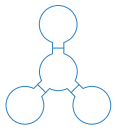
NHS

INNOVATION HEALTH AND WEALTH

ACCELERATING ADOPTION AND DIFFUSION IN THE NHS



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Description	Innovation Health and Wealth, Accelerating Adoption and Diffusion in the NHS, sets out an integrated set of measures that together will support the adoption and diffusion of innovation across the NHS and sets a delivery agenda that will significantly ramp up the pace and scale of change and innovation.
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FOREWORD

The NHS is a national success story. It is woven into the fabric of our society, and is a public expression of our social values. It is part and parcel of our national DNA. It touches all of us and all of us have a stake in its future.

For more than 60 years the NHS has been there when we need it, nurturing and sustaining our health, caring for us in need, extending our lives. It remains true to its founding principles and to its unique system of primary care, but in other ways it has transformed itself through the strength of its research and the skill of its staff, keeping it at the very leading edge of modern medicine.

The NHS has made great strides in recent years to improve its services, reducing infection and mixed sex accommodation rates, giving patients faster access to care. We have also seen significant falls in mortality - 14% for cancer and 41% for circulatory disease over the past decade - providing the foundation for a more systematic focus on improving outcomes in the future. The scale of the NHS is vast: every month, 21 million people visit their GP surgery, while every day community pharmacists dispense 2.3 million prescription items and 13,000 people call NHS Direct.

At its best the NHS is world class. The Commonwealth Fund's regular international surveys consistently score the NHS as one of the world's leading health systems for quality, and the very best on value for money. But it can and must improve.

THE CHALLENGE WE FACE

Throughout its history, the NHS has faced increasing demands: a growing population with an extending lifespan; an increase in its own capability, fuelled by advances in knowledge, science and technology; and ever-increasing expectations from the public it serves. The NHS has responded to these demands in part through the creativity of its staff to find or devise new tools and better ways of working. At the same time industry, often working in partnership with the NHS, has made available a constant supply of new medicines, devices and technology.

But now and for the foreseeable future we must meet these demands from within our current real terms funding, while at the same time improving quality. This means that simply doing more of what we have always done is no longer an option. We need to do things differently. We need to radically transform the way we deliver services. Innovation is the way – the only way – we can meet these challenges. Innovation must become core business for the NHS.

The seeds of what we must do are already there. Up and down the country, there are brilliant examples of pioneering work, great ideas and fantastic improvements in service. But so often, these are isolated examples. The Atlas of Variation bears witness to this: at PCT level across the country there is a 48% variance in the number of people receiving best practice care for diabetes, while the average length of stay in hospital for fractured neck of femur ranges from 16 to 36 days.

The opportunities are tantalising. Fluid Management Monitoring Technologies can reduce mortality rates for elective procedures, improve the quality of care for more than 800,000 patients a year, and save the NHS at least £400m annually. Yet the technology is currently used for less than 10% of applicable patients. The same is true of Insulin pumps, CT scanners in A&E, many drugs and diagnostic tests and other types of therapeutic interventions. There is a revolution in genome sequencing to monitor cancer and deliver personalised treatments; and to transform the detection, diagnosis and treatment of infectious diseases, the NHS must harness and lead this.

WHAT WE NEED TO DO

We must continue the great progress we have made in clinical research, working in partnership with the National Institute for Health Research (NIHR), and link this together with academic medicine and science and stronger partnerships with industry.

Searching for and applying innovative approaches to delivering healthcare must be an integral part of the way the NHS does business. Doing this consistently and comprehensively will dramatically improve the quality of care and services for patients. It will deliver the productivity savings we need to meet the growing demand for services, and it will also support our role as a major investor and wealth creator in the UK.

NHS success in adopting innovation helps support growth in the life sciences industries. That in turn enables these industries to invest in developing the technology and services the NHS needs for its development.

This report sets out the actions we must now take to make innovation and its spread central to what we do. They are designed as an integrated set of measures that together will support the NHS in achieving a systematic change in the way the NHS operates. But they will need immediate, urgent action from all of us.

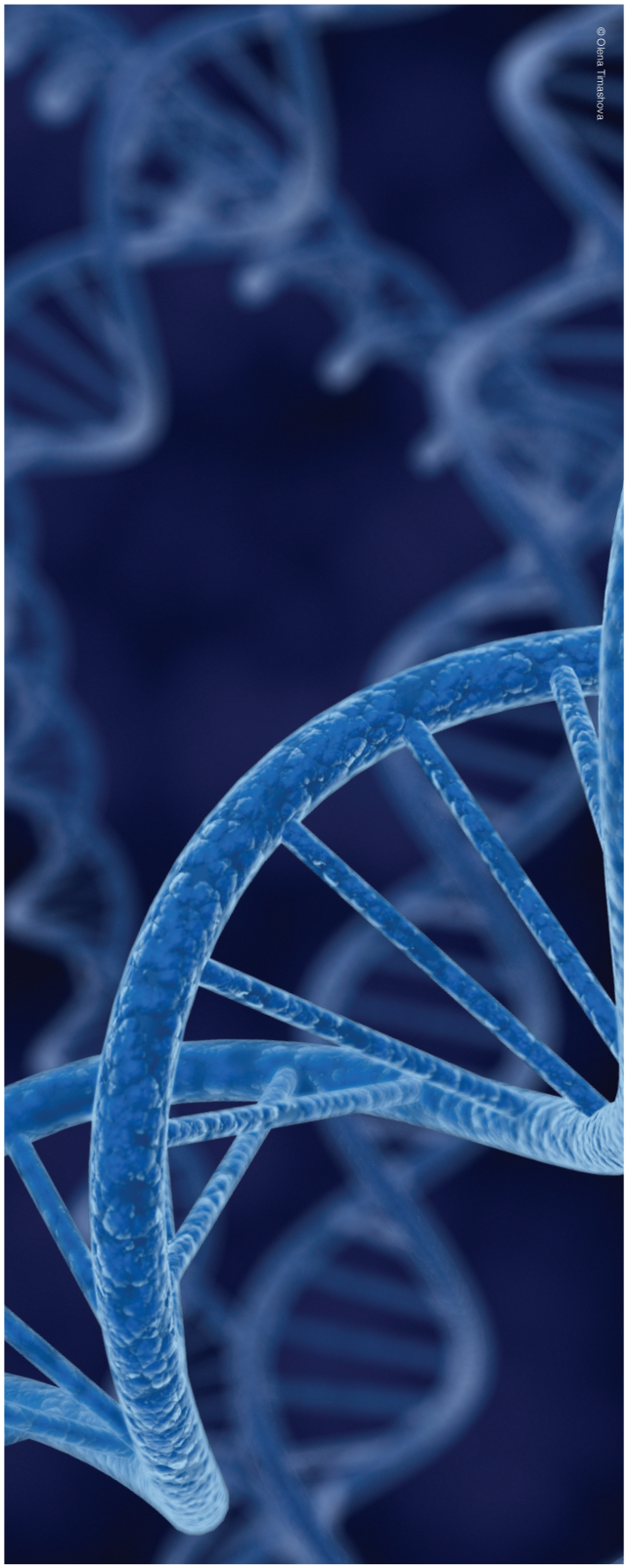
Our ambition must be for an NHS defined by its commitment to innovation, demonstrated both in its support for research and its success in the rapid adoption and diffusion of the best, transformative, most innovative ideas, products, services and clinical practice.

We have the potential to create the best health system in the world, enhancing the quality of life for people with long term conditions, preventing people from dying prematurely, helping people recover from ill health and ensuring that patients have a positive experience of care.

That is our collective challenge.

I would like to thank Sir Ian Carruthers, Chief Executive of NHS South of England, for leading this Review, and for the many hundreds of people who sent us comments and suggestions, all of which helped shape our thinking. May I also offer my thanks to members of the External Advisory Group, who have provided us with valuable advice and support throughout; their names are recorded in the Annex to this Report.

Sir David Nicholson
Chief Executive of the NHS in England



"There are great people in the NHS with great ideas. Through a focus on outcomes, we are going to enable and encourage them to turn those innovative ideas into reality. This will result in better care and outcomes for patients."

SECRETARY OF STATE FOR HEALTH, ANDREW LANSLEY

Proposals for the NHS Commissioning Board are subject to legislation currently before Parliament, and references in this report to these and other matters covered by the draft legislation should therefore be taken as subject to parliamentary approval. Any relevant actions arising from this report will be taken forward in the meantime by the current NHS Leadership Team.

INTRODUCTION

The purpose of the NHS, and everyone working within it, is to promote health and wellbeing, and to provide high quality healthcare, free at the point of delivery to everyone who needs it.

The NHS, like many other health economies, faces a tougher financial climate. Innovation has a vital role to play in fulfilling this purpose by improving the quality of care for patients, releasing savings through productivity, and enabling the NHS to make its contribution as a major investor and wealth creator in the UK.

The NHS is full of brilliant people with brilliant ideas. It has a long and proud track record of innovation and creativity stretching back across its 63-year history. In vitro fertilisation, development of MRI and CT scanning, the portable defibrillator, genetic fingerprinting, the disposable syringe and the contraceptive pill are just a few of the breakthroughs made by British clinicians and scientists.

However, while the NHS is recognised as a world leader in invention, the spread of those inventions within the NHS has often been too slow, and sometimes even the best of them fail to achieve widespread use.

This is why the Government's *Plan for Growth*, published in March 2011, announced that the NHS Chief Executive would review how the adoption and diffusion of innovations could be accelerated across the NHS. The NHS Chief Executive's Review and this report forms part of a wider UK strategy for Health Innovation and Life Sciences, alongside a detailed review of the Life Sciences industry led by the Office for Life Sciences. This wider strategy, led by the Prime Minister, sets out a comprehensive plan to transform the UK health innovation and life sciences sectors.

This report will inform the strategic approach to innovation in the reformed NHS. It has been prepared in consultation with industry, academia, clinicians and a wide range of other stakeholders, both within and beyond the NHS, and has drawn on international experience and insight.

The advice we have received has been consistent. We need to create a system for innovation that continually scans for new ideas, and takes them through to widespread use.

In order to do this we must work with industry, academia, staff and patients, to set an agenda for change and delivery.

> The NHS is there to improve our health and well-being, supporting us to keep mentally and physically well, to get better when we are ill and, when we cannot fully recover, to stay as well as we can to the end of our lives. It works at the limits of science – bringing the highest levels of human knowledge and skill to save lives and improve health. It touches our lives at times of basic human need, when care and compassion are what matter most.
>
> THE NHS CONSTITUTION

HEALTH AND THE ECONOMY

The NHS contributes to the UK economy in four important ways:

1
Through the services it provides: a healthy population is more productive, and more economically active

2
By adopting innovation to improve its own productivity, it can deliver more health benefit for a given public resource

3
By accelerating adoption and diffusion of innovation throughout the NHS it supports growth in the life sciences industry

4
By exporting innovation, ideas and expertise, working in partnership with UK industry, it provides new business opportunities abroad for UK-based companies.

One sixth of the world's most popular prescription medicines were developed in the UK

Ill health impairs economic productivity. The annual economic costs of working-age ill health are estimated to be over £100bn. The cost to the taxpayer – benefit costs, additional health costs and forgone taxes – are estimated to be over £60bn. In simple terms, good health is good for business, and good for the economy.

The NHS has a crucial role in alleviating the burden of ill health, but it also has a wider role in contributing to economic growth, specifically growth in the health and life sciences industries, for which it is the largest UK customer. Industry needs innovation to help it grow and remain competitive, both domestically and internationally.

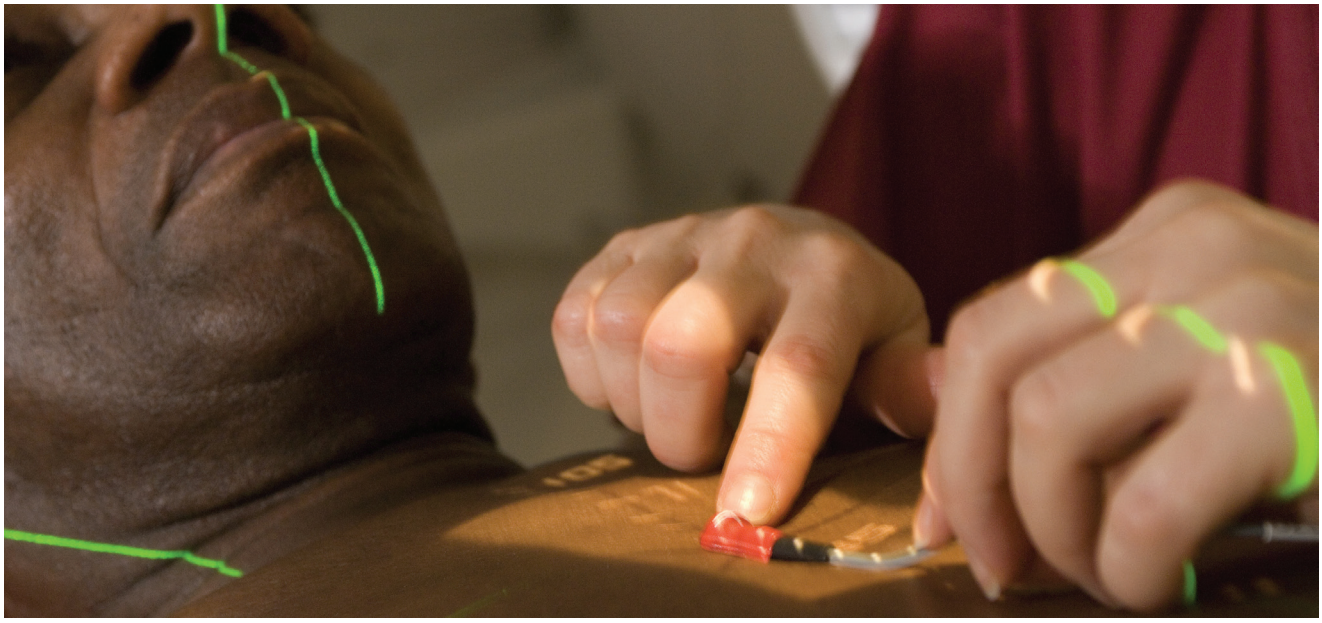
Britain is widely recognised as one of the international leaders in biomedical science research. It has a strong higher education sector, and has one of the most productive and successful biotechnology sectors in Europe. It is, arguably, the research laboratory for the world. It also has the advantage of the world's largest integrated national health system, all of which contributes to Britain's international competitive advantage.

But the nature of innovation is changing. PwC's international medical technology innovation scorecard measures the capacity of a group of nine developed and emerging economies to adapt to the changing nature of innovation.

The UK shares second place with Germany, behind the US; but developed economies are predicted to lose ground to emerging-market countries over the next few years. This is because these countries are discarding incremental, cost-additive innovations, and focusing instead on innovation that increases and improves functionality or in other ways improve customer experience or outcomes. Critically, they add value but not cost.

The challenge both for the NHS and for its industry partners is to pursue innovations that genuinely add value but not cost – the NHS for its productivity and quality goals and industry for its international competitiveness. Indeed, adding value and reducing cost is the basis of the NHS QIPP challenge. This puts a premium on game-changing innovations that change patient pathways and traditional delivery systems, and that are implemented in a way that strips out the processes that no longer add value.

This report has been developed as part of the Prime Minister's UK Strategy for Health Innovation and Life Sciences. The aim of this strategy is to ensure that the UK maintains and builds on its world leading position for life sciences, that the potential of life sciences to contribute to UK growth is realised, and that the UK remains and grows as an attractive location for investment now and in the future.



1928
Scottish biologist and pharmacologist Alexander Fleming discovers penicillin

WHAT WE MEAN BY INNOVATION

There are many definitions of Innovation. For the purposes of this Review, we have defined it as follows:

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

Innovation has to be more than a simple improvement in performance, and to achieve its maximum added value to the NHS it needs to be replicable – and replicated – across similar settings. So innovation is as much about applying an idea, service or product in a new context, or in a new organisation, as it is about creating something entirely new. Copying is good.

This does not necessarily mean simply adding to existing processes or practice, or to the battery of diagnostic tests available – there is an important role for 'reverse innovation' – decommissioning an activity that is shown to have no added value or that has been replaced by something new or better.

Innovation is not just about the originating idea, but also the whole process of the successful development, implementation and spread of that idea into widespread use. There are three important stages:

INVENTION

The originating idea for a new service or product, or a new way of providing a service

ADOPTION

Putting the new idea, product or service into practice, including prototyping, piloting, testing and evaluating its safety and effectiveness

DIFFUSION

The systematic uptake of the idea, service or product into widespread use across the whole service.

HEART SURGERY – REVERSE INNOVATION

One US hospital group sends surgical teams each year to work in developing countries. Working with less resource to deliver heart surgery has helped them learn how to streamline surgery without compromising the quality of care. That learning has been taken back to their parent organisation, which is increasingly able to achieve high levels of care at lower cost.

WHY INNOVATION IS IMPORTANT

Innovation is central to the future of the NHS for three important reasons:

INNOVATION TRANSFORMS PATIENT OUTCOMES

Innovation in the NHS is about making a real and tangible difference to the lives of millions. Keyhole surgery has allowed faster recovery time, and made surgery possible for patients less fit for more invasive treatment. New medicines, medical technologies and informatics have transformed patient outcomes. Across the NHS, countless patients bear witness to the power of great ideas.

INNOVATION CAN SIMULTANEOUSLY IMPROVE QUALITY AND PRODUCTIVITY

Given the demand and funding pressures the NHS now faces, it is widely accepted that more of the same will not do. More radical changes in the way services are delivered and how people work will be required. We need to plot a sustainable course for the future of the NHS. Innovation can help provide the route-map, improving quality at the same time as driving productivity and efficiency in a difficult financial environment.

INNOVATION IS GOOD FOR ECONOMIC GROWTH

The NHS remains a major investor and wealth creator in the UK, and in science, technology and engineering in particular. NHS success in adopting innovation helps support growth in the life sciences industries. That in turn enables these industries to invest in developing the technology and other products the NHS needs for its development.

The pharmaceutical industry invests £12.1m in Research and Development every day

The NHS is full of talented people with brilliant ideas. But the benefit of this collective creative energy has not been fully realised because these ideas and inventions have not always been systematically and rapidly spread throughout the service as a whole.

The UK is particularly slow, relative to other developed economies, in adopting innovative medical technologies. Despite its pioneering work on the early development of MRI scanners, the UK has only 500 out of a worldwide total of 20,000, performing less than 2% of the world's 60m scans each year, at only two-thirds of the international average use per machine.

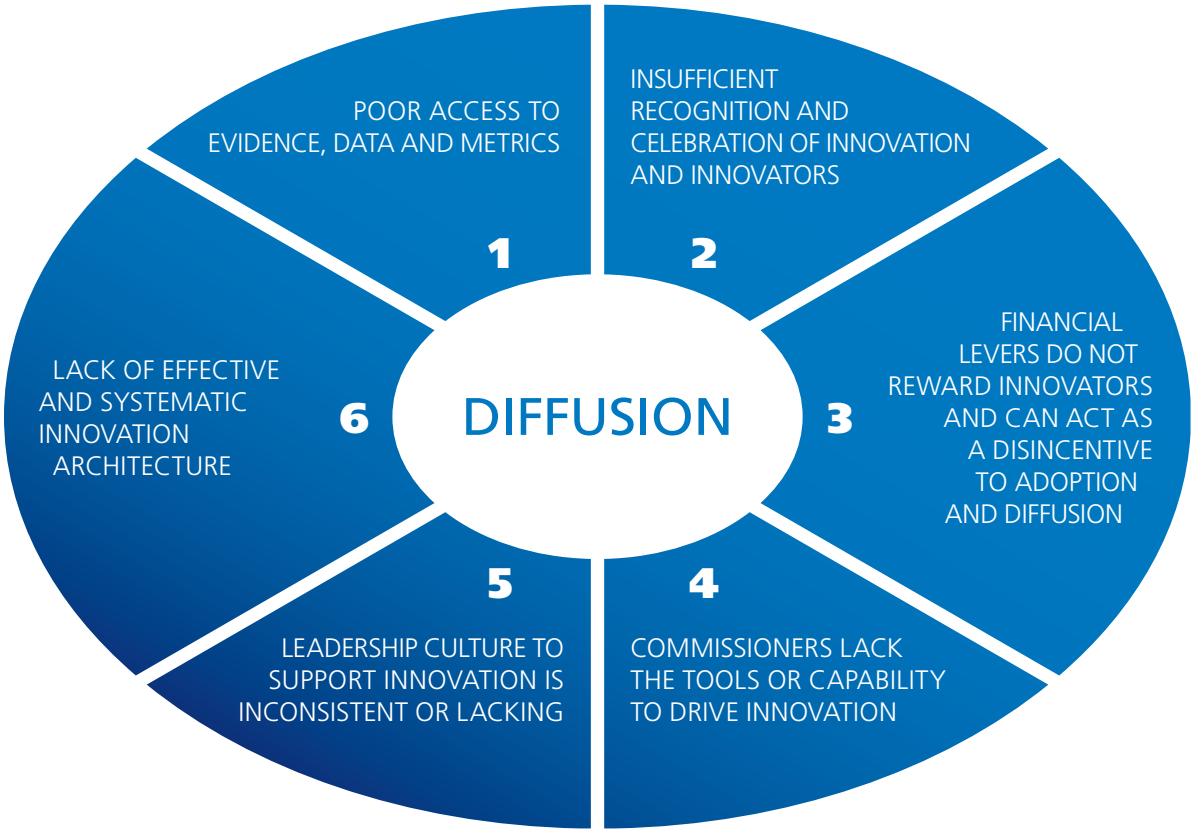
It took five years before half of adult patients admitted to NHS acute care received a venous thromboembolism (VTE) risk assessment, despite a death rate estimated at 24,000 people every year. But when it was made a national clinical priority, risk assessment was routine for 84% of admissions within a year.

BARRIERS TO DIFFUSION

The reasons for the slow spread of innovation are well documented, and have been reiterated in the responses we received during the course of this Review.

While understanding the barriers is important, the focus of the Review has been on developing solutions to those barriers.

Barriers to innovation in the NHS



1950
British physiologist Richard Doll discovers link between lung cancer and smoking

WHAT MAKES DIFFUSION HAPPEN

A prerequisite for successful diffusion is first, a *supply* of ideas, services or products that demonstrably add value in terms of quality and productivity to pre-existing arrangements; and second, a *demand* for those ideas, services or products from organisations and individuals throughout the NHS.

On the supply side, establishing the 'added value' of an innovation is critically important; not every idea deserves to be replicated, and those that are unable to clearly demonstrate improvement are unlikely to be taken up. Added value might be reflected in clinical or other outcomes, including quality measures; patient experience, timeliness, safety of care, reduction of inequalities; and productivity and cost reduction. Together these make up the 'value proposition'.

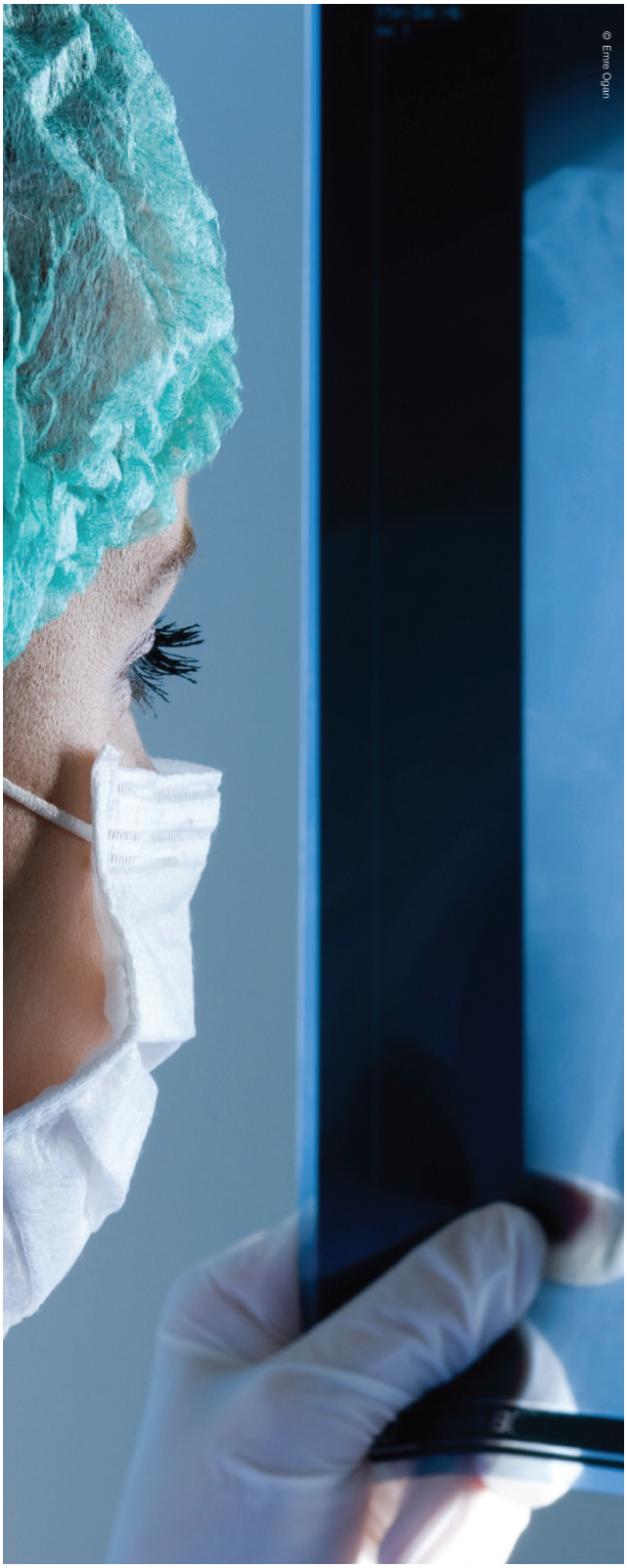
On the demand side, potential adopters of an innovation need to be aware of its advantage, for example in enabling new ways of working or the ability to deliver care closer to the patient; and to have the capacity to implement it. Changes to working practice, roles and even locations of service may be necessary to realise its full potential. Most technology innovations will have service implications, as indeed many service innovations will need the support of an enabling technology. Often this will require actively decommissioning the products or services that the innovation replaces.

The potential added value of an innovation, the ease of its implementation, and the visibility of its impact can all have a powerful influence on the rate of diffusion.

Diffusion in systems as large and complex as the NHS works most effectively through the interaction of the three sets of approaches shown in the diagram.

Previous attempts to achieve consistent and widespread adoption and diffusion in the NHS have tended to fail because all three forces have not been mobilised together. The actions set out in this report rely on all three approaches working in combination.

The NHS in England employs approximately one in 24 of the working population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"Breaking an old business model is always going to require leaders to follow their instinct. There will always be persuasive reasons not to take a risk. But if you only do what worked in the past, you will wake up one day and find that you've been passed by."

CLAYTON CHRISTENSEN

1953
Crick and Watson, two Cambridge scientists, reveal the double helix structure of DNA in Nature Magazine.

THE REVIEW PROCESS

Sir Ian Carruthers, Chief Executive, NHS South of England, led the Review, which began with an open Call for Evidence. Over 300 responses were received, the majority from the NHS and Industry, with the remainder from a mix of academia, the scientific community, and representative and voluntary organisations. The responses informed both the themes and the specific actions set out in this report.

In addition, Sir Ian hosted a series of face-to-face meetings, roundtable events and discussions to hear first hand, views from clinical leaders, the research community, the third sector, the pharmaceutical and medical technology industries, the NHS Confederation and the Technology Strategy Board and other stakeholder and representative bodies. In all, some 160 organisations and 320 individuals were involved in this part of the process.

An External Advisory Group comprising representatives of these groups and others was established to provide advice and guidance to Sir Ian and Sir David Nicholson. The Group advised on both the emerging findings and the recommended actions, and offered insight and challenge as the Review progressed.

Ultimately, it is the actions of front line organisations and staff in spreading and adopting innovative practice that will deliver a better service and better outcomes for patients. Our urgent task is to make sure this happens.

WHAT WE LEARNED

Although responses came from many different organisations and individuals, with very different interests and backgrounds, the feedback we received was very consistent, and enabled us to set out a clear agenda for change. Eight key themes have emerged:

1
We should **reduce variation** in the NHS, and drive greater **compliance** with NICE guidance

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

3
We should establish a more **systematic delivery mechanism** for diffusion and collaboration within the NHS by building strong cross-boundary networks

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

5
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

6
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

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

8
We should identify and mandate the adoption of **high impact innovations** in the NHS.

Every year the NHS conducts over 700m laboratory tests – an average of 13 per person

"This report is the catalyst for innovation to flourish at all levels in the NHS and for all partners of the NHS so that collectively we can deliver world leading standards of care for patients, increase value for the NHS and build a thriving life sciences sector in the UK."

SIMON JOSE, PRESIDENT, ABPI

THE DELIVERY AGENDA

It is clear that to respond to those themes we need to achieve sustainable change that puts innovation at the heart of everything the NHS does.

To do this, we need to bring about a lasting change in culture and behaviour amongst our current and future leaders, and the workforce as a whole. We need to build understanding, awareness and advocacy. We need to make innovation a priority. We need to re-cast incentives and rewards. We need a systematic approach to drive innovation through both clinical research and service delivery. We need to make Boards and Chief Executives accountable for their organisation's contribution to innovation. We need to make innovation everybody's job, from top to bottom of the NHS. We need to outlaw 'not invented here' and make a virtue of copying, and continuous development and improvement. We need to make the NHS easier to do business with, especially for small and medium sized enterprises (SMEs), and we need an entirely new relationship with industry based on partnership, not just transactions.

Our approach has been to focus on a limited number of high impact, game-changing actions. These are designed not as a set of isolated mechanisms, but as an integrated set of actions, that together will achieve a systematic change in the way the NHS operates. In short, it will become a truly integrated system defined by its commitment to innovation, demonstrated both in its support for research and its success in rapid diffusion of high value innovation. The rest of this report sets out the specific actions we will take in relation to each of the eight themes.

1956
The disposable hypodermic syringe is invented by vet Colin Murdoch, a British citizen of New Zealand

ACTIONS

"Where a medicine or technology is clinically sound and cost effective for the NHS, patients should have access to it – no question, no qualification."

BARONESS BARBARA YOUNG, CHAIR, DIABETES UK

REDUCING VARIATION AND STRENGTHENING COMPLIANCE

In NICE we have a world-class, well-respected organisation that produces evidence-based guidance, including Technology Appraisals on the use of specific medicines and technologies. These represent the most authoritative statement of current best practice; indeed they are often considered the international gold standard.

Technology Appraisal recommendations are backed with a statutory funding direction, to ensure the NHS makes funding for these technologies available and that clinicians are empowered to use them where they consider their patients would benefit. The Government plans to introduce new arrangements for value based pricing of new medicines from 2014 to help ensure that patients can access innovative, effective treatments on terms that reflect their value.

While the detail of these arrangements is still being developed, it is clear that NICE will have an important role. The Health and Social Care Bill contains provisions to maintain the effect of the funding direction for NICE Technology Appraisal recommendations, and the Government has also said that it will retain a funding mandate for medicines with a value-based price from 2014.

NICE is being re-established in primary legislation, putting it at the heart of arrangements for promoting quality in the reformed health and care system, and its remit is being extended beyond health into social care.

NICE is the envy of health systems across the world, and yet at home there is considerable variation in the implementation of some of its recommendations.

- We will introduce a **NICE Compliance Regime** for the funding direction attached to NICE Technology Appraisals, to ensure rapid and consistent implementation throughout the NHS. This will reduce variation and assure patients of their access to the clinically and cost-effective technologies and medicines their doctors believe they need.

We are committed to ensuring that NHS patients have access to clinically and cost-effective drugs and technologies, and that NICE appraisal guidance is promptly delivered throughout the NHS. There should be no local barriers to accessing technologies recommended in NICE appraisals, beyond a clinical decision relating to an individual patient.

Local formularies have an important role in underpinning safe and effective use of medicines. However local formulary processes should not seek to duplicate NICE assessments or challenge an appraisal recommendation and must never act as a barrier to the uptake of NICE approved medicines. Rather, they should be seen as supporting timely and planned implementation of NICE Technology Appraisals.

Formulary processes should proactively consider the impact of new NICE Technology Appraisals, and all NICE Technology Appraisal recommendations should – where clinically appropriate – be automatically incorporated into local formularies. This process should take place within 90 days to support compliance with the three month funding direction and the NHS Constitution ensuring that these medicines are available for clinicians to prescribe, should they choose to, in a way that supports safe and clinically appropriate practice.

TRANSFORMING HIP REPLACEMENT

The Conquest Hospital has redesigned the hip replacement pathway, achieving an average length of stay of 2.7 days (the lowest recorded for a hip replacement unit in England), with trust level savings of £180,000 and a 25% reduction in orthopaedic beds. Most patients are able to mobilise within hours of the operation; 50% go home the day after surgery and 99.5% like the service.

The UK medical technology industry consists of over 3,000 companies with a combined turnover of £15bn

- We will require that **all NICE Technology Appraisal recommendations are incorporated automatically** into relevant local NHS formularies in a planned way that supports safe and clinically appropriate practice.

Local implementation of NICE guidance can sometimes be complex, technically difficult and financially challenging. In these cases, we will do more to support the NHS to implement the guidance. To do this:

- We will establish a **NICE Implementation Collaborative (NIC)**.

The NIC will bring together the NHS Commissioning Board, NICE, the Chief Pharmaceutical Officer, the main industry bodies, the NHS Confederation, the Clinical Commissioning Coalition and the Royal Colleges to work together and alongside NICE to identify where support is needed and to develop implementation guidance and solutions for the NHS. Its first task will be to agree a Concordat that will govern its operation.

The NIC could have a crucial role to support implementation of guidance on medical technologies, where there are low cost high value interventions that could improve patient care, while at the same time stimulating growth in small and medium sized medical technology companies. The NIC will also have an important role in supporting QIPP delivery. It will:

- Work with NICE to develop and extend its **implementation advice and guidance on approaches to disinvestment** where necessary and added support for its use in the NHS
- Where needed, work with industry to develop a better **'value proposition'** for the NHS, relying less on upfront capital or revenue investment, and more on taking income from downstream revenue savings
- Set out how use of existing **tariff flexibilities** at local level could support diffusion
- Through the NHS Improvement Body **provide direct support** to help the NHS with implementation.

WE WILL INTRODUCE A NICE COMPLIANCE REGIME TO REDUCE VARIATION AND DRIVE UP COMPLIANCE WITH NICE TECHNOLOGY APPRAISALS

WE WILL REQUIRE THAT ALL NICE TECHNOLOGY APPRAISAL RECOMMENDATIONS ARE INCORPORATED AUTOMATICALLY INTO RELEVANT LOCAL NHS FORMULARIES IN A PLANNED WAY THAT SUPPORTS SAFE AND CLINICALLY APPROPRIATE PRACTICE

WE WILL ESTABLISH A NICE IMPLEMENTATION COLLABORATIVE TO SUPPORT PROMPT IMPLEMENTATION OF NICE GUIDANCE

1965
Portable defibrillator invented by Frank Pantridge, an Irish physician and cardiologist

NHS

> "The NHS needs an intellectual marketplace of ideas, a 'problems and solutions warehouse' – where innovators can showcase and exchange their ideas."
>
> LASZLO IGALI, NORFOLK AND NORWICH UNIVERSITY HOSPITAL

METRICS AND INFORMATION

We need to do more to stimulate demand for good ideas, new products or practices, especially where these have been formally appraised, or simply shown to be successful elsewhere. To do that, we need better and more widely available information. NHS staff need to know about their organisation's performance in adopting innovation, and patients and the public need the same information to exercise choice about their service provider, or simply to demand better services.

To support the NICE Compliance Regime we will publish levels of compliance with NICE Technology Appraisals locally. Working with industry, the Department of Health, NICE, the NHS and the Health and Social Care Information Centre:

- We will develop and publish a straightforward **innovation scorecard**, designed to track adoption of NICE Technology Appraisals at local level.

Consumer and peer pressure can also be effective in creating demand for the adoption and diffusion of innovation, and have had a powerful impact in other sectors of the economy.

TECHNOLOGY UPTAKE

A finger-prick blood test device enables patients on anticoagulation therapy to self-monitor their blood clotting time, saving regular visits to blood clinics. This is clinically effective and substantially more convenient for appropriate patients; but less than 2% of the 1.25 million people in the UK on long-term anticoagulation therapy self-monitor, compared to an estimated 30% who could benefit.

Patient groups have in some cases been successful in pressing for improvements at a local level in the NHS, although their impact has been variable. In order to pursue a new idea, you need to know about the new idea, whether you are a patient seeking quality treatment or a member of staff seeking out improvements in the services you provide.

Both NHS staff and the public need better and more easily accessible information about new ideas, innovations and technologies. A number of organisations provide information about different stages in the innovation pathway, each covering part of the picture, but this diversity of information sources causes confusion.

- We will put an end to that by developing a single, high quality **web portal for innovation in the NHS**.

This portal will be available for NHS staff and the public. It will not only provide information about the most innovative clinical practice, medical technologies, informatics and service improvements, but will also offer an "intellectual market place" for people to showcase and exchange ideas. It will cover all stages of innovation and all levels of knowledge.

The portal will include a **searchable database** of case studies, tools, 'how to implement' guides and e-learning based practitioner programmes that support introduction of a new technology or practice. It will also include a **discussion forum** for those seeking ideas and solutions, based on a Wikipedia model, with users able to upload and amend their own pages. Over time, it will also include the existing **database of current clinical trials** for drugs, medical technology and devices, which enables patients to participate in clinical studies.

Patient data can provide great insight for health research, which in turn improves the quality of diagnosis, treatments and other interventions. It is a key goal of the NHS for every willing patient to be a research patient, enabling them to access novel treatments earlier. The greater the number of patients involved in research, the wider the public benefit. The NHS could and should do more to explain to patients the benefits both to them and to society at large of their agreement to participate in clinical trials and approved research.

Approx 228,000 people go for an eye test each week (equivalent to the population of Derby)

We also need to be more open to working with partners to develop **consumer campaigns** to drive the spread of new ideas. The idea is to support the public, patients and carers in creating demand locally for high impact innovations. **Which?**, for example, has shown interest in working with the NHS Commissioning Board and its Medical Director to develop campaigns to raise awareness amongst the public and patients of innovations in healthcare.

- We will work with **Which?** to develop consumer campaigns to raise awareness amongst the public and patients of innovations in healthcare.

Transparency of information and open data are a powerful means to support accountability, to empower patients and the wider public and to drive improvement and innovation. In the health sector our starting point should always be to make data and information available unless there are good reasons not to do so. In considering this we need to balance the benefits of openness with our responsibility to protect patient confidentiality and safety, as well as taking into account the purpose and relative benefits of transparency, and the costs of providing data.

All patients in the NHS will have access – where they wish it – to their **personal GP records** by the end of this Parliament. The Information Strategy for Health and Social Care in England, to be published by Spring 2012, will set out details of the timetable. This will help drive service improvement and also enable competition and innovation among supporting data and digital service providers.

The Health and Social Care Information Centre will set up a **secure data linkage service** by September 2012, which will provide data extracts using linked data from primary and secondary care and other sources on a routine basis at an unidentifiable, individual level. Linked data is crucial for a greater understanding of which healthcare interventions work, when and why. This insight will help to support innovation across the healthcare sector to improve services and outcomes.

A new data secure service, the **Clinical Practice Research Datalink** (CPRD) will be established within the Medicines and Health Care Products Regulatory Agency (MHRA). This will service the specialised needs of the research and life sciences communities and will complement the Information Centre Service.

- We will establish the **Clinical Practice Research Datalink** (CPRD),a new secure data service within the Medicines and Health Care Products Regulatory Agency (MHRA).

WE WILL DEVELOP AND PUBLISH AN INNOVATION SCORECARD TO TRACK COMPLIANCE WITH NICE TECHNOLOGY APPRAISALS

WE WILL PROCURE A SINGLE COMPREHENSIVE AND PUBLICLY AVAILABLE WEB PORTAL FOR INNOVATION IN THE NHS

WE WILL WORK WITH WHICH? TO DEVELOP CONSUMER CAMPAIGNS TO RAISE AWARENESS AMONGST THE PUBLIC AND PATIENTS OF INNOVATIONS IN HEALTHCARE.

WE WILL ESTABLISH THE CLINICAL PRACTICE RESEARCH DATALINK (CPRD),A NEW SECURE DATA SERVICE WITHIN THE MEDICINES AND HEALTH CARE PRODUCTS REGULATORY AGENCY (MHRA).

1967
Cicely Saunders founds the first modern Hospice, St Christopher's

"Academia and industry should be encouraged to manage an 'innovation ideas' process – which focuses on solving a 'real' NHS problem."

SIR JOHN BELL, CHAIR, OSCHR

CREATING A SYSTEM FOR DELIVERY OF INNOVATION

We need a stronger relationship with the scientific and academic communities and industry to develop solutions to health care problems and get existing solutions spread at pace and scale in the NHS. We also need to develop much stronger knowledge exchange networks to share best practice.

Academic Health Science Centres (AHSCs) have been successful at developing partnerships within their local areas, but more needs to be done to spread innovation across the whole of the NHS. The designation AHSC is distinguished by its world class research capability, clinical excellence, strong collaborative governance, competitive approach to the management of IP, strong track record of productive research collaborations with the life sciences industry and emerging clinical data informatics platforms. We will maintain the designation of AHSCs, only for those who meet such challenging criteria.

In addition, we shall support these Centres and build on their models of accelerating adoption and diffusion by designating a number of Academic Health Science Networks (AHSNs) across the country. The NHS Chief Executive and the Chief Medical Officer will work with the NHS and industry to designate these networks with the first to go live during 2012/13.

The AHSNs will present a unique opportunity to align education, clinical research, informatics, innovation, training & education and healthcare delivery. Their goal will be to improve patient and population health outcomes by translating research into practice and developing and implementing integrated health care services. Working with AHSCs, they will identify high impact innovations and spread their use at pace and scale throughout their networks.

Every local NHS organisation should aspire to be affiliated to its local AHSN, which would act as a high quality, high value gateway for any NHS organisation needing support or help with innovation, and provide industry with focused points of access to the NHS. Acting as a lead customer, the AHSN would work with industry to scope problems and jointly develop solutions to key health challenges. The AHSNs will strengthen the collaboration between clinicians and other practitioners and the medical technology industry on which innovative product development so often depends.

They would support knowledge exchange networks to build alliances across internal and external networks and actively share latest best practice, and provide for rapid evaluation and early adoption of new innovations under tight surveillance and monitoring.

HOME HAEMODIALYSIS

Manchester Royal Infirmary redesigned dialysis provision to enable patients to choose home haemodialysis. Over 15% of their patients now choose to perform haemodialysis independently at home compared to the current UK rate of 1-2%. Projected annual savings at Manchester are approximately £1m. Home dialysis has fundamentally changed patients' lives, enabling them to spend more time with their families.

We would expect AHSNs to work closely with AHSCs, NIHR Biomedical Research Units and Centres (BRUs and BRCs), NIHR Collaborations for Leadership in Applied Health Research and Care (CLAHRCs), Health Innovation and Education Clusters (HIECs) and NHS Innovation Hubs. We would expect them to build on the leading-edge work and learning of AHSCs.

- We will establish a number of Academic Health Science Networks (AHSNs) across the country, the first going live during 2012/13. Working with stakeholders from across the NHS and scientific community, academia, the third sector and local authorities, the AHSNs will link up the system and drive up diffusion of innovation.

In a typical week, 1.4 million people will receive help in their home from the NHS

- We will publish details of the AHSN designation process in March 2012.

We also need to de-clutter the landscape. Over the last decade many new organisations charged with improving innovation in the NHS have emerged. The landscape is now fragmented, cluttered and confusing. We need to ensure that innovation investment, development and support is coherently organised and focused on delivering the maximum value for money.

- We will undertake a **sunset review** of all NHS/DH funded or sponsored innovation bodies and make recommendations as to their future form and funding.

- With immediate effect NICE will take responsibility for the evaluation of medical devices and technologies which is currently managed through the **iTAPP programme**; and we will consider the future hosting arrangements for **NTAC**.

WE WILL ESTABLISH A NUMBER OF ACADEMIC HEALTH SCIENCE NETWORKS (AHSNs) ACROSS THE COUNTRY

WE WILL PUBLISH DETAILS OF THE AHSN DESIGNATION PROCESS IN MARCH 2012

WE WILL UNDERTAKE A SUNSET REVIEW OF ALL NHS/DH FUNDED OR SPONSORED INNOVATION BODIES AND MAKE RECOMMENDATIONS AS TO THEIR FUTURE FORM AND FUNDING.

WITH IMMEDIATE EFFECT, NICE WILL TAKE RESPONSIBILITY FOR THE ITAPP PROGRAMME

INCENTIVES AND INVESTMENT

With a focus on greater decentralisation, and the greater local responsibility that goes with that, the centre can no longer just tell the NHS what to do. But it does have a leadership role in creating a culture that encourages and values the constant search for new ideas and technologies. And it is also in a position to influence, by applying the right incentives to encourage the systematic development of innovative behaviours and activity, and by directing investment, to help spread new ideas.

> "The NHS Commissioning Board will provide an excellent opportunity to lead by example in commissioning promising new specialised services, products and technologies."
>
> TIM BRIGGS, ROYAL NATIONAL ORTHOPAEDIC HOSPITAL

Too often incentives can reward the status quo and actively discourage invention and change. We know that silo budgeting can often be a barrier to the adoption and spread of innovation, especially where the cost and savings fall to different budget holders.

- We will align financial, operational and performance incentives to support the adoption and diffusion of innovation by:

  - Developing and introducing a **shared savings formula** to break down silo budgeting and encourage cross boundary working

  - Developing a **tariff for assistive technologies** (telehealth, telecare) that, like Australia and the US, would incentivise rather than block their rapid spread

  - Continuing work on tariff development, especially in relation to **payment for outcomes**, since an outcomes focus enables an innovative, cost-effective means of delivering outcomes to be incentivised directly through the tariff

  - Commissioning the NHS Improvement Body to work with the NHS to help make best use of **existing local tariff flexibilities**, including best practice tariffs at local level to support diffusion

1973
English engineer Godfrey Houndsfield invents the CAT scanner and wins the Nobel Prize in 1979

- Exploring options for an unbundled **tariff for diagnostics** and other scientific services that would drive fundamental changes in the way services are delivered, especially when new technology is utilised.

We also need to do more to recognise and reward individuals and organisations for their achievements in adopting and spreading innovation.

- We will increase the profile of, and maintain investment in, the **NHS Innovation Challenge Prizes** and permit modest individual awards.

But incentives are not just about rewarding people for doing the right things. We also need to be more systematic about stopping organisations from doing the wrong things.

- Under the leadership of the NHS Medical Director, we will **extend the 'never events' regime** to actively drive 'old practice' out of the system, especially where that practice is proven to be clinically unsafe.

We will ask NICE to be clearer in their guidance about what **activity and tariff should be de-commissioned** or reduced as a result of new and better practice or medicines being introduced.

The NHS Commissioning Board will have responsibility for specialised services commissioning, and is in a position to identify those technologies (with appropriate safety accreditation) with the potential to deliver high impact change, and to rapidly test, trial and evaluate their value to the NHS. Where appropriate this would enable suitable patients to have early access to innovative technologies, which also would help to create a richer research evidence base.

- We will establish a **Specialised Services Commissioning Innovation Fund**, top sliced from the specialised services commissioning budget, overseen by an Advisory Board reporting to the NHS Medical Director.

WE WILL ALIGN FINANCIAL, OPERATIONAL AND PERFORMANCE INCENTIVES TO SUPPORT THE ADOPTION AND DIFFUSION OF INNOVATION

WE WILL INCREASE THE PROFILE OF, AND MAINTAIN INVESTMENT IN, THE NHS INNOVATION CHALLENGE PRIZES

WE WILL EXTEND THE 'NEVER EVENTS' REGIME AND ENCOURAGE DISINVESTMENT IN ACTIVITIES THAT NO LONGER ADD VALUE

WE WILL ESTABLISH A SPECIALISED SERVICES COMMISSIONING INNOVATION FUND

CYTOSPONGE

An NHS team in Cambridge developed the 'Cytosponge', a simple pill that expands into a sponge designed to collect samples from the oesophagus to test for throat cancer. The procedure can be used by GPs at a cost of £25, replacing the need for a £600 endoscopy, and offers early identification and therefore better outcomes with a potential increase of 80% in 5 year survival rates for the 6000 throat cancer cases each year.

A large scale study in 1994 showed a 35% reduction in cholesterol from the use of statins, since their introduction in 1987

"The culture of the NHS needs to develop so that industry is viewed as a strategic service partner rather than a transactional supplier of goods and services."

JOHNNY LUNDGREN, CHAIR, ABHI

PROCUREMENT

A succession of government policies has highlighted procurement as an important lever for economic growth, a potential driver for better public service and, equally important, a means of stimulating innovation.

A Public Accounts Committee report in May 2011 suggested that £500m is potentially being wasted because of poor procurement. The Department of Health itself has identified that NHS procurement could go further and deliver around £1.2bn of the £20bn QIPP challenge, and is in the process of developing a **procurement strategy** to be published in March 2012 to help the NHS achieve these efficiencies.

The strategy will include new NHS system controls, NHS standards of excellence in procurement and NHS system support activities. It will also include a focus on innovation and support for SMEs.

We need to establish new relationships with industry, based on partnerships that deliver mutual value, rather than simple transactional business.

The strategy will take account of the best innovative procurement practice from across all sectors, and will apply this to the NHS, incorporating learning from the Health Care Associated Infection Technology Innovation Programme and iTAPP (Innovative Technology Adoption Procurement Programme).

It would also support the local **showcase hospital programmes**, which evaluate the effectiveness of medical technologies that are safe but do not yet have evidence of effectiveness. The aim of these programmes is to avoid the need for repeat local assessment thereby supporting the rapid spread of proven innovation across the NHS.

- We will publish a procurement strategy in March 2012. The strategy is likely to include proposals to:
  - Bring together coalitions of experts to enable **open dialogue** with suppliers in 'product surgeries', outside of a procurement tendering process
  - Develop a process to identify supplier technologies that have been assessed as '**suitable for use**' on the basis of evidence or in-use evaluation, to help Trusts select the technologies most appropriate for their needs. The aim will be to eliminate the need for multiple re-assessments at local level
  - Within a procurement process to seek opportunities to **consult the market** before tendering, to encourage the market to propose creative solutions before specifications are firmed up. The aim is to move from category management to market informed sourcing and **procurement for outcomes**
  - Demonstrate NHS commitment to new technology to allow suppliers to invest on the basis of **'forward commitment procurement'**
  - Work towards **standard procurement documentation** and processes to simplify procurement for SMEs, and encourage the NHS to support and participate in key Cabinet Office initiatives to reduce bureaucracy to SMEs.

We need to do more with small businesses, to help them develop the new technologies the NHS needs and then to get them into everyday use across the NHS. The **Small**

SBRI FUNDING FOR SMALL BUSINESS

Creo Medical have developed a hand-cleaning device that uses non-thermal plasma to provide swift, thorough hand disinfection without the need for scrubbing with soaps or gels. SBRI funding supported Creo through the design and validation stage, helping it 'across the bridge' to profitability and growth – and further development projects.

1977
First human MRI (which was on a finger) performed by Sir Peter Mansfield's team in Nottingham

Business Research Initiative (SBRI) provides seed funding to support the development of innovative products and services. It has proved a very successful vehicle for this; in the last 18 months, there have been 46 SBRI competitions resulting in 519 contracts awarded to the value of £35.6m. Ninety percent of competition entrants had never worked in the NHS before, suggesting there are untapped innovative solutions in the wider SME community.

But we need to find a way of ensuring that when products come off the production line the NHS actively procures them. The SBRI process includes tough requirements for a clear and compelling clinical and financial evidence base, and when they are ready for market they will feed into the High Impact Innovations list.

- We will double our investment in the **Small Business Research Initiative** to develop innovative solutions to healthcare challenges, encourage greater competition in procurement of services, and drive growth in the UK SME sector.

The existing Intellectual Property strategy can discourage NHS organisations from sharing new ideas. That simply isn't acceptable. We need to develop a strategy that rewards the innovator whilst allowing others in the NHS to have access to their ideas. The existing Intellectual Property strategy is no longer fit for purpose and needs to be updated.

INTELLECTUAL PROPERTY

- We will review the existing Intellectual Property Strategy and develop a model for contracts that is fit for purpose.

WE WILL PUBLISH A PROCUREMENT STRATEGY IN MARCH 2012.

WE WILL DOUBLE OUR INVESTMENT IN THE SMALL BUSINESS RESEARCH INITIATIVE TO DEVELOP INNOVATIVE SOLUTIONS TO HEALTHCARE CHALLENGES, AND HELP DRIVE GROWTH IN THE UK SME SECTOR

WE WILL REVIEW THE EXISTING NHS INTELLECTUAL PROPERTY STRATEGY AND DEVELOP A MODEL FOR CONTRACTS THAT IS FIT FOR PURPOSE

"The NHS must build innovation and the concept of adoption and spread into undergraduate and post graduate curricula."

PROFESSOR NORMAN WILLIAMS, ROYAL COLLEGE OF SURGEONS

DEVELOPING OUR PEOPLE

Organisations that are able to innovate successfully have developed a culture of innovation throughout their organisation, and at all levels. This is about people understanding why innovation is important, creating time and space for people to innovate and rewarding innovators. It is about developing both **capacity and capability**.

Innovative organisations have a number of characteristics in common; they:

1
Provide space, time and resources for individuals across the organisation to generate and pursue innovative ideas they are passionate about

2
Encourage and incentivise staff to participate in an alternative innovation process by generating, sharing and evaluating new ideas

3
Actively support and facilitate the generation of new ideas and the uptake of ideas, practices and processes that have been generated externally or elsewhere in the system

4
Establish mechanisms to quickly form small, flexible teams with the necessary skill sets to refine and drive innovative ideas from conception to implementation

5
Utilise partnerships and collaboration to encourage and support 'radical innovation', while simultaneously assessing and managing associated inherent risk

6
Reward and recognise efforts within all stages of the innovation pathway.

NHS ambulances take 82,500 people to Accident and Emergency departments every week

Creating an innovative culture starts with basic training, education and induction and continues throughout an employee's career through personal and Continuing Professional Development (CPD).

- We will ensure that innovation is 'hard-wired' into **educational curricula, training programmes and competency frameworks** at every level.
  - We will work with Medical Education England and other professional advisory groups (and in the future Health Education England), NHS Employers and the academic sector to 'hard wire' innovation into **managerial and clinical curricula and CPD.**
  - We will build innovation much more visibly into **competency frameworks** like Professional Skills for Government (PSG) and the Job Evaluation and Knowledge & Skills Framework (KSF), and into **job descriptions and performance appraisal** for senior managers.

The relationship between the NHS and industry is critical to meeting the objectives of a high quality productive NHS and a vibrant internationally competitive industry. Too often such partnerships fail to meet their potential because of a lack of mutual understanding of the drivers that affect each partner. Joint training and better and more regular top level engagement can increase mutual understanding, encourage cross-fertilisation and allow the development of much stronger and diverse personal networks.

- We will 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; and we will also 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.

We need to be able to draw on the best available knowledge and experience of innovation to support adoption and diffusion at local level, and to cross-fertilise ideas and expertise across the NHS. We need to get the brightest and best innovators to share their knowledge, learning and expertise with the NHS.

- We will establish an **NHS Innovation Fellowship Scheme** so that the brightest and best innovators can share their knowledge, experience and expertise with the NHS.

The Fellows will be drawn from a range of sectors and industries, both nationally and internationally. They will be highly regarded and respected in their fields of expertise, and will be able to provide coaching and mentoring for senior NHS leaders, deliver master-classes, and provide advice and support on innovation strategies.

WE WILL ENSURE THAT INNOVATION IS 'HARD-WIRED' INTO EDUCATIONAL CURRICULA, TRAINING PROGRAMMES AND COMPETENCY FRAMEWORKS AT EVERY LEVEL

WE WILL ESTABLISH JOINT INDUSTRY AND NHS TRAINING AND EDUCATION PROGRAMMES FOR SENIOR MANAGERS

WE WILL ESTABLISH AN NHS INNOVATION FELLOWSHIP SCHEME

1979
Sir Terence English performs the first successful UK heart transplant at Papworth Hospital, Cambridge

"Leadership for innovation begins at the Board. An empowering Board is one that opens its eyes to the potential for innovation inside the organisation, outside the organisation and in collaboration with other organisations. Staff are amongst the most impressive innovators when they are liberated to find new ways of doing things."

SIR KEITH PEARSON, NHS CONFEDERATION CHAIR

LEADERSHIP FOR INNOVATION

Providing clear unequivocal leadership on innovation at national, regional and local level is essential to creating, supporting and sustaining the adoption and diffusion of innovation. We need to increase accountability at Board level, throughout the NHS. Searching for and applying innovative approaches to delivering healthcare must be an integral part of the way the NHS does business: 'hard-wired' into the daily work of every member of NHS staff.

The NHS Commissioning Board must find the right balance between 'must-do', and enabling and supporting the development of innovative behaviours. Some innovations are so obviously beneficial in improving both quality and productivity that making them a priority is the best way of ensuring rapid uptake and spread. For example, in the last 3 years the NHS has reduced MRSA infection by 65%, and over the last 5 years by 80%. This and other examples show that with the right leadership at national and local level the NHS can be remarkably effective at delivery.

We all have a part to play through the actions in this report to create incentives for front line organisations and staff to behave differently. We will work with NHS organisations and their representative bodies to change the culture in the service and create a smarter business-to-business relationship with the life sciences sector.

The NHS Commissioning Board, through its legal duty to promote research and innovation, can and will influence behaviour by setting the right expectations.

- **The NHS Operating Framework** 2012/13 asks the NHS to prioritise the adoption and spread of innovation and good practice. It sets out that commissioners and providers should have due regard to this report when developing local CQUIN schemes.

We will also set clear priorities for commissioning that will drive the uptake of high impact medicines, technologies, devices, diagnostics and pathways.

The ABPI, the ABHI and the NHS Confederation are establishing an Innovation Pipeline Project, designed to increase the adoption and diffusion of proven technologies in areas of high clinical need to deliver high quality patient outcome and efficiency gains.

The NHS Commissioning Board will work with the partners to support the delivery of this collaboration ensuring the partnership projects are prioritised by NHS organisations in their localities and their success is effectively spread across the NHS. An important objective is to ensure a matching of needs of NHS commissioners and providers with the experience and expertise of industry partners.

We will support the Innovation Pipeline Project, which will undertake 15-20 joint working projects between NHS providers and ABPI and ABHI member organisations by the end of 2013.

E-CONSULTATION

Clinicians in Bradford have introduced e-consultations between GPs and nephrologists for patients with chronic kidney disease. Sharing primary care records electronically with hospital specialists asynchronously at times convenient to each has enabled more informed clinical decision-making and reduced outpatient referrals. For GPs the service provides timely and helpful advice, and supports management of chronic kidney disease in the community.

British pathologist Almroth Wright developed the first anti-Typhoid vaccine

A common feature of any genuinely innovative organisation is clear top-level commitment from the Board. Every NHS Board should explicitly invest time, resource and effort in innovation. Specifically:

- We will require Clinical Commissioning Groups (CCGs) to seek out and adopt best practice, as part of the **legal duty to promote innovation**, and capacity for innovation will be integral to the CCG authorisation process.

- We will require the Chief Executive of every NHS commissioning organisation, including the NHS Commissioning Board, to take **personal responsibility** to ensure that arrangements are in place to champion research, innovation and adoption, and that the adoption and spread of proven innovation is central to their commissioning plans.

THE NHS OPERATING FRAMEWORK ASKS THE NHS TO PRIORITISE THE ADOPTION AND SPREAD OF EFFECTIVE INNOVATION AND GOOD PRACTICE

CLINICAL COMMISSIONING GROUPS WILL BE UNDER A DUTY TO SEEK OUT AND ADOPT BEST PRACTICE, AND PROMOTE INNOVATION

WE WILL STRENGTHEN LEADERSHIP AND ACCOUNTABILITY FOR INNOVATION AT BOARD LEVEL THROUGHOUT THE NHS

HIGH IMPACT INNOVATIONS

We know the NHS can spread new ideas at pace and scale when it puts its mind to it. In fact it has a long and successful track record on this – 4 hour waits in A&E, health care associated infections (HCAI), prevention of venous thromboembolism (VTE), 18 weeks waiting times, to name a few. In each case we have succeeded because of a single-minded determination to deliver at all levels of the Department of Health and NHS.

We need to do more of this. We need to scan for those ideas that will deliver game-changing improvements and work systematically to spread them at pace and scale. We will make an immediate start:

3 MILLION LIVES

Early indications from the **Whole System Demonstrator programme** show that dramatic (and independently evaluated) reductions in emergency attendances, admissions, levels of mortality and hospital bed days are possible. To make the most of these possibilities we need to spread the use of telehealth and telecare across the country.

Assistive technologies have the potential to deliver transformational improvements in the quality of care we provide, and taken together with service redesign they also have the potential to deliver significant cost savings. We have the opportunity to adopt these technologies on a scale that would put the NHS at the forefront of the management of chronic disease globally.

However, capital investment costs can be prohibitively expensive. To avoid this we will work with industry to identify ways of reprofiling costs so that they can be met from downstream revenue savings.

- We will accelerate the use of assistive technologies in the NHS, aiming to improve at least **3 million lives** over the next five years.

OESOPHAGEAL DOPPLER MONITORING (ODM)

ODM is a minimally invasive technology used by anaesthetists during surgery to assess the fluid status of the patient and guide the safe administration of fluids and drugs.

In March 2011, NICE published guidance on the use of ODM, recommending it for patients undergoing major or high-risk surgery and certain other surgical patients. Despite a comprehensive evidence base, uptake of this technology has been poor across the NHS. Full adoption of this technology across the NHS is forecast by NICE to benefit over 800,000 patients and generate net financial savings of over £400m. Current information suggests that these technologies are used for less than 10% of applicable patients.

- We will launch a national drive to get full implementation of ODM, or similar **fluid management monitoring technology,** into practice across the NHS.

1980
UK's first coronary angioplasty performed at the Brompton Hospital, London

CHILD IN A CHAIR IN A DAY

Whizz-Kidz (a wheelchair services charity) set itself the ambition of getting disabled children into a wheelchair appropriate to their needs within one day. This compares to waiting times in the NHS, which can be up to 200 days or longer. The Whizz-Kidz model combines the best of the charitable sector with the best of the commercial sector to deliver high quality, high value and highly responsive services. The NHS must do more to develop and spread these types of transformational programmes at pace and scale. In particular, they should work with local stakeholders and provider organisations to deliver or procure wheelchair services that emulate the success of the Whizz-Kidz model.

- We will launch a **'Child in a chair in a day'** programme to transform the delivery of wheelchair services throughout the NHS.

INTERNATIONAL AND COMMERCIAL ACTIVITY

The NHS receives regular requests for help, support and advice from a range of established and emerging health economies. We are the preferred partner of choice for many, but have not always responded systematically to those requests. The international healthcare market is worth more than $4 trillion a year, and the NHS must do more to exploit the commercial value of its knowledge, information, ideas and people. The opportunities are significant, and if grasped they will not only return revenue, expertise and new ideas to the NHS to improve healthcare, but will also help drive growth in UK PLC.

WHEELCHAIRS FOR CHILDREN

Whizz-Kidz's ambition is to give 70% of children the equipment they need on the day of assessment – they currently achieve 65%. Tesco helped by sharing expertise in bulk buying and customer service, and Accenture introduced lean management techniques. This enabled Whizz-Kidz to deliver shorter waiting times, higher patient satisfaction, improved clinical efficiency, direct supply and delivery savings of about £2,400 per user, and improved quality of life valued at between £10 and £65 for every £1 invested.

The Department of Health, NHS and UK Trade and Investment will jointly host a summit in the new year to develop proposals to realise the huge potential for the NHS to generate commercial revenue from overseas activity, and accelerate the pace and scale of existing activity.

- We will require NHS organisations to work with the NHS Improvement Body supported by UK Trade and Investment to explore opportunities to **increase national and international health care activity.**

DIGITAL BY DEFAULT

While face-to-face contact is central to much of clinical medicine, it is not necessary for every interaction. Attending hospital to receive a negative test result is quite often unnecessary, as well as being inconvenient for the patient. For many people who use electronic media as part of their daily lives, the ability to use email for non-confidential communications, or to have a remote consultation using telephone or online technology, would offer a much more convenient way of accessing NHS services. The NHS can do more to drive down the level of inappropriate and unnecessary face-to-face contacts.

Currently face-to-face contact accounts for nearly 90% of all healthcare interactions; every 1% reduction in face-to-face contact saves up to £200m.

The UK has been awarded 34 Nobel Prizes in medicine, countless lives changed and saved

- We will require the NHS to work towards **reducing inappropriate face-to-face contacts** and to switch to higher quality, more convenient, lower cost alternatives, making use of the transformational improvements in the quality of information technology.

CARERS FOR PEOPLE WITH DEMENTIA

There are estimated to be 600,000 people in the UK acting as the primary carers for people with dementia. Caring can be an overwhelming experience, bringing irreversible changes to lives and relationships. Carers can benefit significantly with comprehensive support, including emotional support, assistance with day-to-day caring and access to respite and short breaks.

The costs of caring are significant. Carers save the UK public purse £6 billion every year. Without provision of better support for carers, such as the provision of carer breaks and access to a range of psychological therapies, an increasing number will be unable to continue caring and pressure on the health and care system will continue to grow.

The NHS must ensure that a range of these psychological therapies are being commissioned and are available in line with NICE-SCIE guidelines. As set out in the NHS Operating Framework 2012/13, the NHS should also ensure that there is better provision of carers' breaks.

- We will require the NHS to commission services in line with NICE-SCIE guidance on **supporting people with dementia**

CQUIN

These are all compelling proposals that can rapidly deliver quality and productivity improvements, which we would expect every NHS organisation to address. It is not our intention, nor is it appropriate, to make judgements about compliance from the centre, but we will require commissioners to satisfy themselves that all eligible organisations are delivering the high impact innovations set out in this report in order to pre-qualify for CQUIN payments. This will take effect from 2013/14. In the meantime commissioners and providers should work together to prepare for the new arrangements.

- From April 2013, compliance with the high impact innovations will become a **pre-qualification requirement** for CQUIN

WE WILL RAPIDLY ACCELERATE THE USE OF ASSISTIVE TECHNOLOGIES IN THE NHS, AIMING TO IMPROVE AT LEAST 3 MILLION LIVES OVER THE NEXT FIVE YEARS

WE WILL LAUNCH A NATIONAL DRIVE TO GET FULL IMPLEMENTATION OF ODM, OR SIMILAR FLUID MANAGEMENT MONITORING TECHNOLOGY INTO PRACTICE ACROSS THE NHS.

WE WILL LAUNCH A 'CHILD IN A CHAIR IN A DAY' PROGRAMME TO TRANSFORM THE DELIVERY OF WHEELCHAIR SERVICES THROUGHOUT THE NHS

WE WILL REQUIRE NHS ORGANISATIONS TO EXPLORE OPPORTUNITIES TO INCREASE NATIONAL AND INTERNATIONAL HEALTHCARE ACTIVITY AND WILL HOST A SUMMIT WITH UK TRADE AND INVESTMENT IN THE NEW YEAR

WE WILL REQUIRE THE NHS TO WORK TOWARDS REDUCING INAPPROPRIATE FACE-TO-FACE CONTACTS AND TO SWITCH TO HIGHER QUALITY, MORE CONVENIENT, LOWER COST ALTERNATIVES

WE WILL REQUIRE THE NHS TO COMMISSION SERVICES IN LINE WITH NICE-SCIE GUIDANCE ON SUPPORTING PEOPLE WITH DEMENTIA

FROM APRIL 2013, COMPLIANCE WITH THE HIGH IMPACT INNOVATIONS WILL BECOME A PRE-QUALIFICATION REQUIREMENT FOR CQUIN

1988
James Black wins Nobel Prize for inventing beta blockers

NHS

SUMMARY OF ACTIONS

REDUCING VARIATION AND STRENGTHENING COMPLIANCE

We will introduce a NICE Compliance Regime to reduce variation and drive up compliance with NICE Technology Appraisals

We will require that all NICE Technology Appraisal recommendations are incorporated automatically into relevant local NHS formularies in a planned way that supports safe and clinically appropriate practice

We will establish a NICE Implementation Collaborative to support prompt implementation of NICE guidance

METRICS AND INFORMATION

We will develop and publish an innovation scorecard to track compliance with NICE Technology Appraisals

We will procure a single comprehensive and publicly available web portal for innovation in the NHS

We will work with Which? to raise awareness among the public and patients of innovations in healthcare

We will establish the Clinical Practice Research Datalink (CPRD),a new secure data service within the Medicines and Health Care Products Regulatory Agency (MHRA)

CREATING A SYSTEM FOR DELIVERY OF INNOVATION

We will establish a number of Academic Health Science Networks (AHSNs) across the country.

We will publish details of the AHSN designation process in March 2012

We will undertake a sunset review of all NHS/DH funded or sponsored innovation bodies.

With immediate effect, NICE will take responsibility for the iTAPP programme

INCENTIVES AND INVESTMENT

We will align financial, operational and performance incentives to support the adoption and diffusion of innovation

We will increase the profile of, and maintain investment in, the NHS Innovation Challenge Prizes

We will extend the 'never events' regime and encourage disinvestment in activities that no longer add value

We will establish a Specialised Services Commissioning Innovation Fund

PROCUREMENT

We will publish a procurement strategy in March 2012

We will double our investment in the Small Business Research Initiative

We will review the existing NHS intellectual property strategy and develop a model for contracts that is fit for purpose

DEVELOPING OUR PEOPLE

We will ensure that innovation is 'hard-wired' into educational curricula, training programmes and competency frameworks at every level

We will establish joint industry and NHS training and education programmes for senior managers

We will establish an NHS Innovation Fellowship Scheme

LEADERSHIP FOR INNOVATION

The NHS operating framework asks the NHS to prioritise the adoption and spread of effective innovation and good practice

Clinical Commissioning Groups will be under a duty to seek out and adopt best practice, and promote innovation

We will strengthen leadership and accountability for innovation at Board level throughout the NHS

HIGH IMPACT INNOVATIONS

We will rapidly accelerate the use of assistive technologies in the NHS, aiming to improve at least 3 million lives over the next five years.

We will launch a national drive to get full implementation of ODM, or similar fluid management monitoring technology, into practice across the NHS.

We will launch a 'child in a chair in a day' programme to transform the delivery of wheelchair services throughout the NHS

We will require NHS organisations to explore opportunities to increase national and international healthcare activity and will host a summit with UK trade and investment in the new year

We will require the NHS to work towards reducing inappropriate face-to-face contacts and to switch to higher quality, more convenient, lower cost alternatives

We will require the NHS to commission services in line with NICE-SCIE guidance on supporting people with dementia

From April 2013, compliance with the high impact innovations will become a pre-qualification requirement for CQUIN

IMPLEMENTATION

"The potential for the NHS to deliver innovation at scale and pace is enormous – it is vital and urgent that we go on to deliver the benefits"

SIR DAVID NICHOLSON, CHIEF EXECUTIVE, NHS ENGLAND

In order to develop the recommendations set out in this report we have consulted with a very broad range of stakeholders and interested communities, including academia, the scientific community, industry, the NHS, representative bodies such as the NHS Confederation, the Technology Strategy Board, Royal Colleges and many others. That process has contributed significantly to the richness and depth of thinking underpinning this review and its findings, and has helped shape a set of actions that have the potential to deliver game-changing improvements in the pace and scale of change in the NHS. In particular, the External Advisory Group has been instrumental in stress testing emerging ideas and helping finalise the list of actions.

We now need to turn our attention towards implementation. This will need all parts of the health and social care system to plan and improve together, ensuring frontline services continue to provide safe, high quality and good value care and spreading best practice and new ideas right across the NHS. To do that in a tougher economic and financial climate will need strong leadership at all levels.

Though current models of improvement and change that have emerged in health over the past decade have delivered benefits, they have also resulted in fragmentation and significant duplication of effort, with a multiplicity of different change approaches being used. If the NHS is to achieve results which are amongst the best in the world we will need a system that can significantly ramp up the pace and scale of change and innovation.

The new commissioning system presents an opportunity to de-clutter, consolidate and streamline innovation activity in the NHS. This means ensuring the support, advice and guidance available is fit for purpose for the new NHS, focused around a single model for driving transformation and change.

A single model will avoid the problems of fragmentation and duplication that have previously beset the system; it will underpin a massive improvement approach.

As we move into implementation it is vital that we maintain momentum and deliver quickly and effectively. First, we will establish an Implementation Board to oversee delivery. The Board will be chaired by Sir Ian Carruthers, reporting to the NHS Chief Executive. The Board will be small and membership will include our most senior stakeholders who will ensure a relentless focus on delivery.

We will also establish a series of cross-sectoral "Task and Finish" groups to lead the delivery of individual actions. Each group will be led by a Board level sponsor with leading practitioners and experts drawn from the public, private, academic, scientific and NHS communities.

Where necessary, more detailed assessments of potential economic impacts (to ensure value for money for tax payers) and equality impacts (to ensure legal equality duties are met) will be undertaken as part of the implementation process.

2000
Sanger Centre in Cambridge contributes one third of the human genome sequence

TIMELINE

LAUNCH-3 MONTHS

NICE to take responsibility for the iTAPP programme

International healthcare summit with UK Trade and Investment

NHS Operating Framework published

Whole Systems Demonstrator and Three Million Lives launched

First meeting of Showcase Hospital group

Uptake programme for use of ODM or similar fluid management monitoring technology launched

Sunset Review commissioned

Round two of the Innovation Challenge Prizes announced

Innovation Pipeline Project launched

Department of Health Procurement Strategy launched

NICE Compliance introduced

Advice on decommissioning in NICE Guidance strengthened

Details of AHSN designation process published

3-9 MONTHS

Specialised Services Commissioning Innovation Fund launched

Child in a Chair in a Day programme launched

NICE Implementation Collaborative established

Guidance on best use of existing local tariff flexibilities published by NHS Institute

Intellectual Property guidance published

NHS Innovation Fellowship Scheme launched

Joint NHS /Industry training and education programme established

Which consumer campaigns launched

Innovation Scorecard published

Web Portal for NHS Innovations launched

Extension of Never Events

Guidance on Digital by Default published

Academic Health Science Networks operational

9 MONTHS AND OVER

New managerial and clinical curricula launched

CQUIN prequalification introduced

Competency frameworks published

Guidance on tariff for diagnostics published

Guidance for job descriptions and performance appraisals published

Tariff for Assistive Technologies introduced

Shared Savings formula guidance published

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GLOSSARY

ASSISTIVE TECHNOLOGIES
A product or service designed to enable independence for disabled and older people.

ATLAS OF VARIATION
A tool to help the NHS identify unwarranted variation in healthcare services.

BIOTECHNOLOGY
The application of scientific and technical advances in life science to develop commercial products.

COMPLIANCE
The adherence to standards, regulations, and other requirements.

CQUIN
Commissioning for Quality and Innovation – a payment framework to reward excellence, by linking income to the achievement of local improvement goals.

DECOMMISSIONING
A formal process to remove a service, product or process from routine use.

DIGITAL BY DEFAULT
The use of Information Technology to enable faster, more efficient online self-service.

FLUID MANAGEMENT TECHNOLOGY
A minimally invasive technique that surgical teams can use to improve the quality of the care they provide to certain patients.

INNOVATION CHALLENGE PRIZE PROGRAMME
Awards given to NHS organisations across the country to recognise and reward those who have delivered ground-breaking innovations.

INTELLECTUAL PROPERTY
A term which refers to creations of the mind: inventions, literary and artistic works, and symbols, names, images, and designs used in commerce.

KNOWLEDGE & SKILLS FRAMEWORK
A framework which defines and describes the knowledge and skills which NHS staff need to apply in their work in order to deliver quality services.

NEVER EVENTS
Serious, largely preventable patient safety incidents that should not occur if the available preventative measures have been implemented.

NHS FORMULARIES
The specification of which medicines are approved to be prescribed based on evaluations of efficacy, safety, and cost-effectiveness.

OPERATING FRAMEWORK
A Framework which sets out the national priorities for the NHS on an annual basis.

PROFESSIONAL SKILLS FOR GOVERNMENT
A competency framework that sets out the skills that staff in the Civil Service need to do their job well, at all levels.

QIPP
Quality, Innovation, Productivity and Prevention - improving the quality of care the NHS delivers whilst making efficiency savings.

REGIONAL INNOVATION FUND
A Fund held at regional level aimed at encouraging innovation in healthcare.

REVERSE INNOVATION
A term used to describe a quality or productivity improvement that involves stopping doing something that no longer adds value.

SHOWCASE HOSPITAL PROGRAMME
A programme for selected hospitals to test a range of new technologies prior to wider diffusion.

SUNSET REVIEW
An evaluation of the need for the continued existence form or funding of a program or organisation.

TECHNOLOGY APPRAISALS
The process of developing recommendations on the use of new and existing health technologies in the NHS

VALUE BASED PRICING
A system to improve patients' access to effective and innovative drugs by ensuring they are available at a price that reflects the value they bring.

VALUE PROPOSITION
A product or service that adds more value or offers a better solution to a problem than other similar proposals.

VARIATION
Variation in the provision of healthcare services or outcomes of care that cannot be explained by variation in patient or patient preferences

WHOLE SYSTEM DEMONSTRATOR PROGRAMME
A research project funded by the Department of Health to find out how technology can help people manage their own health while maintaining their independence.

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