

Healthcare Science National Delivery Plan for Healthcare Science Professionals in Scotland 2014-2017

Healthcare Science Delivery Plan

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EXECUTIVE SUMMARY

The vision and ambition for NHSScotland is clear. It is for safe, effective and person-centred care with a commitment to supporting everyone to live longer, healthier lives at home or in a homely setting through the provision of integrated health and social care services. As the Scottish Government's *20:20 Vision* puts it:

The demands for health care and the circumstances in which it will be delivered will be radically different in future years. We must be bold enough to visualise the NHS that will best meet the needs of the future in a way that is sustainable and make the changes necessary to turn that vision into reality.¹

So what does this mean for the healthcare science workforce in Scotland?

Healthcare scientists are an integral part of the infrastructure essential to the delivery of high-quality, safe and modern healthcare. They provide the information that underpins sound clinical decision-making with individual patients and their families in the context of advancing technology and increasing complexity.

However challenging it may seem, healthcare scientists need to become more proactive and less reactive to better anticipate and manage the systems they deliver. There are many excellent examples of how healthcare scientists are achieving this aspiration across Scotland but significant, and unnecessary, variation remains.

Many changes to the way services are delivered in terms of practice and redesign, not least through the integration of health and social care, are required. The emergence of an ageing population with multi-morbidities also presents clear implications for the service. It is therefore essential that the potential of all staff groups within healthcare science are fully realised.

¹ A 20:20 Vision, Scottish Government 2011.

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Everyone has a role to play in making the NHSScotland *2020 Vision* a reality. We all need to step up to grasp the opportunities and address the challenges ahead in matching healthcare demand to the effective utilisation of resources and the service's capacity to deliver.

There are approximately 6000 healthcare science staff working across Scotland. They comprise the fourth largest clinical group and are responsible for around 80% of all diagnoses. Collectively, healthcare scientists undertake over 60 million laboratory tests per year, 730,000 physiological measurements, and manage medical equipment across NHSScotland with a replacement value in excess of £760M.

This hugely diverse and highly skilled workforce delivers across the breadth of NHSScotland, from providing leading-edge technological services such as positron emission tomography and magnetic resonance imaging, through advanced laboratory diagnostics and the genomic revolution, to more patient-facing aspects of physiological sciences, including diagnosis and treatment of hearing disorders, calibration of pacemakers, providing wheelchairs and managing medical equipment.

In a time of rapid change in the NHS, with ever-increasing demands on a finite resource, healthcare scientists are ideally placed to drive the innovation and improvement required to deliver more efficient and sustainable services for the future. NHS boards therefore need to harness this untapped resource and include healthcare scientists in their planning and improvement work whenever possible.

Healthcare scientists already make a vital contribution to core healthcare provision across all sectors of the system. But with limited resources and rising demand, healthcare scientists and team members have a duty to ensure they are working at the top of their clinical capability, doing things that should only be done by them, and achieving maximum patient benefits from their resource. This is not just an argument for more education and training; it is also essential to ensure that capability already in the system is used to best effect.

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We must strive for improvements that bring common-sense principles to avoiding waste, harm and variation. We must also step up to the leadership challenges of delivering sustainable and affordable services and pathways of care that reduce demand and improve outcomes. Healthcare scientists thrive in the context of problem-solving, and never has the requirement for solutions been more pressing in shaping future health provision.

We have a job to do in organising ourselves for the work ahead; strengthening healthcare science professional leadership and building improvement expertise.

The questions healthcare scientists must ask are:

Are we doing everything necessary to release capacity by reducing unnecessary testing?

Are we bringing coherence to near-patient testing, the management and calibration of equipment and training of multi-disciplinary staff involved across the system?

Are we utilising our expertise at the top end of scientific capability to deliver sustainable, affordable clinical teams and address our skill-mix across the service, including the appropriate deployment of support staff?

The National HCS Delivery Plan calls for healthcare scientists to be more visible, accountable and outcome-orientated. It aligns healthcare science activity with the National Performance Framework, the 20:20 Route Map and Workforce Vision and the current priority of unscheduled care and seven-day services. It also continues to focus on continuous improvement to support people to live longer, healthier lives and be enabled to self-manage their long-term conditions, including multi-morbidities.

Better measurement and data collection will be required to support healthcare scientists to contribute to the delivery of national outcomes, underpin improvement and strengthen efficiency and productivity.

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Modern and flexible working practices (including exploiting technology) and working across traditional professional boundaries will be key to efficient and effective service delivery, maximising capacity within existing resources and realising the potential of this highly trained and skilled workforce.

Undergraduate and postgraduate education and training needs to align with this aspiration, but the education agenda is not an end in itself: delivering high-quality scientific practice across the strands of healthcare science service provision is also vital, as is utilisation of all available resources, most critically the existing workforce.

This delivery plan speaks to healthcare science as a call to action, but also to directors, clinical leads and diagnostic managers engaged in the improvement and performance-management of these services. The prize will be delivering better care and better outcomes for the people and communities we serve through engaged and empowered healthcare science staff throughout NHSScotland.

1. INTRODUCTION

The Scottish Government published *Safe, Accurate and Effective; an Action Plan for Healthcare Science in NHSScotland* in November 2007. This important document, developed through an inclusive process involving the Scottish Forum for Healthcare Science, healthcare scientists and workforce colleagues from across NHSScotland, was the first to set a strategic direction for this staff group.

The then Cabinet Secretary for Health and Wellbeing described in the foreword that the purposes of the document were to:

- maximise the contribution of healthcare science to improving the health and well-being of the people of Scotland through safe, accurate and effective healthcare science interventions;
- ensure that healthcare science expertise contributes to the development of sustainable clinical teams that will underpin the implementation of the new health policy agenda in Scotland; and
- ensure that the clinical leadership, research capacity and capability of the healthcare science workforce is harnessed to contribute to national and local priorities that improve the quality of care and outcomes for patients.

The action plan made recommendations for developments in 12 areas, including visibility and engagement, community-centred healthcare, leadership capacity, improvement, role development, diagnostic waits, and research, development and innovation. The recommendations have largely been implemented. Most NHS boards now have healthcare science (HCS) advisory committees reporting through the local area clinical forum and many also have lead HCSs in post, bringing the HCS voice to board-level planning and delivery issues. Investment has been made in HCS leadership development, focusing on succession planning and building a cadre of leadership talent capable of leading improvements beyond traditional working practices. HCS networks have become increasingly important in sharing best practice across NHSScotland.

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NHS Education for Scotland (NES) has played a vital role in delivering education solutions to service and workforce challenges. Work to address educational development and sustainability issues for some key professions and small occupational groups is ongoing, in partnership with the Health Workforce & Performance Directorate of the Scottish Government.

Despite progress in these areas, HCS faces a considerable task in shifting the focus of professionals 'upstream' towards a greater emphasis on prevention, early detection and treatment and interventions that support people to live well in their community, with pathways of care that mitigate the need for hospital referral or admission and support self-management of long-term conditions and multiple co-morbidities. More of the same cannot be the answer: new solutions need to emerge, with new and more flexible ways of working to enable capacity to be realised and utilised in new ways.

The challenges facing NHSScotland have never been more pressing. For instance:

- the population is expected to increase by up to 10% over the next 25 years;
- the percentage of the population over 65 will increase by around 63% over the next 25 years;
- the NHS is committed to reducing the time people wait for healthcare, including a guaranteed 'referral-to-treatment' time of 18 weeks; and
- the NHS aims to improve the quality of safe, effective and person-centred healthcare, including reducing healthcare-associated infections.

These pressing issues must be faced at a time of financial challenges, making new ways of working a strategic imperative.

The *National Healthcare Science Delivery Plan* provides a unique opportunity to align the contribution of HCSs to the principles set out in the *Healthcare Quality Strategy for NHSScotland* (Scottish Government, 2010), the *20:20 Vision for*

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Sustainable Quality in Scotland's Healthcare (Scottish Government, September 2011) and the *20:20 Route Map* (2013). In particular, it seeks to maximise the contribution of HCS to a healthy organisational culture and help to create a sustainable, capable and integrated workforce with effective leadership and management.

This includes efforts to integrate primary and secondary care. HCSs have a key role to play in redesigning patient pathways by providing responsive advice and services to underpin integrated care and diagnostic tests in primary care. Some of this work is already underway in NHS boards across the country. Where this is the case and good evidence of improvement and benefits has been collected, consideration needs to be given on how spread and sustainability can be delivered at scale.

1.1 Healthcare scientists' roles

Many HCS roles have a history longer than the NHS. They have evolved significantly over recent decades in response to changing pressures on services. This evolutionary process has created an array of career structures, roles and responsibilities, prompting the desire to reconfigure scientific career pathways to equip staff for the changing demands of the 21st century.

A new approach to workforce planning that looks at how best to deploy HCS staff as part of integrated professional teams is required. There is a need not only to describe traditional HCS roles, but also to articulate how they may be more effectively positioned to fully utilise HCS skills and expertise.

Numerous examples exist of HCS staff extending their practice into areas previously only undertaken by medical staff as part of integrated multi-disciplinary team approaches to supporting effective and sustainable care. This has the potential to support ambitions for delivery of NHSScotland's seven-day services.

Cytology services have led the way in deploying HCSs in interpretive roles, with great benefit to clinical outcome measures and cost-effectiveness. Similarly, histopathology dissection has been developed as an extended-practice role in a

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number of NHS boards, freeing up consultant histopathologist time. Many more examples of diagnostic departments being appropriately led by HCSs can be seen around the country. This has particularly obvious benefits in disciplines such as haematology, in which medical consultants spend a large proportion of their time in direct clinical contact with patients, designing and delivering their treatment.

Achieving the goal of improving services within a challenging financial environment requires deployment of the highly skilled HCS workforce in more advanced and extended roles. This is a very challenging ambition: ever-increasing demands on services can make it difficult for staff to fully consider the scope of the HCS contribution to health and social care. HCSs are busy delivering the service, with limited capacity to explore creative solutions and challenge accepted or unproductive practices.

Opportunities for advanced practice were nevertheless recognised in the *Report of the Diagnostic Workforce Short-life Working Group, July 2013*. It set out 10 recommendations, the second of which was:

Building on achievements to date, redesign, skill mix and roll extension appropriate to task should be applied across all specialties, while ensuring cost effective, efficient, high quality and safe service delivery.

Like the rest of the UK, Scotland is moving towards a four-tier HCS workforce structure with assistant/associate grades, practitioners, scientists and consultant scientists. Greater use of assistant/associate grades has significant potential to release greater numbers of highly trained colleagues to take on advanced roles. The driver is the development of sustainable multi-professional diagnostic teams to underpin the delivery of unscheduled and scheduled care.

All scientists and practitioners need to be working in the upper quartile of their clinical expertise. Now more than ever, it is essential that the most experienced, expert and expensive staff resource is not preoccupied with routine tasks and service provision, but realises its full potential in service delivery.

1.2 The National HCS Delivery Plan

The Delivery Plan focuses on the period 2014–2017 and aims to provide a strategic platform for future HCS activity, with a deliberate shift from introspection towards the delivery of high-impact changes for the people and organisations HCSs serve. It demonstrates the contribution HCSs can make and the impact they can have on the delivery of national policy, patient experience and outcomes.

The Delivery Plan is fundamentally about making explicit the alignment of HCS leadership and practice to the delivery of the *Quality Strategy* and *2020 Workforce Vision*. It shows how better value can be extracted from HCS expertise from strategic to frontline levels and demonstrate the impact for patients and NHS service users. It defines the future vision for HCSs and the services they deliver, focusing specifically on a number of high-level outcomes that HCS services will effect and setting out key recommendations for change.

NHS boards will develop local plans identifying how they intend to implement and evidence the outcomes of the Delivery Plan by a proposed target of the 2015 year-end. Annual reviews of progress against local implementation plans will be led by the Chief Health Professions Officer (CHPO) for Scotland.

1.3 This consultation

This consultation document has been developed in partnership with leaders and HCSs from across the country. The process of engagement will continue and extend to a broad range of key stakeholders and groups during the consultation period, which will run until September 2014 (three months from publication).

General consensus has been reached among key professional leaders that the broad direction of the plan is right, but we want to consult further on:

- the overall structure and approach of the National HCS Delivery Plan;
- the key proposals (are they sufficiently ambitious, are they achievable, and are there any significant gaps that need to be addressed?); and
- prioritisation to support local implementation.

1.4 Responding to the consultation

We are inviting written responses to this consultation by 30 September 2014.

Please send your response with the completed Respondent Information

Form (see “Handling your response” below) to:

CNOPPPAdmin@scotland.gsi.gov.uk

Or by post to:

Julie Townsend

Scottish Government Health Directorate

Directorate for Chief Nursing Officer, Patients, Public and Health
Professions

GE19, St Andrew's House

Regent Road

Edinburgh

EH1 3DG

If you have any queries please contact Julie Townsend on 0131 244 3739.

This consultation, and all other Scottish Government consultation exercises, can be viewed online on the consultation web pages of the Scottish Government website at

<http://www.scotland.gov.uk/consultations>

1.5 Handling your response

We need to know how you wish your response to be handled, and, in particular, whether you are happy for your response to be made public. Please complete and return the Respondent Information Form attached as an annex to this paper as this will ensure that we treat your response appropriately. If you ask for your response not to be published, we will regard it as confidential and treat it accordingly.

All respondents should be aware that the Scottish Government is subject to the provisions of the Freedom of Information (Scotland) Act 2002 and would have to consider any request made to it under the Act for information relating to responses made to this consultation.

Where respondents have given permission for their responses to be made public and after we have checked that they contain no potentially defamatory material, responses will be made available to the public in the Scottish Government Library (see attached Respondent Information Form). These will be made available to the public in the Scottish Government Library. You can make arrangements to view responses by contacting the library on 0131 244 4556. Responses can be copied and sent to you, but a charge may be made for this service.

1.6 What happens next?

Following the closing date, all responses will be analysed and considered along with any other available evidence to help us to reach a decision on the content of the final Delivery Plan which will be published in Autumn 2014.

2. LEADERSHIP FOR CHANGE

Transformational change requires transformational leadership. HCS leads' influence is already high in a number of NHS boards, but not all are sufficiently well positioned to affect local decision-making or influence planning decisions. Where HCS leads exist, their professional role is not uniformly recognised as legitimate. Their visibility and accountability for delivery of organisational priorities needs to be strengthened through a new and innovative approach to leadership that supports them to exert influence across boards, applying their resources and abilities to help meet local priorities and performance targets and the ambitions of the *Quality Strategy*.

Many of the proposed recommendations outlined below rely heavily on HCSs leading improvements. It is essential that leadership development opportunities for HCSs continue to expand, building capacity across NHSScotland.

2.1 Leadership in service design

HCS staff work across a wide range of services that are often loosely described as 'demand-led'. The implication is that the primary drivers for their services are external, and their role is to respond to and support developments elsewhere.

A more efficient approach is to include HCS delivery at the heart of service design centred on the patient. This has traditionally been a difficult process, as clinical services often rely on diverse HCS input from physical, physiological and life sciences that are commonly situated in different parts of the management structure and which contribute to different stages of the patient pathway. Central, strategic, professional leadership should ensure that comprehensive HCS expertise is offered at an early stage in service design/redesign.

NHS boards are charged with providing health services for their geographical area. There has long been a recognition that some HCS services are better served by supra-regional or national network/consortia arrangements that offer the potential for economies of scale and ensuring equality of provision across the country. HCSs

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have been instrumental in building on existing informal professional networks to establish robust national networks that drive service improvement.

The national consortia for cervical cytology screening provide an example of what can be achieved through this collaborative approach (Box 1).

Box 1. Service redesign: cervical cytology

Cervical cytology has been going through structural change. Recognition that the NHS board-based model for ensuring a HPV (Human Papilloma Virus)-vaccinated population and greater influence of high-throughput molecular testing methodologies for HPV may be difficult to sustain prompted a review and the development of a new model.

Two consortia, East and West of Scotland, were established. New hub-and-spoke mechanisms for automated imaging have been developed in the consortia and a multiple health board managed service contract that standardises technology across Scotland has delivered savings to all contracted boards by standardising price, realising VAT benefits and producing increased productivity through the introduction of imaging technology.

The model has been supported by a pan-Scotland IT system, the Scottish Cervical Cytology Results System (SCCRS), for call, recall, electronic laboratory requesting and reporting. This has facilitated a standardised methodology across Scotland and enabled the seamless transfer of regional work from boards facing capacity pressures to fellow boards in other regions.

A changing staff skill-set requirement and reduced numbers of staff will be necessary as these testing and technology changes take effect, which will probably render some board laboratories difficult to sustain in the longer term. The new consortia model will help departments to support safe and sustainable services through a period of significant change.

Molecular genetics and cytogenetics is another area in which services have come together to offer a comprehensive unified service across Scotland. While laboratories in Grampian, Tayside, Lothian and Greater Glasgow and Clyde are managed by their local NHS boards, they collaborate over shared training resources and have adopted an approach to maximise efficiency across the country. The more recent development of the Molecular Pathology Network has built on the strengths of the Scottish Pathology Network (Span) and the Genetics Consortium to develop an integrated approach to the delivery of molecular pathology testing that is the first of its kind in the UK.

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Integrated physiology services

Physiology services are often spread across several departments, hindering the development of integrated care pathways. NHS Ayrshire & Arran houses a joint clinical physiology service in one department. It offers cardiology, vascular, respiratory and neurophysiology services, allowing greater freedom to cross-refer and reducing inefficiencies and unnecessary patient journeys.

Physiology services in smaller boards are supported by regional centres in spoke-and-hub arrangements, such as specialist advice and tests in neurophysiology and sleep physiology being available in Glasgow Southern General Hospital or the Royal Infirmary of Edinburgh (sleep physiology) and the Western General Hospital, Edinburgh (neurophysiology). Electronic traces in neurophysiology are checked, approved and reported or further opinion sought. This allows smaller boards to maintain a local service, with the benefit of professional-to-professional specialist opinion just a phone call or email away. Agreements are such that smaller boards have access to on-call systems in larger boards for 24-hour support.

Clinical perfusion scientists based in the Golden Jubilee National Hospital, Royal Infirmary of Edinburgh and Aberdeen Royal Infirmary provide cardiac bypass services, specialist procedures such as patent foramen ovale and atrial-septal defect closures and new services such as extracorporeal membrane oxygenation and transcatheter aortic valve implantation. They also provide national transplantation, organ-retrieval and vascular services, allowing groups of specialist staff to be in the right place at the right time.

Physical sciences such as rehabilitation engineering services operate in regional consortia to deliver wheelchair and bioengineering services and work to national quality ambitions. There are also national training schemes for medical physics and engineering in which supernumerary trainees are placed in various centres for service-based learning.

2.2 Leadership in quality

HCSs have much to offer health boards through their long-established use of quality-assurance approaches. Laboratory services have a wealth of experience in

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detailed benchmarking and external accreditation of laboratory services through Clinical Pathology Accreditation (UK) (CPA), United Kingdom Accreditation Service (UKAS) and the Medicines and Healthcare Products Regulatory Agency (MHRA), which have been powerful drivers of quality improvement in laboratories over the last 20 years. Accreditation is now available for physiology services and is under development for physical sciences. While the cost/benefit of accreditation services will have to be further evaluated, they provide a framework of standards by which services can be delivered to improve patient care.

The focus on quality of services has been renewed following the Francis Inquiry report. HCS expertise in quality management needs to be shared not only among the HCS community, but also with wider healthcare provision. There is nevertheless tremendous variation in the quality support measures in place subject to *where* the patient links in to the healthcare system. Quality initiatives should cover the whole patient pathway and deliver a coherent, seamless and high-quality experience. HCSs are well placed to develop and lead a risk-based, proportionate and reliable system of clinical governance focusing on measurement and testing in healthcare services. They should be encouraged to identify, support and, where appropriate, lead implementation of activities to improve service quality, including sustainable and robust mechanisms for sharing good practice and learning.

With this robust platform to build on, HCS now need to develop additional skills and leadership within the discipline of improvement science to fully exploit their potential in delivering safe, effective and multi-professional clinical care.

Our questions are:

How can HCSs best influence the improvement of patient care, utilising the quality tools at their disposal?

Are the right systems in place across HCS delivery?

If not, what can be done to improve the adoption of quality systems and reduce variation in their use throughout the patient pathway continuum?

2.3 Leadership in research and innovation

Innovation is at the core of scientific training and experience. The drive towards automation of laboratory testing in biochemistry and haematology and the development of strategies for personalised medicine (based on underlying genetic variation) are clear examples. This continues at pace: developments in microbiology are not simply automating existing tests, but moving far more towards molecular-typing strategies.

The Scottish Life Sciences Strategy (2020 Vision) observed:

Our vision is of a Scotland where:

- *our National Health Service (NHS) moves centre stage as a key customer for Scottish Life Sciences businesses and a pivotal stimulator of innovative products and services*
- *there is a more positive appreciation of the opportunities to participate in trials of the most advanced healthcare products, and the associated economic, employment and investment benefits of Scotland's participation*
- *our people increasingly benefit from the early adoption of innovations in diagnosis and treatment, contributing to a better quality of life and longer life expectancy.*

Innovation around physics and physiology

QuickSIN (speech-in-noise) testing is not routine but is regularly being used in audiology to provide extra insights into what might be the most personally appropriate amplification strategy and influence better hearing-aid decisions for clinicians, improving early uptake of hearing aid use.

Physical sciences and engineering are involved in innovation in areas such as upper limb prosthetics, medical optics and scanning for retinopathy. The iLimb hand serves as an example of leadership in healthcare science from technological and business perspectives. The iLimb prosthetic hand is an innovative and world-leading product developed in Edinburgh by an NHS spin-off rehabilitation engineering company founded in 2003. The prosthesis has been available in NHSScotland as of 1 April 2014 as part of the 'State of the Art' prosthetics development programme, the creation of which was led by a HCS, demonstrating HCSs' strong commitment to delivering innovation.

HCSs have a significant leadership role to play in delivering innovation. Their expertise in innovation can bring a fresh perspective to the Scottish life science agenda. They need to be working alongside medical and academic colleagues as equal partners, influencing and bringing new thinking and solutions to the challenges of demographic change, sustainability and affordability of services and to the delivery of more innovative solutions.

Our question is – how might we strengthen HCS leadership at strategic and operational levels to support innovation and promote the added value that HCSs can bring to current challenges and priorities?

Our proposals are set out below. Are these the right actions? What else could we do?

2.4 Proposals

- Each NHS board shall appoint a HCS professional lead and establish a reporting structure to an executive board member, who should encourage HCS leads to adopt corporate leadership roles in clinical engagement, inter-professional working and local planning processes.
- Each NHS board should seek to strengthen and support the ongoing work of local HCS forums. These will work with the HCS lead to improve service visibility and cohesion, ensure inclusion in board-level decision-making and develop HCS services to meet local users' needs.
- HCS leads will consider how to strengthen HCS leadership within and across agencies, identifying HCS line managers' development, training and support needs and promoting the values and behaviours expected in relation to the Staff Governance Standard and quality ambitions.
- National leads for each of the three strands of HCS will work with service managers, HCS leads in each board and existing diagnostic networks to identify and drive improvement, publicise areas of best practice and encourage greater use of supra-regional/national networks.
- HCS leads in physiological and physical sciences will work with networks and Healthcare Improvement Scotland (HIS) to establish working groups to agree

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and drive service standards and mechanisms against which services can be audited.

- Each NHS board will ensure that HCS quality managers' expertise is utilised in driving wider safety and quality improvement activities across the organisation.
- The national lead HCSs in each stream of HCS will lead work on influencing the research and innovation agenda, establishing clear links with the National research and development strategy and supporting the HCS workforce in developing partnerships for innovation.
- HCS leads in NHS boards will drive improvement locally, identifying improvement champions and strengthening data collection to demonstrate outcomes and service impacts.
- The CHPO will work with NES and HIS to establish and train a cadre of improvement leads across HCS.
- HCS leads (and the national lead) will work collaboratively with senior management to develop integrated models of service provision in physical sciences and engineering, covering areas such as medical equipment management. The full potential of the clinical technology workforce will be scoped and utilised to improve the quality and coherence of services.
- HCS leads will work collaboratively with other clinical leaders and managers to explore a more integrated approach to service leadership and delivery of routine physiological measurements in physiological sciences, creating more sustainable and coherent services for the future.

3. DELIVERING INTEGRATED SERVICES IN THE COMMUNITY: REDUCING COSTS AND IMPROVING OUTCOMES

Shifting the balance of care from acute to primary care locations is critical to enabling NHSScotland to increase quality, reduce costs and meet the increasing demands of an ageing population. Many HCS services rely on large centralised facilities utilising complex and expensive technology. However, a substantial amount of HCS activity takes place in the community, with scope to develop this further.

Point-of-care testing (POCT) is increasingly being used in primary care as an alternative to referring samples to centralised laboratories. While this may offer advantages in immediacy of results for patients, it is generally considerably less cost-effective than laboratory-based testing. Where POCT *in vitro* diagnostic (IVD) testing is provided, it is essential that it is appropriately quality-controlled. The International Standard (ISO 22870:2006) and MHRA guidance for POCT (*Management and Use of IVD Point of Care Test Devices*²) both specify HCS staff involvement in the selection and quality-assurance of POCT devices and training. Such activities should be carried out by staff whose training and competence has been recorded: records of staff competency with such devices and procedures are generally poor when compared to laboratory-based counterparts.

A range of physiological measurements is carried out in primary care settings, with increasing use of, for example, 12-lead electrocardiograms. Again, there is concern that lack of appropriate training and competency records for staff performing such tests in the community is leading to inappropriate referrals to secondary care, with ensuing costs and increased anxiety for patients. These tests also involve the use of specialist equipment, requiring specialist input in procurement, maintenance and repair.

HCSs have the skills and expertise to improve the delivery of services in the community. They need to be able to share their expertise with colleagues in

² Access at: <http://www.mhra.gov.uk/home/groups/dts-bi/documents/publication/con071105.pdf>

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primary and community care settings, assure the quality of investigations and safe use of equipment, and reduce inappropriate referrals to secondary care.

In physical sciences and engineering, many equipment-management services are run from medical physics departments. A growing body of evidence suggests that considerable quality improvements and resource savings could be made with better clinical guidelines for equipment use. The increasing use of sophisticated medical devices by a range of professionals, and the consequent risk of inappropriate use, needs to be recognised as a potential threat to patient safety. HCSs can offer support to other professions and training to help avoid problems.

Awareness of the importance of self-management for long-term conditions is growing. Innovations such as the 'My Diabetes My Way'³ interactive website encourage patients not just to monitor their own condition, but also access laboratory results and clinic letters about their condition and treatment and contribute to their own health records. There is considerable scope for HCSs in offering interpretation and advice to patients using such services.

Our question is – how can HCSs' involvement in delivering integrated services in the community be improved, thereby reducing costs and improving outcomes?

Our proposals are set out below. Are these the right actions? What else could we do?

3.1 Proposals

- POCT committees in each health board should take responsibility not only for IVD POCT devices, but also for physiological measurement devices in primary care settings.
- The POCT committee should work with the HCS lead to establish and maintain a register of all POCT devices in primary care.

³ Access at: <http://www.mydiabetesmyway.scot.nhs.uk>

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- The HCS lead should work with partners to develop training and competency frameworks for community-based diagnostics.
- HCSs should be appropriately involved (through POCT committees) in equipment selection and maintenance.
- HCS leads should work with the Scottish Government clinical priorities team, multi-morbidities team and patient groups (such as the Scottish Diabetes Group) to determine the extent to which HCS advice would be beneficial to the self-management of long-term conditions.
- HCS leads should work with patient safety colleagues to scope the nature of medical equipment management challenges and potential risks and develop an optimisation strategy to increase patient safety and reduce resource wastage.

4. REDUCING UNNECESSARY TESTS AND INTERVENTIONS

The recently published atlas of variation in diagnostic services in NHS England⁴ highlights wide variation in the availability and use of diagnostics across the country. Some of this variation is extreme (170-fold variation in the usage of rheumatoid factor testing, for instance) and suggests that both under- and over-testing are common. While these data are from NHS England, it is not unreasonable to assume that the picture in Scotland would be somewhat similar.

Demand for pathology testing increases every year, with a 74% increase in laboratory activity seen in NHS Scotland between 2003/04 and 2010/11. Laboratory services cost £275 million in 2010/11, including £56.4 million spent on testing more than 10 million blood samples. While this growth is to be expected, given the demographic changes in the population and health screening initiatives in primary care, the Carter Review of pathology services in England⁵ estimated that 25% of pathology requests are inappropriate.

A culture that views inappropriate testing as inevitable and something that can be absorbed within costs by the ever-increasing capacity of automated analysers has emerged within laboratory medicine. This does not address the fundamental issue of the very large number of otherwise well patients who will have an abnormal result from an inappropriate test, prompting either further testing or referral to secondary care. The statistical definition of reference ranges determines that for any given test, 5% of a 'normal' unselected population will be outwith the reference range: The laboratories in Greater Glasgow and Clyde, Lothian, Tayside and Highland together perform in excess of 60 million tests per year, equating to more than 3 Million 'abnormal' results being identified annually. Taking the Carter Review's estimate, this workload will generate 750,000 abnormal results per year (more than 2000 per day) on patients who should not have been tested in the first

⁴ Access at: http://www.rightcare.nhs.uk/downloads/Right_Care_Diagnostics_Atlas_hi-res.pdf

⁵ Access at:

<http://www.connectingforhealth.nhs.uk/systemsandservices/pathology/projects/nlmc/carterreview2006.pdf>

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place. Such unnecessary patient anxiety and healthcare costs need to be minimised.

Reasons for 'inappropriate' testing are many. Laboratories may perform tests that have not been requested through reflex testing or applying inappropriate test panels. Healthcare professionals may request tests for non-evidence-based medicine reasons, through uncertainty and lack of training or experience, as a consequence of protocol-based requesting or by lacking awareness of recommended repeat-testing intervals. Failure of patient record availability may also contribute to unnecessary repeat testing. A robust demand-management strategy must address each of these aspects.

While each NHS board recognises the problem and has tried various approaches to mitigate the situation, a consistent integrated approach to demand management is lacking.

HCSs have in-depth knowledge and expertise in the use and limitations of tests. They are ideally placed to influence choice of tests, advise on their suitability in a given diagnostic pathway and recommend the frequency of repeat testing. HCSs working across NHS board boundaries and with service users in primary and secondary care are uniquely placed to develop a national strategy for demand optimisation.

Our question is – how might the involvement of HCS demand-optimisation measures be improved to reduce unnecessary test and interventions, while ensuring that the most appropriate tests are performed in all NHS boards?

Our proposals are set out below. Are these the right actions? What else could we do?

4.1 Proposals

- The CHPO will appoint an HCS national lead for service-demand optimisation, with a remit to identify and share aspects of good practice, test the effects of

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introducing new demand-control measures and develop a national strategy for demand control.

- Each NHS board should work with the HCS lead and pathology services managers to identify demand-control measures that have been effective locally.
- The national lead will work with NHS board HCS leads, networks and service managers to develop and introduce a definition and measurement framework for inappropriate testing and collect baseline data.
- The national lead for pathology service demand optimisation will produce a plan to halve inappropriate testing by 2016.
- The national lead will also help to coordinate communication among diagnostic networks and clinical services to establish agreed national testing strategies for common diagnostic pathways.

5. WORKFORCE REPROFILING/COMPETENCY FRAMEWORK

The workforce is NHSScotland's greatest resource. It is also its greatest expense, accounting for 69% of running costs.

Efficient use of the workforce is essential to any plans for quality improvement and service efficiency. HCS roles have expanded considerably in the last 10 years. Areas traditionally the domain of medical staff are increasingly being filled by scientists working in extended-practice roles, with numerous examples of HCS staff supporting sustainable, effective service delivery. Cytology services, for example, have led the way in deploying HCS staff in interpretive roles, with great benefit to clinical outcome measures and cost-effectiveness.

Biomedical scientists have been involved in reporting abnormal cervical cytology smears for many years, a service developed with full medical consultant support in participating departments and following a formal assessment and examination structure run jointly by the Royal College of Pathologists and the Institute of Biomedical Science. This has brought tremendous value in releasing consultant time and enhancing the HCS role. Highly trained and experienced scientists have added tremendous value in laboratory services and are pivotal in delivering high-quality service at reduced cost (*Appendix 1*). Departments that have utilised this role extension tend to benchmark well without reduction in quality. However, deployment of this grade of staff varies across Scotland and often reflects historical practices.

Histopathology dissection has similarly been developed as an extended-practice role in a number of NHS boards, freeing up a great deal of consultant histopathologist time (*Appendix 2*).

Examples of diagnostic departments being clinically led by HCS staff can now be seen around the country. These developments have obvious benefit in disciplines such as haematology, in which medical consultants are usually fully occupied in providing patient services.

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Clear routes to accrediting professional practice at consultant level exist for some HCS disciplines. Fellowship of the Royal College of Pathologists, which is generally recognised as a requirement to work at consultant level, is available to scientists in a range of pathology disciplines and diplomas of expert practice are available to biomedical scientists working towards extended roles.

Recognised qualifications such as these are nevertheless not universally available across HCS disciplines. Suitability for senior positions in physical and physiological sciences is assessed largely by length and depth of experience. While this has merit, it makes structured workforce planning difficult. Ongoing work being taken forward by the Modernising Scientific Careers team and medical royal colleges aims to address this through the introduction of standardised curricula for higher specialist training for all HCS disciplines.

Achieving the goal of improving service quality in a difficult financial environment requires that increasing number of highly skilled HCS staff be deployed in advanced and extended roles. This is a very challenging ambition: ever-increasing demands on services mean staff are busy '*delivering*', with often limited opportunities for creative thinking and service transformation. More efficient ways of delivering current services are needed to free staff to assume extended-practice roles and new roles in demand management and at the secondary–primary care interface.

Like the rest of the UK, Scotland is moving towards a four-tier HCS workforce structure with assistant/associate grades, practitioners, scientists and consultant scientists. Greater use of assistant/associate grades has significant potential to release more highly trained colleagues to take on advanced roles. Safe and effective ways of working for unregistered staff groups need to be found, with appropriate mechanisms for supervision and career development.

Our question is – how might the knowledge and skills of the HCS workforce in existing roles be more effectively utilised, and how can roles be extended to work with medical colleagues?

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Our proposals are set out below. Are these the right actions? What else could we do?

5.1 Proposals

- National HCS leads will work with NHS board leads and professional bodies to identify examples of good practice in HCS extended roles and examine their effects on quality and efficiency of service delivery.
- National leads will work with professional bodies, service managers and NES to agree national competency frameworks and scopes of practice for assistant/associate-grade staff.
- NES will explore how the education needs of HCS assistants can be met as part of the support worker education stream.
- NES will explore education solutions to support HCS staff who may be required to supervise HCS assistants.
- NES will work with the National School of Healthcare Science, medical royal colleges and professional bodies to establish a robust training programme for higher specialist scientists that can then be used as the standard for consultant-level appointments.
- The CHPO will work with colleagues in workforce planning to ensure that medical workforce planning takes account of the potential for HCS to play a significant role in supporting busy clinical teams.
- The CHPO will pilot/support the development of extended interpretive roles in laboratory medicine.
- HCS leads will work in partnership with analytic and research colleagues to grow the health economic base for HCS extended-practice roles.

APPENDIX 1

Cytology

Increased productivity while maintaining or improving quality. A PDSA Example

The Screening Programme

Cervical screening has proven to be an effective method of reducing the incidence and mortality of cervical cancer. Screening provides a test that involves checking cells in the cervix (neck of the womb) and a Human Papilloma Virus (HPV) test, where appropriate. The test is designed to pick up any changes so that they can be simply and effectively monitored or treated. Cervical screening saves around 5,000 lives in the UK every year and prevents 8 out of 10 cervical cancers from developing. Cervical screening is routinely offered every three years to women aged between 20 and 60 years of age.¹

The Laboratory

The sampling of cells is through a small brush which is agitated in a preserving solution and transferred to the laboratory. It is prepared to a thin layer on a slide and stained to enhance the cellular features.

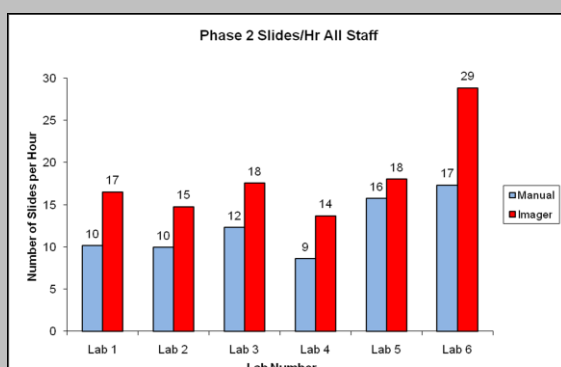
The slides are reviewed microscopically by a healthcare scientist and an assessment made on whether the sample is negative or showing some degree of abnormality.

This traditionally had been done manually with the healthcare scientist reviewing approximately 120 slide fields of view and many 1000s of cells to come to a conclusion and report.

The Study

New technology became available using computerized algorithms which highlighted automatically the 22 Fields of view most likely to contain an abnormality.

As part of a larger feasibility study to assess the use of this technology in NHSScotland it was assessed in 6 laboratory sites over 4 different health boards. It was assessed for quality, safety, clinical effectiveness and one aspect of the study was to look at productivity as well as staff satisfaction.



The Outcome/ Reflective Learning

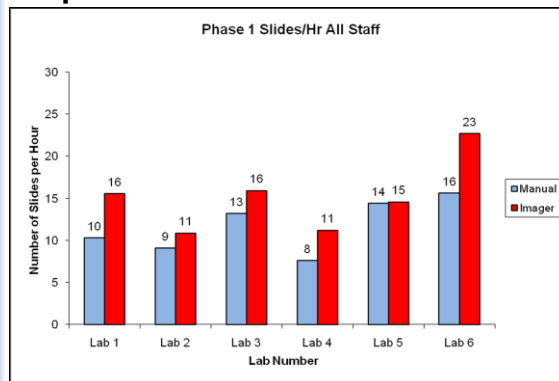
Utilising the technology as per the manufacturers protocol over a period of 3 months produced results around productivity highlighted in Graph 1 below showing on average an increase of 7 cases per hour but the feedback from the staff indicated that the manufacturers protocol was a rate limiting step.

After a feedback session a new protocol was devised which indicated when cytologists found a suspected abnormal cell they could remove the slide to a standard microscope. This change was 'off label' for the company but produced the results indicated in Graph 2 showing an average increase of 12 slides per hour. All other quality indicators remained the same.

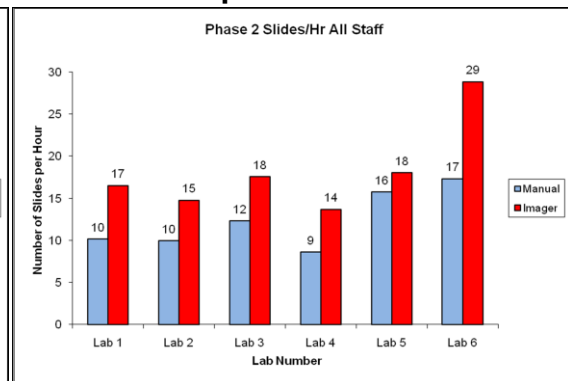
The reflective learning was around studying early results and adapting based on the evidence supported feedback from staff.

This was just one aspect of the study and the technology has now been adopted across NHSScotland yielding significant productivity gains and maintaining or improving quality.

Graph 1



Graph 2



¹ <http://www.nsd.scot.nhs.uk/services/screening/cervicalscreening/>

APPENDIX 2

Role Extension

The Healthcare Scientist in Histopathology

Tissue Dissection

When tissue arrives in pathology from theatre or outpatient clinic there is a complex process in ensuring the areas of interest are identified, cut and orientated in the appropriate manner to allow diagnosis. The macro report generated at this point is the first intervention and first guide to the histopathological diagnosis. Traditionally this has been carried out by consultant staff and medical staff in training and is labour intensive. Through work with the professional bodies biomedical scientists have been trained to competence through a portfolio/case review system with structure examination at the end of the training period. There is variation across Scotland in the level of engagement and the perception of the value this system delivers. It would be useful to expand this area further and understand why this is not universally adopted. It is complex and may impact to the training of trainee medical staff.

As part of the delivery plan it would be helpful to understand why this practice has not been universally adopted. There are indications it may not be the right model for all Departments and it would be helpful to understand why?

Interpretive Histopathology

A new development based on the success of the tissue dissection project has been initiated by the Professional Bodies in developing a pilot project for biomedical scientist interpretation and reporting of histopathology in clearly defined domains. Again this has the potential to ease the workload of consultant medical staff and at the same time enhance the role of the scientists. This project started in 2012 and is at an early stage. This will take a number of years to fully develop but early indications are that there may be a role for biomedical scientists in the interpretation and reporting of histopathology in clearly identified areas and in accordance with defined standards. This reflects the role of radiographers in plain film reporting but is at a much earlier stage. The interesting delivery aspect of this is that there has been very limited interest from Scottish Boards in taking part.

In both scenarios above the delivery benefits are many including the release of valuable consultant time and increased challenge and morale for the scientists involved.

HEALTHCARE SCIENCE NATIONAL DELIVERY PLAN 2014-2017 CONSULTATION DRAFT

RESPONDENT INFORMATION FORM

Please Note this form **must** be returned with your response to ensure that we handle your response appropriately

1. Name/Organisation

Organisation Name

Title Mr Ms Mrs Miss Dr *Please tick as appropriate*

Surname

Forename

2. Postal Address

Postcode	Phone	Email

3. Permissions - I am responding as...

Individual

/ Group/Organisation

Please tick as appropriate

- (a) Do you agree to your response being made available to the public (in Scottish Government library and/or on the Scottish Government web site)?

Please tick as appropriate Yes No

- (b) Where confidentiality is not requested, we will make your responses available to the public on the following basis

Please tick ONE of the following boxes

Yes, make my response, name and address all available

or

Yes, make my response available, but not my name and address

or

Yes, make my response and name available, but not my address

- (c) The name and address of your organisation **will be** made available to the public (in the Scottish Government library and/or on the Scottish Government web site).

Are you content for your **response** to be made available?

Please tick as appropriate Yes No

- (d) We will share your response internally with other Scottish Government policy teams who may be addressing the issues you discuss. They may wish to contact you again in the future, but we require your permission to do so. Are you content for Scottish Government to contact you again in relation to this consultation exercise?

Please tick as appropriate Yes No

Responding to this Consultation Paper

We are inviting written responses to this consultation paper by **30 September 2014**. Please send your response with the completed Respondent Information Form (see "Handling your Response" below) to:

CNOPPPAdmin@scotland.gsi.gov.uk

Or by post to:

Julie Townsend

Scottish Government Health Directorate

Directorate for Chief Nursing Officer, Patients, Public and Health Professions

GE 19, St Andrew's House

Regent Road

Edinburgh

EH1 3DG

If you have any queries please contact Julie Townsend on 0131 244 3739.

This consultation, and all other Scottish Government consultation exercises, can be viewed online on the consultation web pages of the Scottish Government website at <http://www.scotland.gov.uk/consultations>.

The Scottish Government has an email alert system for consultations, <http://register.scotland.gov.uk>. This system allows stakeholder individuals and organisations to register and receive a weekly email containing details of all new consultations (including web links). It complements, but in no way replaces Scottish Government distribution lists, and is designed to allow stakeholders to keep up to date with all Scottish Government consultation activity, and therefore be alerted at the earliest opportunity to those of most interest. We would encourage you to register.

Handling your response

We need to know how you wish your response to be handled and, in particular, whether you are happy for your response to be made public. Please complete and return the Respondent Information Form which forms part of the consultation questionnaire attached as an annex as this will ensure that we treat your response appropriately. If you ask for your response not to be published we will regard it as confidential, and we will treat it accordingly.

All respondents should be aware that the Scottish Government is subject to the provisions of the Freedom of Information (Scotland) Act 2002 and would therefore have to consider any request made to it under the Act for information relating to responses made to this consultation.

Where respondents have given permission for their response to be made public and after we have checked that they contain no potentially defamatory material, responses will be made available to the public in the Scottish Government Library(see the attached Respondent Information Form). These will be made available to the public in the Scottish Government Library by (date to be confirmed). You can make arrangements to view responses by contacting the Scottish Government Library on 0131 244 4556.

Responses can be copied and sent to you, but a charge may be made for this service.

What happens next?

Following the closing date, all responses will be analysed and considered along with any other available evidence to help us reach a decision on the content of the final framework for action.



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ISBN: 978-1-78412-604-9 (web only)

Published by the Scottish Government, June 2014

The Scottish Government
St Andrew's House
Edinburgh
EH1 3DG

Produced for the Scottish Government by APS Group Scotland, 21 Tennant Street, Edinburgh EH6 5NA
DPPAS27736 (06/14)

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