March 2015 neither the review nor the Refresh have been published. Of the remaining two actions the procurement strategy was published in May 2012 (DH, 2012b), and the SBRI is ongoing. Additional details on the SBRI are provided in the text below based on the document review and free text survey responses (n=34).

According to the annual review of the SBRI, the scheme has more than doubled in size since January 2013, with the number of competitions increasing from 10 between 2009 and 2012 to 22 in the 18 months from September 2013 (SBRI, 2015, Livingstone, 2014). Interview respondents were positive about the progress of the scheme, commenting that it is having impacts on knowledge, innovation and employment (a couple of survey respondents cited the example of the Polyphotonix development in the North East) and that it is enabling companies to leverage additional funding (non-SBRI) to help with the commercialisation of innovations. In contrast, while more than half of survey respondents considered the scheme to be working well, a number of survey respondents raised specific concerns related to the scope of the scheme and the criteria for the selection of bids. For example, one industry respondent commented that *'Good source of funds for SMEs – main problem is that it focuses on unmet clinical need which discounts opportunities for disruptive innovation which is where the biggest gains will be.'*

### 3.4.6. Theme 6: Developing our people

The sixth IHW theme made the following commitment: 'We should bring about a major shift in culture within the NHS and develop our people by "hard wiring" innovation into training and education for managers and clinicians.' In the survey, we asked respondents where progress has been made since 2011 on: organisational culture within the NHS that supports innovation; training and development for managers; and training and development for clinical staff. We also asked whether IHW had contributed to the observed change. Among respondents to the question about organisational culture within the NHS, 43 per cent (20 of 47) reported positive progress and 40 per

**Table 6. Overview of progress towards actions within Theme 5: Procurement**

| Action | Source | Aim | Status | Summary of findings from interview | Summary of findings from survey |
|---|---|---|---|---|---|
| Intellectual Property Strategy | IHW strategy | To review the existing intellectual property strategy and develop a model for contracts that is fit for purpose | Not published | Not included | |
| Procurement Strategy | IHW strategy | To be published in 2012 to help the NHS achieve greater efficiencies | Published May 2012 | Not included | |
| Small Business Research Initiative | IHW strategy | To double investment in the SBRI | Active; Investment doubled. AHSNs continue to oversee | The health SBRI is working well | 56% (80/143) had heard of the action<br>55% (44/80) reported it is working very/quite well<br>Perceived to be a good partnership model with industry<br>Useful source of funds |

cent (16 of 40) reported that IHW had made a positive contribution. Among the respondents to the question about training and development for managers, 15 per cent (7 of 48) reported positive progress and 10 per cent (4 of 48) reported that IHW had made a positive contribution. Among the respondents to the question about training and development for clinical staff, 16 per cent (7 of 45) reported positive progress and 8 per cent (3 of 37) reported that IHW had made a positive contribution. Thus, while specific actions were not rated highly, many respondents felt that overall, this IHW theme was having a positive effect.

The IHW strategy outlined three actions related to developing our people (see Table 7). The document review was unable to track progress towards hardwiring innovation into education and competency frameworks, and found limited information regarding joint industry and NHS training for senior managers. The Innovation Fellowship was launched in 2013 (NHS, 2013b), and subsequently renamed the Innovation Accelerator. Calls for applications only opened in January 2015 (NHS, 2015d), and as such it is too early to evaluate progress.

### 3.4.7. Theme 7: Leadership for innovation

The seventh IHW theme made the following commitment: 'We should strengthen leadership in innovation at all levels of the NHS, set clearer priorities for innovation, and sharpen local accountability.' In the survey, we asked respondents whether progress has been made since 2011 on leadership for innovation at all levels and local accountability for the adoption and diffusion of innovations, as well as whether IHW had contributed to the observed change. Among respondents to the question about leadership in innovation at all levels, 27 per cent (13 of 49) reported positive progress and 24 per cent (10 of 42) reported that IHW had made a positive contribution. Among respondents to the question about local accountability for the adoption and diffusion of innovations, 24 per cent (11 of 46) reported positive progress and 15 per cent (6 of 39) reported that IHW had made a positive contribution. In the free text responses, respondents highlighted that local, rather than national, initiatives are often more successful. Survey respondents did not always view the national leadership of IHW positively. Some survey respondents reported that for those actions that had been completed, it is unclear whether the action had resulted in any practical change in the adoption and diffusion of innovation. Similarly to the survey

**Table 7. Overview of progress towards actions within Theme 6: Developing our people**

| Action | Source | Aim | Status | Summary of findings from interview | Summary of findings from survey |
|---|---|---|---|---|---|
| Hardwiring innovation into education and competency frameworks | IHW strategy | To ensure that innovation is 'hardwired' into educational curricula, training programmes and competency frameworks at every level | Not documented | Not included | |
| Innovation Fellowship Scheme (renamed NHS Innovation Accelerator) | IHW strategy | To inspire and support NHS leaders to champion innovation and develop an innovative culture | Competition opened January 2015 | | 67% (95/142) had heard of the action<br>23% (22/95) reported it is working very/quite well |
| Joint industry and NHS training for senior managers – ITW Innovation Network | IHW strategy | To establish and jointly fund an industry and NHS training and education programme which would allow the most senior managers and clinicians to learn and train together with industry colleagues<br>To establish a new industry and NHS CEO network, to encourage much more understanding between CEOs in the NHS and CEOs in industry to promote the spread of new ideas and innovations | ITW network established. No information on content or outputs | Not included | |

findings, interviewees felt that progress under this theme has not had its intended impact. At the same time, interviewees noted that short-term pressures and priorities were in danger of crowding out innovation. Interviewees also highlighted that more could be done to disseminate and embed the learning contained in the guide on strengthening leadership and accountability for innovation.

The IHW strategy identified four actions to strengthening leadership in innovation. It can be seen in Table 8 that there has been mixed progress towards these actions. CCGs are now under a legal duty to promote innovation (Gov, 2012a), but we were unable to identify any specific guidance as to how CCGs can fulfil this duty, or any evidence of CCGs being held to account for their actions with respect to this provision of the Act. Only 16 per cent of survey respondents considered the action to be working well.

As part of the commitment from Commissioning Board chief executives to strengthen leadership and accountability for innovation, NHS England published *Strengthening Leadership and Accountability for Innovation* in 2013 (NHS, 2013e), to provide practical guidance on the components that drive innovation adoption and diffusion. Only 15 per cent of survey respondents reported that the commitment to commissioning is working well. The Innovation Pipeline Project was launched in February 2012 (Nicholson, 2012), but we have been unable to identify any evidence of joint working projects resulting from the project.

### 3.4.8. Theme 8: High Impact Innovations (HIIs)

The eighth IHW theme made the following commitment: 'We should identify and mandate the adoption of High Impact Innovations (HIIs) in the NHS.' In the survey, we also asked respondents whether progress has been made since 2011 on the adoption of different types of innovations (broader than just the HIIs): innovative technologies, innovative services and innovative products. We also asked whether IHW had contributed to the observed change. Among respondents, 26 per cent (12 of 46) reported positive progress on the adoption of innovative technologies, 28 per cent (13 of 46) reported progress on the adoption of innovative services and 35 per cent (16 of 46) reported

**Table 8. Overview of progress towards actions within Theme 7: Leadership for Innovation**

| Action | Source | Aim | Status | Summary of findings from interview | Summary of findings from survey |
|---|---|---|---|---|---|
| CCG legal duty | IHW strategy | Clinical Commissioning Groups will be under a duty to seek out and adopt best practice, and promote innovation | Completed – written into Health and Social Care Act, March 2013 | Not included | 66% (95/143) had heard of the action<br>16% (15/95) reported it is working very/ quite well |
| Innovation Pipeline Project | IHW strategy | To support the Innovation Pipeline Project, which will undertake 15–20 joint working projects between NHS providers and the Association of the British Pharmaceutical Industry and the Association of British Healthcare Industry member organisations by end of 2013 | Launched in February 2012. Ongoing progress not clear | Not included | |
| NHS Operating Framework | IHW strategy | To ask the NHS to prioritise the adoption and spread of innovation and good practice | Superseded | Not included | |
| Strengthen leadership and accountability for innovation | IHW strategy | To strengthen leadership and accountability for innovation at the board level throughout the NHS | *Strengthening Leadership and Accountability for Innovation* published | Not included | 60% (86/143) had heard of the action<br>15% (13/86) reported it is working very/ quite well |

progress on the adoption of innovative products. In contrast, 15 per cent (7 of 39) reported that IHW had made a positive contribution to the adoption of innovative technologies and innovative services and 23 per cent (9 of 39) reported a positive contribution to the adoption of innovative products.

The IHW strategy committed to identify priority areas for innovation (see Table 9). In total six HIIs were identified: 3 Million Lives, fluid management monitoring technology, Child in a Chair a Day, increasing international and commercial activity, reducing inappropriate face-to-face contacts, and carers for people with dementia. In order to incentivise the implementation of the HIIs, compliance with HIIs became a pre-qualification for CQUIN from April 2013 (NHS, 2013a), but this have now been superseded by a mandatory Service Development and Improvement Plan (SDIP), which has been added to the NHS Contract (NHS, 2013c). Overall 65 per cent of survey respondents had heard of the HIIs as a commitment, but only 13 per cent of respondents considered that the action was working well. Some of the reasons for this included concerns that the selected HIIs were not appropriate for all local settings and that, in some trusts, the emphasis has been on obtaining the funding linked to HIIs without actually increasing adoption. Further details on the HIIs are provided in the text below based on data from the document review.

The 3 Million Lives campaign aimed to improve the lives of 3 million people with long-term conditions over a five-year period by accelerating the use of assistive technology (DH, 2011). A review by NHS England in 2013 found that the 3 million lives campaign was at risk of failing to meet its target of reaching 100,000 new users (Cashman, 2013), which led to a revised set of objectives focusing *'on where energy already exists locally for delivery of 3millionlives'* (Price, 2013). The 3 Million Lives campaign was superseded by the Technology Enabled Care Services (TECS) programme in September 2014 (NHS, 2014b). We did not identify any documentation on progress towards the implementation of TECS, but all interviewees reported that they were having a high impact on individuals. Often these were coordinated by local champions working around the system, rather than being mainstreamed. Interviewees reported that there is much more potential to use TECS. Furthermore interviewees suggested that patients and citizens often have little knowledge of what is available and much more could be done by the NHS and industry to raise their awareness.

For the remaining five HIIs evidence is only available from the document review. For two of the actions (Child in a Chair and Digital First) we found no evidence to suggest that these HIIs are still active. We have also found no evidence on the extent to which

**Table 9. Overview of progress towards actions within Theme 8: High Impact Innovations**

| Action | Source | Aim | Status | Summary of findings from interview | Summary of findings from survey |
|---|---|---|---|---|---|
| HIIs | IHW strategy | Need to scan for those ideas which will deliver game-changing improvements and work systematically to spread them at pace. IHW identified six priority areas where work could be done to systematically spread good practice throughout the NHS. These high-impact areas focus on aspects of technology and service improvement which can significantly improve patient care | Ongoing | The prioritisation process for the selection of HIIs has been criticised | 65% (93/142) had heard of the action<br>13% (12/93) reported it is working very/quite well<br>Initiative seemed to have started well but limited ongoing progress<br>Uptake of HIIs related to local needs. Selected HIIs therefore unlikely to be appropriate in all settings |
| CQUIN pre-qualification | IHW strategy | To ensure compliance with the HIIs will become a pre-qualification requirement for Commissioning for Quality and Innovation (CQUIN) payments | Superseded by Service Development and Improvement Plan | The pre-qualification CQUIN was unpopular | Not included |

Oesophageal Doppler Monitoring (ODM), designed to assist anaesthetists during surgery by monitoring patients' fluid status and guiding the administration of drugs (DH, 2011), has been implemented in the NHS, however the company responsible for developing the technology has raised concerns over the scale of its implementation, suggesting that it has only reached 10 per cent of its target (Gov, 2012b, NHS, 2012a). Increasing international and commercial activity aimed to *'exploit the commercial value of its [the NHS] knowledge, information, ideas and people'* (DH, 2011). Healthcare UK was established in January 2013, replacing NHS Global, as a joint initiative by the Department of Health, the NHS Commissioning Board and UK Trade & Innovation (DH, 2013a). According to Healthcare UK's website, it works in over 100 countries to *'promote Britain's world leading healthcare sector to international customers'* (DH, 2013a, Gov, 2015). The carers for people with dementia HII has resulted in the development of a Dementia Prevalence Calculator (DPC), designed to 'enable General Practices and commissioners to establish a baseline', which will allow them to improve diagnosis rates, as well as commissioning and service design (DP, n.d.). We have not been able to establish the uptake of the calculator. The implementation of actions in this theme has been very patchy and slow and it is difficult to draw conclusions on the basis of the available evidence.

# Chapter 4 Discussion and Conclusion

This scoping phase of this evaluation focused on both understanding IHW and assessing progress on the implementation of the overall strategy and its individual actions, based on: the available documentation; perceptions of key stakeholders in the clinical, academic, industry, regulatory and policy communities; and survey responses. We drew on document reviews, interviews and survey methodologies to elicit a diversity of views on the IHW initiative both as a whole and on its individual actions. We looked at the implementation of IHW and its actions, as well as the enablers and barriers to the implementation of the strategy. As described at the start of this report, the evaluation applied analytical rigour to maximise the utility of this evaluation, within the available resources, for the primary users of this research (decision makers in the Department of Health and English NHS). This is reflected in our two clusters of research questions:

i. **Was IHW well designed?** What is the approach to innovation underlying IHW? How was the IHW strategy intended to work? What are the actions/activities that have been developed to deliver these? How (well) do these fit with the wider approach to innovation in the NHS? Was this approach founded on reliable evidence of how to innovate in complex environments? What can we learn from this evaluation that might improve current and future approaches to evaluation in the NHS?

ii. **Did IHW deliver as intended?** (How) has this approach been implemented? (How) has this approach engaged stakeholders? What are the barriers and facilitators at the overall strategy level and the particular actions level? What can we learn from this evaluation that might improve current and future approaches to innovation in the NHS?

The remainder of this chapter discusses the findings related to the above research questions as well as the strengths and limitations of the data collected for this scoping phase of the evaluation.

## 4.1. Was IHW well designed?

Our findings from interview and survey data suggest broad stakeholder support for the overarching ambitions of the IHW strategy, highlighting that there is a clear appetite for a national approach to putting innovation at the forefront of healthcare in order to incentivise the uptake and diffusion of innovation. However, survey respondents and interviewees both reported suspicion about the benefits of linking health to wealth.

The eight IHW themes were built on stakeholder engagement and judgements of what was feasible and acceptable, reflecting an appreciation of the diverse barriers to innovation in the NHS. However, interviewees' and survey respondents' opinions on the design of the individual actions intended to deliver the outcomes of the themes were more mixed.

For many of the themes the causal link between the theme's objectives and its component actions is not clear. Furthermore for individual actions the quality of the design is highly variable, and the majority seem to lack clear implementation guidance. This has implications for the evaluation's ability to monitor IHW's progress towards its intended outcomes.

IHW was originally conceived as a national plan for embedding innovation into the NHS, but it evolved into a more fluid mechanism for supporting innovation. At the beginning of this report, we noted the OECD observation that in innovation strategies there are many varied policy instruments and multiple actors that create a complex landscape where there is a high likelihood of inconsistencies and redundancies. It is important to understand the success, or otherwise, of IHW in this light and not to use a yardstick of unattainable coherence, consistency and strategic uniformity. It is unsurprising that IHW has evolved in unanticipated ways and that some actions have been successful while others have slipped from view.

However, from the original documentation it appears that this flexibility and adaptation was only weakly locked into the design of the programme. The Sunset Review of all NHS/DH-funded or sponsored innovation bodies would have supported this flexibility, but, if implemented, findings were not reported or made public. Furthermore, adaptation and informed flexibility depend upon monitoring and evaluation to provide a supporting stream of relevant and timely information. Actions within IHW were always likely to be responsive and changing, but opportunities to step back and reflect on the evidence of what is working may have been missed.

Finally, the current status and direction of IHW was also unclear. Many of the interviewees and survey respondents queried whether IHW as a strategy was still in existence. This lack of clarity was supported by evidence from the document review, which found that more recent activities related to individual actions, and actions listed on the NHS England website, make no reference to how they support or feed into the IHW strategy.

The aims of IHW as an approach to increase the uptake and diffusion of innovation in the NHS enjoyed support from a variety of stakeholders. However, many are unclear regarding its current status and direction. In including a variety of actions and approaches, IHW reflected the realities of supporting innovation in the healthcare system. However, the impression from stakeholders is that the evolution of IHW has not been sufficiently informed by an overall strategic sense of direction and nor is it grounded in learning and emerging evidence.

## 4.2. Did IHW deliver its intended outcomes?

In the previous chapter (see Section 3.4), we systematically reported the findings from the document review, survey and interviews relating to the eight IHW themes and all of the actions, which we will not repeat here – but rather we will discuss the main cross-cutting findings for all of the themes and actions.

### 4.2.1. Themes

Progress towards the overarching objectives of the eight IHW themes is variable. For Theme 1 (reducing variation and strengthening compliance), Theme 2 (metrics and information) and Theme 5 (procurement) respondents reported positive progress towards some of the actions within the themes, but not others, such that overall progress towards the themes' objectives was mixed. Furthermore, in Theme 1, while most respondents reported improvements in compliance with NICE guidance, few survey respondents attributed these improvements to IHW or reported overall improvements in reducing variation in care. This finding is perhaps not surprising as many factors above and beyond IHW influence the implementation of NICE guidance. Similarly, it is not surprising that respondents reported improvements in compliance with NICE guidance but did not report overall improvements in reducing variation, because reducing variation in care is more complex than uniform implementation of guidance.

For Theme 3 (creating a system for delivery of innovation) and Theme 8 (High Impact Innovations), respondents reported some progress on almost all of the actions within the themes, and towards the themes' overarching objectives.

Interestingly for Theme 4 (incentives and investment), Theme 6 (developing our people) and Theme 7 (leadership for innovation) there appears to be an ambiguous relationship between the themes' objectives and the actions. For Theme 4, very little progress was reported towards the theme's objective, despite positive progress being made towards two out of the three actions. This suggests that the actions designed to provide incentives that encourage the development and adoption of innovation may not have allowed key stakeholders in the NHS to fully overcome the barriers to the adoption and diffusion of innovation. Conversely, for Theme 6 and Theme 7, positive progress attributed to IHW was reported towards the themes' objectives, even though we found little progress on the implementation of any of the actions within the themes. The finding suggests that, for these themes, IHW may be more than just the sum of its parts. IHW may have improved the capacity and leadership for innovation through the symbolism of the introduction of a national strategy that highlights the importance of increasing uptake and diffusion within the NHS, together with all of its constituent parts, rather than as a result of any particular actions.

Overall, achieving progress on the aims of IHW and each of its eight themes is more complex than simply implementing the actions within those themes. The relationship between actions and the achievement of intended outcomes, as well as attribution, within IHW is not linear and progress is mixed. Furthermore, where there has not been measurable progress towards actions

or themes, the IHW strategy overall may nonetheless have been important as a symbol of a shift towards innovation in the NHS.

### 4.2.2. Actions

The nature of the actions is highly variable in scope, ranging from one-off events such as the call to action to longer-term support for innovation such as Innovation Challenge Prizes. Correspondingly, the outcomes range from production of a publication, such as the Procurement Strategy, to the creation of new structures to support the adoption and diffusion of innovation, such as AHSNs. For the majority of actions we were able to document some ongoing activity; however for a number of actions including the Which? Consumer Campaign, Sunset Review, Intellectual Property Strategy, and Hardwiring innovation into education and competency frameworks, little or no evidence was publically available to suggest that the actions have been or will be implemented.

For the remaining actions, the challenge of measuring progress towards IHW's intended outcomes is complicated by the fact that IHW's commitment to actions, its implementation guidance and the expected outcomes of the actions have not been clearly articulated. Consequently it is not clear for many actions what IHW's ongoing commitment is and thus whether or not IHW has delivered its intended outcomes.

Our data collection through survey and interviews focused primarily on those actions that were classified as 'active', including: the NIC, the Innovation Scorecard, the web portal, AHSNs, the Medtech Programme and the HIIs. Among the 'active' actions, the AHSNs and the SBRI were reported to be working particularly well. The findings from the document review, survey and interviews suggest that these two initiatives may in part be working well because they have clear structures of accountability and specific earmarked budgets. However, survey respondents and interviewees raised concerns that the impact of both AHSNs and the SBRI may be limited by budgetary pressures. It is also important to note that these two interventions were only *perceived* to be working well and that most respondents reported that it is still too early to assess the impact of both AHSNs and the SBRI. Likewise, for many other IHW actions it is still too early to assess the impact and contribution to a particular theme.

The main challenges identified for those actions that are ongoing were the resources available for their implementation (e.g. Medtech briefings), lack of awareness of the initiative (e.g. NIC) and the design of the actions (e.g. Innovation Scorecard, web portal and HIIs).

### 4.2.3. Previous evaluations

Our findings are difficult to compare with the one-year-on review and MHP evaluation, both of which assessed the extent to which actions had been implemented (DH, 2012a, MHP, 2012). However we find not only that it is impossible to definitively categorise actions as complete or not but that the whole context is more complex and that measuring progress against actions is potentially not appropriate given that we see progress towards themes where no actions have been implemented, or no progress on actions even when themes are perceived to be doing well.

This evaluation highlights how some of the key findings reflect broader themes across academic and grey literature – and how these findings fit into this wider context

## 4.3. Other innovation reviews and policies

This evaluation identified concerns about IHW being 'lost' in a wave of new or potentially overlapping initiatives, such as the Accelerated Access Review or the NHS Five Year Forward View. For example, the Accelerated Access Review assesses pathways for the development, assessment and adoption of medicines and technologies, which IHW actions may complement. Policymakers involved in IHW would add value by clarifying: i) how IHW actions relate to other health and innovation initiatives and ii) how they add value and complement both existing and new initiatives. Irrespective of the continuation of IHW as a brand, many actions will continue to contribute to the innovation landscape.

## 4.4. Academic literature

The academic literature on embedding innovation in health systems highlights a diverse range factors that would likely influence IHW and its actions (Greenhalgh et al., 2004, Atun et al., 2010). Features of the innovation itself, the innovation process and the adoption context all interplay and influence the uptake of innovations and the extent to which they become embedded in the wider health system. In terms of the features of an innovation specifically, the literature highlights the importance of its relevance for users, its complexity, the level of training and knowledge required for adoption, the ease of trialling it, its adaptability, its comparability

with adopters' norms, its associated risks for adoption, its existing evidence base, and the observability and tangibility of the benefits from its use (Denis et al., 2002, Greenhalgh et al., 2004, Grilli and Lomas, 1994, Plsek and Greenhalgh, 2001). For example, this evaluation found that perceptions of the adoption of product innovations are more positive than technologies. The incentive structures, innovation pathways, regulatory contexts and implications for cultural change may differ across product, technology and service innovations, and going forward it is worth considering how national health and innovation policy could help address these differences.

## 4.5. Accountability across different actors

This phase of the evaluation highlights challenges related to establishing an NHS that 'wants and rewards' innovation. One way to address this is to strengthen and clarify accountability for innovation. For example, within AHSNs, accountability for a 'tripartite' mission of care, research and teaching remains fragmented, with the NHS being accountable only for patient care, and universities having no accountability for that aspect. There are no harmonised sets of objectives. Within the context of patient care in the NHS alone, no link is made between innovation and care in terms of targets and monitoring; the addition of the impact elements of the Research Excellence Framework may gradually start to change this for universities (by rewarding impact on wider society – including patient care).

## 4.6. Values and norms across different groups

The values and norms associated with different groups of professionals are important. IHW aimed to place innovation at the centre of both health and wealth agendas, and to make the links between health and wealth explicit. However, stakeholders in the health economy do not all share the same aims. For example, in addition to health, the wealth agenda may speak more to the values and interests of some groups (e.g. industry) than others (e.g. frontline staff). For example, among other issues Greenhalgh & Keen (2014) identify the view that healthcare is not primarily a consumer transaction but a complex physical, emotional and social experience (Greenhalgh and Keen, 2014).

## 4.7. The cost of innovation

Together, these issues raise a series of evaluation-relevant questions, including those related to capturing the 'cost' of upfront investments into innovation in the NHS, who the potential sources of information on the wealth gains from health innovation are, how such information can be collected and captured by the system, and what the key indicators of both health and wealth impacts from innovation in the NHS would be. Finally, there is a wider issue with the lack of innovative, relevant and feasible evaluation metrics that can capture the contribution of innovation to both health and wealth agendas.

## 4.8. Balancing localism within a national approach to innovation in the NHS

The findings from this scoping phase have highlighted the importance of adapting interventions to a local context, and supporting demand-driven innovation. Some actions, such as AHSNs, were seen to strongly support localism and to help ensure that innovation in the NHS is responsive and reactive to frontline staff and population demands, needs and priorities. In this context, the introduction of structures such as AHSNs, which institutionalise innovation through local collaboration, might be conducive to the spread of an innovation culture more widely across the health system over time, ensuring that local solutions don't just mean that the same people do the same thing multiple times, without real innovation, as occurred in some CLAHRCs in early stages (Ling et al., 2011). The ownership and governance models for local initiatives vary (e.g. AHSNs differ across regions), which creates scope for experimentation and learning, as well as adaptation of a national strategy to local contexts. Some actions seemed to be less conducive to local, demand-driven innovation. In general, highly directed actions without sufficient flexibility (e.g. CQUIN payments linked to High Impact Innovations, though later abandoned) were seen as problematic and unpopular. From an evaluation perspective, these findings highlight the importance of learning from local experiences to understand what works, for whom, and under what circumstances.

## 4.9. Beyond phase 1

This scoping evaluation has identified important lessons for taking forward an innovation strategy in the NHS to support further improvements in health and wealth. Among these is the recognition that while there is a need for a variety of instruments, agencies and people there must also be flexibility, adaptation and obsolescence. Providing a consistent strategic direction to this requires accountability, incentives and cultural change. However, it is not a system that can be fully controlled from the centre and therefore experiential learning building on appropriate monitoring and evaluation would create the necessary flexibility. Equally, many of the drivers of innovation involve local decisionmakers and local collaborations. Supporting strong local health economies with the incentives and capacities needed to sustain innovation will be crucial to the latter's future success.

We have arrived at these generic conclusions through detailed assessments of IHW and the actions it encompasses. However, the conclusions are stronger on what needs to be done than on how to do it. For that, we need to conduct more in-depth analyses of these issues through a small number of case studies that will show in more detail what has worked, at what cost, and with what benefits. This is the proposed next phase of our evaluation. The findings would be equally relevant whether or not the IHW 'brand' is sustained.

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