

The Future of the Healthcare Science Workforce

Modernising Scientific Careers: The Next Steps

A Consultation

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Contact details	Professor Sue Hill, Chief Scientific Officer Department of Health Room 526 Richmond House, 79 Whitehall London, SW1A 2NS 020 7210 5779 Access the consultation at www.dh.gov.uk/cso
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Executive Summary

The key contribution of science to healthcare

1. Science and innovation are at the heart of high quality healthcare for patients and the public in the 21st century, underpinning the development and implementation of new, safe and effective diagnostics and treatments which have a major impact on health, wellbeing and on the overall experience of the health and social care system. It is the healthcare science (HCS) workforce which makes the benefits of science and innovation a reality for patients, for example by ensuring that the delivery and quality of analytical and interpretative outcomes are robust and valid.
2. The healthcare science workforce totals over 55,000 people and comprises approximately 5 per cent of the publicly funded healthcare workforce in the UK. Its work is at the heart of safe and effective care for patients, bringing science and innovation to health for the benefit of patients and the public. This workforce makes a key and often unique contribution, through:
 - delivering diagnostics and investigations supported by high level interpretation on the significance of the results, which underpin most clinical and health decisions for patients and the public
 - developing and using technology to improve care for priority groups: older people, women and children, patients with mental health problems and the acutely ill
 - finding scientific and technological solutions through research and development to support the delivery of high quality care, including delivery of care closer to patients' homes.

The challenges of modern healthcare

3. The four countries of the UK, like the rest of the post-industrial world, face several inter-related challenges in respect of 21st century healthcare provision:
 - increasing public expectations of improved and more convenient access to, and availability of, high quality personalised healthcare services
 - an ageing population, with associated complex health problems and co-morbidities
 - changes in lifestyle which underpin changes in the nature of health problems experienced across the UK population
 - rapid developments in science and technology
 - financial pressures (which can constrain the system's ability to respond rapidly to the changing nature of need and demand)
 - the need for workforce flexibility and creative leadership to respond to these challenges.

The case for change in the healthcare science workforce

4. The healthcare science workforce is employed in some 51 disciplines across the NHS within the divisions of life sciences, physiological sciences, and physical sciences and engineering. This workforce includes very senior scientists, clinical directors, NHS Directors of Research and Development and heads of highly specialised services. Currently the education and training and career structure for HCS is unduly complex, inflexible and repetitious in parts. Funding and commissioning arrangements are confusing for potential recruits, employers and education commissioners. Training is ad hoc and serendipitous in some of its key elements, especially with respect to pre-registration opportunities and post-registration training. As a result:
 - patient outcomes may be compromised
 - planning the healthcare science workforce is difficult
 - there are issues for the service with respect to delivery and flexibility
 - education and training, funding and commissioning are variable and inconsistent.

The vision for healthcare science

5. The vision for healthcare science is of a world class workforce integral to multi-professional teams delivering high quality innovative patient care, in a range of settings. The healthcare science workforce will also deliver excellence in knowledge creation, innovation and service improvement. It will lead and embrace research and development, continually evaluating clinical practice and care delivery models.

The Modernising Scientific Careers proposals

6. Achievement of this vision will require a transformation of healthcare science career pathways, supported by new education and training programmes, which will deliver improved benefits for patients, for employers and health commissioners, for the healthcare science workforce and for health services.
7. This consultation document sets out proposals to transform the future training and career pathways of the healthcare science workforce. These proposals have been developed as the result of detailed discussions with nearly 3,000 stakeholders. This UK initiative will be taken forward by the four countries in partnership with all major stakeholders, including patient groups, to ensure that the healthcare science workforce is fit for the future in a rapidly changing and evolving healthcare environment.

8. There will be clearer pathways into healthcare science careers defined through three stages, with the ability to progress between them, subject to achievement of the necessary entry requirements:
- Healthcare Science Assistant
 - Healthcare Scientist Practitioner
 - Healthcare Scientist

Benefits of these proposals

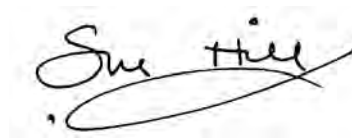
- **Benefits to patients** will be achieved through an effective skill mix, capturing technological and other advances, developments in care pathways, bringing faster, more responsive and flexible services closer to home, by supporting a dependable, modern regulatory framework¹ and, over time, recruiting, retaining and promoting a more diverse workforce fit to serve the future population of the UK
 - **Benefit to employers** through improved flexibility in workforce development and planning, achieving a more balanced workforce profile that reflects local and national equality and diversity ambitions, rationalising education and training commissioning, funding and programmes so these are more employer-led, and support local employment policies
 - **Benefits to staff** by enabling them to fulfil their potential by having the right competences to be effective in their roles, structured career pathways to optimise their contribution to responsive care and develop the professions' leaders, as well as modernising the image of healthcare science and scientists. Existing staff and trainees will not be disadvantaged by the proposed changes, and transitional arrangements will support the delivery of continuous, high quality patient care and the development of those already in post
9. Critically, these bold and ambitious proposals will advance the opportunities and recognition of the healthcare science workforce in the UK. They will also give appropriate opportunities and recognition to this highly skilled workforce, which is so critical to effective diagnosis and treatment. With the new career pathways, scientists with the requisite training and expertise will be able to rise to very senior levels in the workforce, for the benefit of patients. They will deliver high quality, safe and effective care and innovations based on the latest scientific and technological developments.

10. The ideas in this document are not just setting out an ambition for change. We believe that this is the best time to make these changes and indeed, may be the *only* opportunity in the foreseeable future to create a sustainable healthcare science workforce. Critically, these changes will be a means to realise the policy ambitions of the health departments in each of the four countries as outlined in:

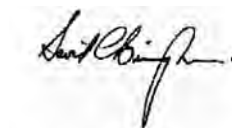
- *High Quality Care for All*² in England
- *Better Health, Better Care*³ in Scotland
- *Designed for Life*⁴ in Wales

and in the consultation on health and social care reform in Northern Ireland.

11. We welcome responses from all with an interest in delivering high quality care to patients, which is inextricably linked to the future of the healthcare science workforce, and its central role in supporting and delivering that care.



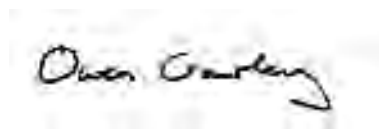
Professor Sue Hill
Chief Scientific Officer, Department of Health



Mr David C Bingham
Human Resources Director, Department of Health, Social Services and Public Safety, Northern Ireland



Ms Jacqui Lunday
Chief Health Professions Officer, Scottish Government



Dr Owen Crawley
Chief Scientific Adviser, Welsh Assembly Government

Introduction

Science, innovation and healthcare

1. Science and innovation are at the heart of high quality healthcare for patients and the public in the 21st century, underpinning the development and implementation of new, safe and effective diagnostics and treatments which have a major impact on health, wellbeing and on the overall experience of the health and social care system.
2. The healthcare science workforce makes a crucial and often unique contribution to science and innovation, right across healthcare and clinical pathway groupings through:
 - the delivery, quality assurance and interpretation of accurate, rapid and often complex diagnostic tests, which underpin most clinical judgements and patient management decisions
 - provision and quality assurance of therapeutic interventions, including specialised support (e.g. cardiopulmonary bypass, rehabilitation engineering), and specialist treatment (e.g. in embryology, radiotherapy, audiology)
 - discovery and development of scientific and technological solutions to improve care for priority groups: older people, women and children, patients with mental health problems and the acutely ill, and the delivery of diagnostics and treatment closer to patients' homes

- research, development, innovation and knowledge management in respect of scientific and technological advances.

The healthcare science workforce

3. The healthcare science workforce in the NHS⁵ and its equivalent in Northern Ireland⁶ is key to ensuring that science and technology are at the core of care, integral to diagnosis and treatment in a wide range of settings. It is the largest group of scientifically based staff in a single UK employment sector, comprising approximately 5 per cent of the publicly funded healthcare workforce, but with differences in that proportion across the four UK countries.
4. This workforce has highly specialised skills, expertise and knowledge and undertakes unique roles at the most senior level. It is distributed across three broad divisions: life sciences, physiological sciences, and physical sciences and engineering. Its scientific knowledge and skill base extends across some 51 scientific disciplines covering specialty areas in biology, chemistry, genetics, physiology, physics and engineering (see table below).

Healthcare Science Divisions and Disciplines

Life Sciences

- Analytical Toxicology
- Anatomical pathology
- Blood transfusion science/transplantation
- Clinical biochemistry
- Clinical cytogenetics
- Clinical embryology and andrology
- Clinical immunology
- Cytopathology including cervical cytology
- Electron microscopy
- External quality assurance
- Haematology
- Haemostasis and thrombosis
- Histocompatibility and immunogenetics
- Histopathology
- Molecular genetics
- Microbiology including bacteriology, mycology and epidemiology
- Paediatric metabolic biochemistry
- Phlebotomy
- Tissue banking
- Virology

Physiological Sciences

- Audiology
- Autonomic neurovascular function
- Cardiac physiology
- Clinical perfusion
- Critical care technology
- Gastrointestinal physiology
- Hearing therapy
- Neurophysiology
- Ophthalmology
- Respiratory physiology
- Sleep physiology
- Urodynamics and urological measurements
- Vascular technology
- Vision science

Physical Sciences and Engineering

- Biomechanical engineering
- Clinical measurement
- Equipment management and clinical engineering
- Medical electronics and instrumentation
- Medical engineering design
- Rehabilitation engineering
- Diagnostic radiology
- Magnetic resonance imaging (MRI)
- Nuclear medicine
- Radiopharmacy
- Radiation protection and monitoring
- Radiotherapy physics
- Renal dialysis technology
- Non-ionising radiation
- Medical illustration and clinical photography
- Maxillofacial prosthetics and reconstruction
- Ultrasound

Modernising Scientific Careers: a proposed programme to transform the healthcare science workforce

- 5.** This document sets out proposals for consultation around a programme of change which will transform and develop the healthcare science workforce so that it can realise its full potential in contributing to healthcare in the 21st century. These proposals are intended to enable the healthcare science workforce to rise to meet the challenges which modern healthcare services face. They have built on and been refined in response to feedback on earlier Modernising Scientific Careers proposals from nearly 3000 stakeholders throughout the UK.
- 6.** The document is structured as follows. The challenges which 21st century healthcare faces, and to which the healthcare science workforce needs to respond, are addressed in Chapter One. The *specific* challenges which the healthcare science workforce faces in terms of training and career pathways and the case for change to these, are discussed in Chapter Two.
- 7.** Chapter Three sets out a new vision for healthcare science, which will be delivered through the Modernising Scientific Careers (MSC) Programme, which is a UK-wide initiative and is overseen by the MSC Oversight Board, chaired by the Chief Scientific Officer of the Department of Health. The membership of this Oversight Board includes all major stakeholders with representatives from all health administrations, overarching healthcare science professional bodies, the Academy of Medical Royal Colleges, employers and the service, the Health Protection Agency (HPA), NHS Blood and Transplant (NHSBT), Skills for Health, NHS Employers, Universities UK, the further education sector, the UK higher education funding bodies, the independent sector and staff side organisations.
- 8.** The principles which underpin the MSC Programme are set out in Chapter Four. The MSC Programme will modernise training and career pathways to equip the healthcare science workforce with the necessary knowledge, skills and perspectives to realise the full future benefits of science and technology for healthcare. This workforce also needs to play its full part in the multi-professional healthcare team, including as leaders and as partners. Further investment in excellent education and training and the development of clear career pathways for healthcare scientists will improve and drive delivery of high quality care for all.
- 9.** Chapter Five sets out the specific proposals for the MSC Programme and its training and career pathways. The features of the three proposed stages within the healthcare science career pathway are set out, including a broad description of the training programmes which will support their development. Chapter Six sets out the educational framework which will underpin the new training programmes. Chapter Seven describes some of the implementation issues that will need to be addressed in each of the four countries.
- 10.** Chapter Eight gives details of how to respond to this consultation. We welcome your views and request that you respond to the electronic consultation (http://www.dh.gov.uk/en/Consultations/Liveconsultations/DH_091137) by Friday February 27th 2009.
- 11.** The response to this consultation will be summarised in a further document which will also set out the details of the implementation programme.

Chapter One: The Challenges of Modern Healthcare

12. In common with other post-industrial nations, the UK faces significant challenges in the provision of healthcare:

- patients and the public have ever higher expectations of improved access to, and availability of, high quality personalised services, in line with developments in other sectors
- the population is ageing, with associated complex health problems and co-morbidities
- changes in lifestyle are altering the nature of disease and the major health problems which face the UK population of all ages
- rapid developments in science and technology are revolutionising the availability of information to the public about health and the very nature of available diagnostics and treatments
- financial pressures continue to constrain the healthcare system's ability to respond rapidly enough to the changing nature of need and demand.

13. The visions for 21st century healthcare outlined by the Health Departments across the UK have approached these challenges with a number of initiatives:

- in England *High Quality Care for All*² puts quality at the heart of the system and outlines a vision for the 21st century NHS which is aimed at helping people to stay healthy, empowering patients and local communities to take more control over their health, and delivering improved access to more personalised care that is safe and clinically effective. *A High Quality Workforce*⁷ recognises that achieving this vision will require a more focused approach towards careers and the best possible education and training to equip future generations and develop future leaders across the workforce
- in Northern Ireland there is ongoing consultation on extensive health and social care reform and commitments to improve access, reduce waiting times and provide services closer to home
- the *Better Health, Better Care: Action Plan* in Scotland³ aims to help people sustain and improve their health, and to ensure better, local and faster access to healthcare, including in remote and rural settings
- in Wales, *Designed for Life*⁴ is focusing the NHS on world class care and lifelong health, with improved access to fast, safe and effective services closer to home where appropriate.

14. Each of the four countries recognises the importance of developing its workforce to deliver high quality care which is responsive to individual patients' needs.

15. The challenges can be summarised in the following way:

Greater and more complex demand

- as patient expectations of rapid and personalised care increase, there is a need for improved access to diagnostics, to enable earlier clinical decision making and more rapid entry into efficient care pathways for treatment
- as the population ages, patients are presenting with more complex health problems, often involving several conditions, each of which requires investigation and treatment
- the focus on disease prevention and the changing nature of ill health due to lifestyle changes are resulting, for example, in the introduction of new screening programmes which include an increased use of diagnostic tests to identify those most at risk, and supporting earlier interventions where these are required

Science, technology and innovation

- science and innovation are enabling the invention of new diagnostic and therapeutic techniques at a breathtaking pace, providing more and better tests, improved interventions and increasingly personalised treatment regimes
- scientific developments and information technology are enabling more tests and treatments to be delivered in, or near to, patients' homes
- the impact of growing sophistication of equipment and techniques is enabling the consolidation of some laboratory diagnostic and treatment services
- in recognition of the potential for innovation to further transform patient-centred care, in England *High Quality Care for All*² gives Strategic Health Authorities (SHAs) a statutory duty, for the first time, to foster and promote innovation

Changing workforce needs

- the changing nature and delivery of services needs a high quality workforce which can respond flexibly to new ways of working and new roles, supported by appropriate education and training, including continuing professional development (CPD)
- the rapid pace of technological change will challenge existing workforce roles, particularly in areas involving automation, hand-held devices, patients self-testing and personalised care
- the healthcare workforce needs to be more diverse in origin, reflecting the rich and varied nature of the population which it serves

- healthcare is competing with other science based industries for young adults, including graduates interested in science, and therefore requires a clear and attractive career structure for the healthcare science workforce

Leadership development

- the strong link between effective leadership and the quality of patient care is becoming increasingly apparent. Tomorrow's clinicians must be more empowered and better equipped to make decisions about services, resources and people
- clinicians from all backgrounds will need to have stronger leadership and management skills, and be able to lead the management of change

Evolving financial and regulatory environments

16. In England:

- from April 2009, the Care Quality Commission will take over responsibility for the regulation of the quality of health and social care. It is intended that the Care Quality Commission will provide assurance to those using health and adult social care services in England that essential levels of safety and quality of care are met wherever they choose to access these services
- tariff-based payment and greater transparency of costs mean that all parts of the NHS, including the workforce, will have to demonstrate improved value for money
- the potential for service innovation will be reinforced by new systems of regulation which will allow more local autonomy
- the establishment of Foundation Trusts has afforded employers more options for local determination of workforce structure, roles, pay and awards.

17. In Northern Ireland:

- the broad organisational framework under which healthcare is delivered is undergoing fundamental

change through the Reform of Public Administration (RPA) Programme. A Regional Health and Social Care Board will be established to replace the four existing Boards. A Regional Agency for Public Health and Social Well-being, a Regional Support Services Organisation and a Patient and Client Council will also be established. As a consequence the Department of Health, Social Services and Public Safety (DHSSPS) will be smaller and more focused.

18. In Scotland:

- the Government's affirmation of a mutual approach to NHS planning and funding does not diminish the requirement to seek best value in the use of public funds. The NHS workforce in Scotland will continue to need to demonstrate value for money, by maximizing its contribution to service delivery.

19. In Wales:

- co-ordinated, comprehensive and consistent services are being developed around care pathways which support seamless care provided by integrated multidisciplinary teams working across primary and secondary care.

The Challenges of Modern Healthcare

- greater and more complex demand
- science, technology and innovation
- changing workforce needs
- leadership development
- evolving financial and regulatory environments

20. All these drivers of change in healthcare require the healthcare science workforce to be sufficiently adaptable so it can contribute fully to the provision of a world class, safe, effective and personalised healthcare service in the UK.

Chapter Two: The Healthcare Science Workforce: The Case for Changing Training and Careers

21. There is an increasing demand for the scientific diagnostic and therapeutic services provided by the healthcare science workforce, which make a huge contribution to innovation and evidence-based care. As recognised in *A High Quality Workforce*⁷ in England, achieving high quality care which is patient-centered and responsive to local communities requires the best possible education and training for future generations and support for existing staff to continuously improve their skills.

What needs to change?

22. Several major aspects of current training and career pathways for healthcare scientists mitigate against the workforce being flexible, responsive, and able to rise to the new challenges which healthcare faces across the UK.

- 23.** There are three major sets of challenges to be addressed:
- the need to improve **workforce planning**, so that a balance can be achieved between supply and demand and an optimal skill mix can be secured which provides value for money
 - the need to improve **education and training and career pathways** so that they are sustainable and appropriately funded, and produce broader based practitioners who are able to take on other roles which may cross disciplines or specialties
 - **regulation** which should be consistent across the healthcare science workforce and reflect changing clinical roles.

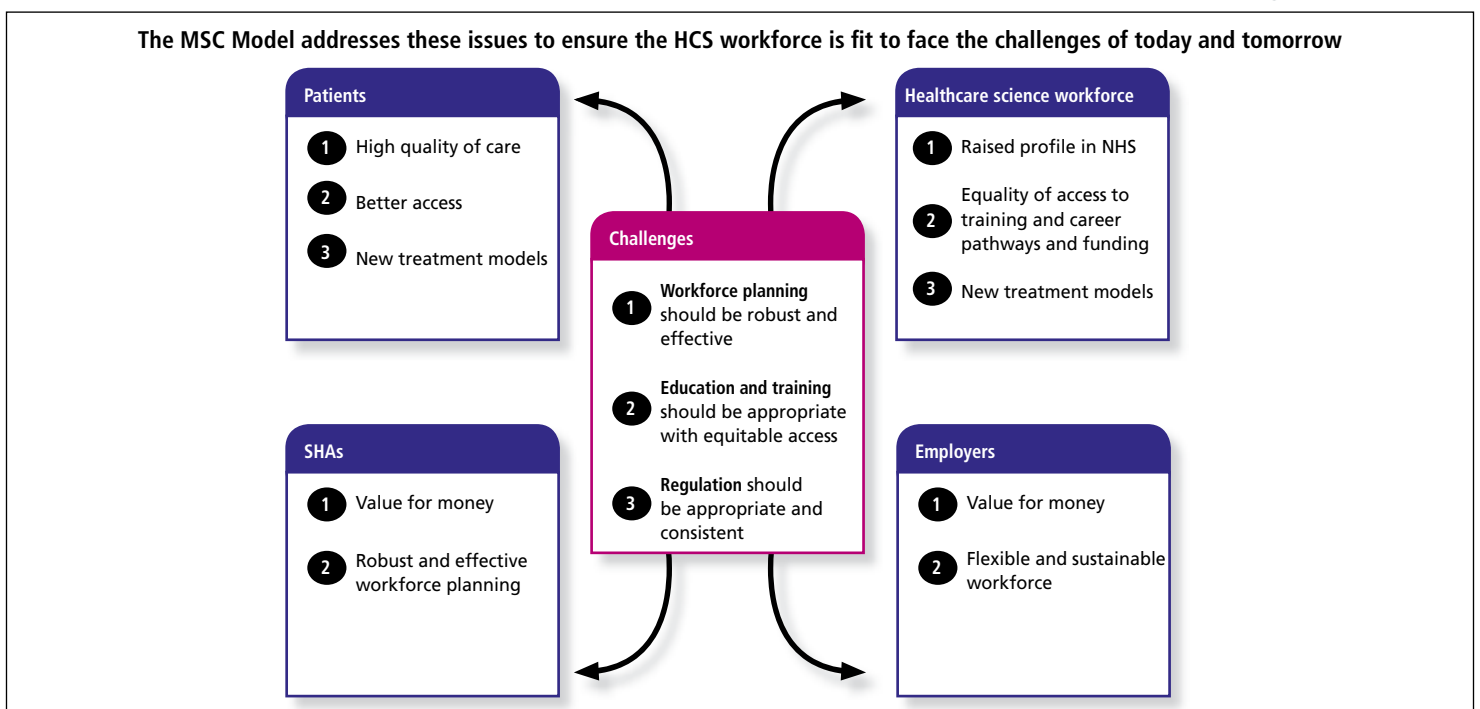
24. The specific challenges to be addressed are:

Workforce planning

- over 40 different entry routes into healthcare science training, often into small, single disciplines leading to major difficulties in matching supply and demand
- overlapping roles and functions in and between some disciplines leading to difficulty in achieving the optimal skill mix compared to the service functions to be delivered
- ability to identify healthcare science disciplines that provide cross cutting input into a number of clinical pathways (e.g. perhaps 0.1 whole time equivalence into each of the eight clinical pathways)
- not necessarily reflective of changing scientific and technological advances and service models and their impact on skill mix requirements
- lack of planning for small disciplines and very senior scientist roles
- lack of integration of healthcare science workforce planning with that for other professions that might have complementary and overlapping roles, or drive an increased demand for the services provided

Education and training and career pathways

- a number of the current education and training pathways are fragmented, inflexible and complex with no coherence across the totality of the workforce, resulting in obstacles and barriers to career progression



- for potential recruits, employers and education commissioners, current funding and commissioning arrangements for training are ad hoc, opaque and confusing
- lack of coherence in the academic education and training system, for example in England, where more than 50 higher education institutions (HEIs) are involved in the current education and training of approximately 1500 new healthcare science trainees per year
- education and training may not be well matched in depth, breadth or in outcomes in relation to the job role healthcare scientists are currently undertaking, particularly where new clinical roles or care settings are involved, or where technological advances provide opportunities for skill mix changes
- funding for education and training of the healthcare science workforce is inconsistent across the UK countries, with some evidence of reliance on personal or employer funding

Regulation

- regulation is inconsistent across different groups within the healthcare science workforce
- currently only two groups are regulated by statute: clinical scientists and biomedical scientists
- patient quality and safety is therefore potentially at risk, particularly as healthcare scientists take on more patient-facing roles in clinical care

Chapter Three: The Vision for Healthcare Science

25. The vision for healthcare science is of a world class workforce integral to multi-professional teams delivering high quality innovative patient care in a range of settings. In addition to delivering safe and effective diagnostic tests and therapeutic interventions, it will support patients to self manage, in partnership with others, including those from the independent and third sectors.

26. The healthcare science workforce will also deliver excellence in knowledge creation, innovation and service improvement. It will embrace and lead research and development and the management of evidence, continually evaluating clinical practice and care delivery models.

27. Achievement of this vision will require a transformation of career pathways, supported by new training programmes, which will deliver improved benefits for patients, for employers and health commissioners, for the workforce itself, and for health services.

28. Realisation of the vision will deliver:

For patients

- new diagnostic and treatment service models
- better quality care which is safer, more effective and focused on improving the patient experience and outcomes
- improved access to care, by enabling delivery of more tests and care closer to home and in primary and community care settings
- greater transparency of the contribution of the healthcare science workforce to care

For employers and health commissioners

- properly structured and funded training linked to affordability and better value for money
- simplified and more attractive career pathways, improving recruitment in a competitive market for young adults and graduates interested in science
- a more flexible and multi-skilled workforce with generic skills and inter-personal competences, able to take on more clinical, patient-facing roles
- enhancement of productivity through efficiencies arising from the healthcare science workforce having a wider set of competences
- improved ability to plan the workforce
- a healthcare science workforce more able to work in multi-professional teams
- clinical and managerial leaders from within the healthcare science workforce

For the healthcare science workforce

- a higher profile within healthcare, and a greater appreciation of its contribution by others in the healthcare team
- equity of access to attractive, transparent training programmes and career pathways at all stages, reflecting technological advances and developments in health services
- new opportunities for career progression and personal development at all stages
- greater involvement in research and development, innovation and service improvement
- an increased number of healthcare scientists in leadership positions

For health services

- access to the best possible technologies for diagnosis and treatment
- innovative, future-facing leading-edge care associated with science and technology
- increased professional diversity of leadership, drawing on the best possible talent

The Vision for Healthcare Science

The vision for healthcare science is of a world class workforce integral to multi-professional teams delivering high quality innovative patient care, in a range of settings... delivering excellence in knowledge creation, innovation and service improvement... leading and embracing research and development and continually evaluating clinical practice and care delivery models.

29. The model outlined has evolved through engagement and listening events with nearly 3000 frontline staff, professional body representatives, educational providers, NHS managers, commissioners and employers across the four countries. This UK initiative will be taken forward in partnership with all major stakeholders, including patient groups, to ensure that the healthcare science workforce is fit for the future in a rapidly changing and evolving healthcare environment.

30. The renewed emphasis on the need for a high quality workforce to deliver high quality services⁷, means that there is now a once in a generation opportunity to position the healthcare science workforce to optimise its full contribution to high quality patient care as equal partners and leaders in the healthcare team. This is a unique opportunity to be embraced for the benefit of patients and the public.

Chapter Four: The Modernising Scientific Careers Programme

Delivering the vision

31. This vision for the healthcare science workforce reflects the NHS Constitution pledges to staff in England⁸, and similar commitments in the other countries which aim to:

- provide staff with well designed and rewarding jobs
- provide staff with personal development, access to appropriate training and line management support to succeed
- provide support and opportunities for staff to keep themselves healthy and safe
- engage staff in decisions which affect them and the services they provide.

32. Specifically, the Modernising Scientific Careers Programme will deliver:

- a raised profile and awareness of the healthcare science workforce
- a healthcare science workforce flexible and responsive to changing healthcare in the UK, in the context of the four countries' policy directions^{2,3,4,7,9,8,9}
- a healthcare science workforce committed to safe, effective and patient-centred care, which works effectively in multi-professional teams
- a healthcare science workforce with enhanced leadership skills, learnt and developed in inter-professional leadership programmes
- a transparency in education and training funding and commissioning to secure a robust and sustainable healthcare science workforce
- the infrastructure for, and content of, education for the healthcare science workforce to ensure that it has optimal skills and capabilities for the future
- opportunities for healthcare staff from all backgrounds to compete for entry into the healthcare science training and career pathway if they meet the necessary entry requirements
- education and training programmes which will fit with the evolving regulatory framework and requirements for revalidation
- the ability to attract a range of applicants.

Principles of the Modernising Scientific Careers Programme

33. The Modernising Scientific Careers training and career pathway for healthcare science is underpinned by seven core principles which describe the outcomes the programme should achieve. They will enable evaluation of the success of the new framework through its implementation phase and beyond.

Protection of the public and delivery of safer and more effective services

- given their role in diagnostic testing and treatment of patients, and the increasing complexity of the science and technology involved, the healthcare science workforce needs to be consistently regulated in a way which is proportionate to the clinical risk of their practice
- life-long learning for the whole healthcare science workforce, with underpinning regulation and revalidation arrangements as appropriate, will ensure that their practice is high quality and up-to-date. This will give the public confidence that their practice and conduct is under appropriate scrutiny

Standards and quality underpinned by assessment

- explicit education and training standards with external quality assurance of curricula and assessment strategies based on learning outcomes will give reassurance to employers and the public that the healthcare science workforce can demonstrate that they have the necessary knowledge, skills and behaviours required to support their practice

Defined training and career pathways

- training and career pathways in which broader based training will give trainees a wider knowledge and skills base, enabling them to work competently and flexibly across a greater range of disciplines/specialties
- opportunities to progress competitively through all stages of the career pathway, if the entry standards required for each stage are achieved

Underlying core principles of the Modernising Scientific Careers Programme

- protection of the public and delivery of safer and more effective services
- standards and quality underpinned by assessment
- explicit training and career pathways
- planning the workforce
- funding which is secure and sustainable
- raising the profile of the healthcare science workforce and scientific careers
- adding value to healthcare

- opportunities for personal, professional and leadership development at each stage
- opportunity to train/work on a flexible or part-time basis as required at each stage of the career pathway
- opportunity to demonstrate equivalence of prior knowledge, skills, experience and learning at each stage, so that where evidence demonstrates that previous training, qualifications and experience meet specified learning outcomes, the trainee will not have to repeat that training
- proposed NHS Schools of Healthcare Science or the equivalent in each of the four countries which will coordinate delivery of education and training. These schools (which may be 'virtual' or possibly linked to other post-graduate educational bodies) will manage all elements of the training programmes, assuring adequate training and educational capacity, quality of delivery, supervising trainees through their individual programmes and training the trainers
- robust academic programmes will underpin training in the Practitioner Training Programme (PTP) and beyond
- clinical academic pathways will be developed, enabling the combination of research, innovation, education and professional practice
- increased opportunities for the healthcare science workforce to become leaders and managers in healthcare

Planning the workforce

- fine-tuning of local workforce numbers during training programmes with shorter training lead-in times will enable 'just in time' training to ensure that the scientific workforce is available when and where required
- planning against a smaller number of themed and/or specialist training programmes and into defined healthcare science groupings linked to outcomes and evolving roles
- supporting the strategy and delivery of proleptic appointments (in which an individual is appointed and prepared in the anticipation of a post becoming available) in very small specialties, resulting in securing the workforce required for continuity and quality of services to patients

Funding which is secure and sustainable

- working in partnership with education funding bodies, employers and other stakeholders, the Modernising Scientific Careers Programme will explore a range of funding options to establish high quality education and training initiatives that are transparent and sustainable, in line with the education and training commissioning arrangements and healthcare priorities in each of the four countries

Raising the profile of the healthcare science workforce and scientific careers

- development of clinical leadership skills and opportunities, and participation in inter-professional leadership programmes
- making the healthcare science workforce more visible in clinical teams and within NHS structures
- providing an established training infrastructure that ensures training departments are adequately rewarded for delivering excellence in training in healthcare science
- stimulating people to think positively about healthcare science as a career of choice

Adding value to healthcare

- ensuring that research, translational development and innovation are part of healthcare science education and training and are developed as key functions and responsibilities of the scientific workforce
- fulfilling the potential of the healthcare science workforce in clinical teams and adding value to the workforce and the delivery of clinical care as practitioners, partners and leaders in care
- demonstrating, through leadership, the capabilities of this workforce as 'tomorrow's clinicians'

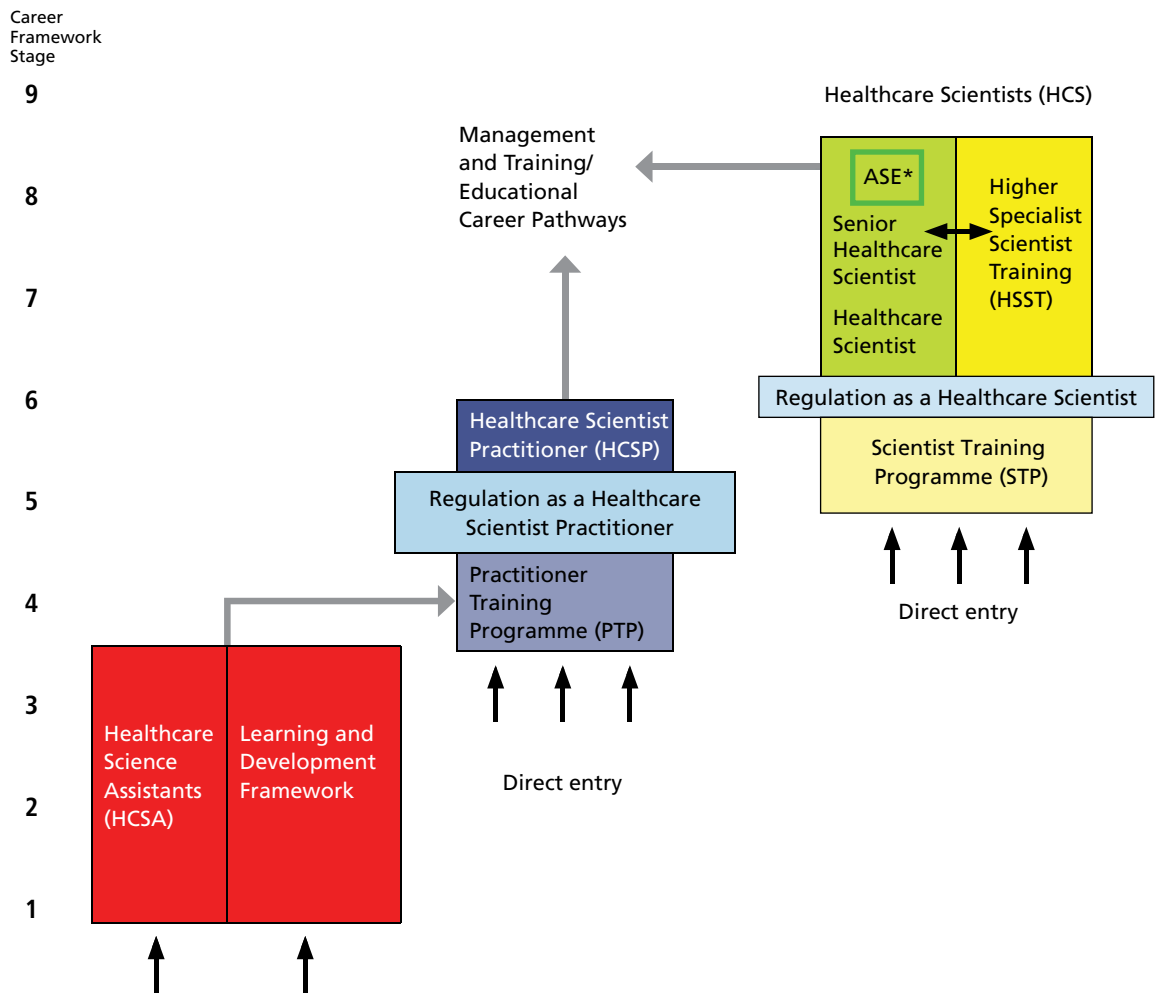
Chapter Five: Proposed Training and Career Pathway

34. Underpinned by the principles set out in the previous chapter, this section describes how, through transparent and equitable processes, the proposed Modernising Scientific Careers training and career pathway will build on existing good practice and give significant opportunity for individuals entering the pathway at any point to progress through the stages of the NHS career framework, potentially from assistant through to consultant level healthcare scientist. Employers will be able to optimise the skill-mix and effectiveness of their workforce which, from the outset, will be trained to approach service and care delivery from a more holistic, flexible, and multi-skilled perspective.

35. On the basis of the functions to be delivered, three stages of the training and career pathways for healthcare science are defined:

- Healthcare Science Assistants (HCSA)
- Healthcare Scientist Practitioners (HCSP)
- Healthcare Scientists (HCS)

The MSC Model: Pathways for Healthcare Science Assistants, Healthcare Scientist Practitioners and Healthcare Scientists

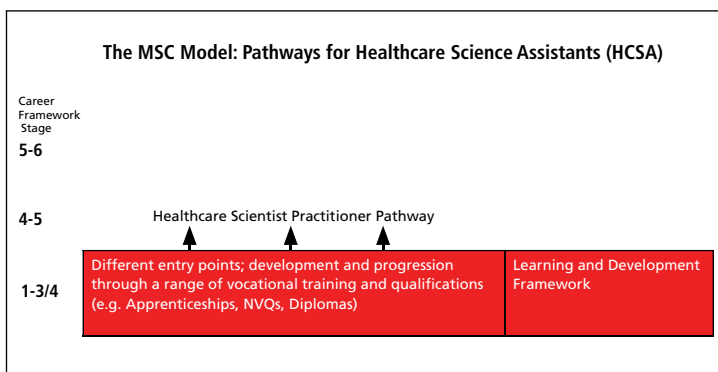


*Accredited Specialist Expertise

NOTE: SIZE OF BOXES NOT PROPORTIONAL TO SIZE OF WORKFORCE

Healthcare Science Assistants (HCSA)

36. The HCSA workforce will be diverse, creating equal opportunities for school-leavers, those with initial qualifications and others who wish to work in healthcare science. There will be competitive entry into employment to assistant posts, including opportunities for those who may wish to apply from other healthcare posts and disciplines.



37. Healthcare Science Assistants who will be broadly working at career framework stages 1 to 3 or 4 will:

- have the competences and skills to undertake a range of task and protocol based roles
- be able to acquire a range of vocational qualifications (e.g. Scottish or National Vocational Qualifications, Diplomas¹⁰, Foundation Degrees), which could be supported, for example, through apprenticeship schemes and blended learning using e-based developments
- have access to a learning and development programme, currently being developed by Skills for Health, which will include accredited learning packages. This will be linked, where appropriate, to awards and qualifications to support flexibility and skill development for specific service needs
- have the ability to progress with support from employers that ‘grow’ and develop their own workforce (e.g. by supporting HCSAs to gain appropriate qualifications enabling them to compete for entry into the PTP by acquisition of Foundation Degrees or Diplomas)
- potentially, be subject to regulation, where a role or function requires skills and expertise to safeguard patients, in keeping with the proportionate risk-based response recommended by the eventual outcomes of the UK Extending Professional Regulation Working Group¹.

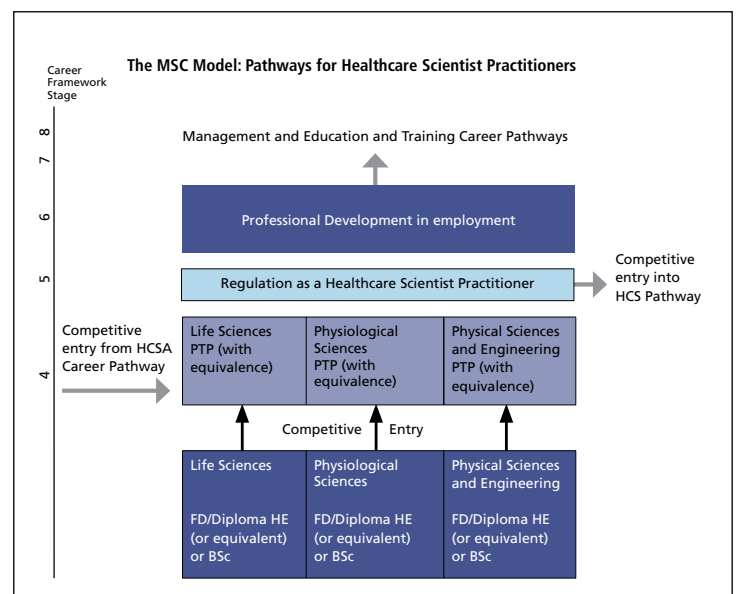
Healthcare Scientist Practitioner (HCSP) and Practitioner Training Programme (PTP)

38. A HCS Practitioner (HCSP) will have the necessary expertise in applied scientific techniques within a discipline or related disciplines and will work in a range of healthcare settings:

- with a defined role in the delivery and reporting of quality assured tests, investigations and interventions on patients, samples or equipment
- in a number of disciplines, HCSPs will provide therapeutic interventions in patient-facing roles, some of which may be specialist
- with the potential for further development into more senior roles, potentially designated as Senior Healthcare Scientist Practitioners, with a more defined area of practice, as well as opportunities to progress in management and in training and education
- proposals for proportionate, risk-based regulation will be subject to a separate consultation.

Practitioner Training Programme (PTP)

39. The HCS Practitioner Training Programme (PTP) will be competence and outcomes-based. The minimum entry requirements for the PTP will be a Foundation Degree or Diploma (or equivalent). Given this variety of potential entry qualifications and prior experience, the time needed for an individual to achieve the in-service and the academic learning outcomes, yet to be agreed with stakeholders, will vary, but it will normally be expected to last between one to two years.



40. Applicants with prior qualifications which demonstrate equivalence with the learning outcomes of the PTP (e.g. integrated Bachelor of Science programmes that combine academic programmes with workplace-based learning) may be eligible to apply immediately for regulation as a HCSP. Employers are likely to want to support and develop their own HCSA staff to acquire qualifications that enable competitive application to these programmes.

41. The key features of the PTP will be:

Workplace-based training

- up to two years of a primarily workplace-based training programme in a specialty and/or related disciplines where relevant, within a scientific division with appropriate supervision and mentoring
- working with the service, professionals and higher education providers, an underpinning education and training programme utilising e-based learning, where appropriate, will be defined

Competitive entry

- competitive entry for applicants with a recognised academic qualification (with or without practice components) at a minimum of Diploma or Foundation Degree level
- ability for applicants to apply for recognition of 'equivalence' of prior learning and experience, by providing evidence of achievement of some or all of the PTP outcomes, thus potentially reducing the duration of the workplace-based training programme

Statutory regulation

- subject to a separate consultation process, it is proposed that successful demonstration of achievement of the standards set for the outcome of the PTP will result in regulation

Funding

- working with education funding bodies and other stakeholders, the Modernising Scientific Careers Programme will seek to secure funding for the duration of the training period of the PTP. In England it is expected that trainees will be fully funded, and that practitioner training posts will be supernumerary in nature, whether in stand alone programmes or as part of training programmes which integrate academic learning in universities and colleges with learning in the workplace

42. These features will require further work and definition of detail across the healthcare science disciplines, and will draw on existing good practice. The Modernising Scientific Careers Programme will work with a range of stakeholders including professional bodies, employers and educational organisations to define this detail.

Healthcare Scientist (HCS) and the Scientist Training Programme (STP)

43. A Healthcare Scientist (HCS) will have clinical and specialist expertise underpinned by theoretical knowledge and experience and will:

- undertake complex scientific and clinical roles, including those working directly with patients
- analyse, interpret and compare investigative and clinical options
- make judgements involving complicated facts or situations which impact on patients
- be involved in innovation and improvement
- participate in research and development
- be involved in the education of trainees and other learners in the workplace.

44. The Scientist Training Programme (STP) will be a clinical training programme, largely workplace-based, with competitive graduate entry, open to HCSPs holding degrees and graduates with a broad range of relevant science degrees at honours Bachelors, Masters or PhD level. The programme will be supported with an associated Masters degree programme with relevance to a themed rotational training programme to ensure a secure, broad clinical scientific knowledge base in health and an explicit understanding of the evidence and research base of healthcare science. Details of the Masters programme will be developed in conjunction with stakeholders over the next 12-18 months.

45. The first two years of the STP will comprise a rotational programme themed in one of the three healthcare science divisions. The purpose of the rotational programmes is to give trainees a broad yet coherent clinical experience and professional insight to provide them with the necessary scientific breadth and professional flexibility to address the challenges of modern healthcare. The third year of the Programme will comprise more focused training, usually in one specific discipline.

46. By the end of the STP, healthcare scientists will have attained a Masters level of knowledge and practice and will have demonstrated that they have met the required standards through a rigorous assessment process.

In summary, the key features of the STP are:

Competitive entry

- competitive entry for applicants with an appropriate honours Bachelors degree or higher degree in a relevant science, or from other professional backgrounds or able to demonstrate equivalence of the entry requirements

Rotational training within HCS divisions and grounded in the service

- a common pathway for all healthcare scientific professions through training grounded in the service
- previous science training contextualised to the healthcare setting and environment
- two-year rotational themed programmes, offering trainees a coherent but broader clinical experience within one of the three healthcare science divisions, with six-month blocks in four different discipline areas and one year of discipline specific training
- the opportunity for trainees to explore career possibilities in up to four disciplines within a division
- flexibility in the discipline groups within a rotation and the order in which they are taken

Integrated learning programme with explicit standards

- an integrated learning programme, with opportunities for academic development through a specifically designed and tailored Masters programme, which will give a firm knowledge base about science and healthcare, and introduce leadership, research and evidence-based practice as core activities for healthcare scientists
- curricula driven by explicit training standards and assessment strategies which demonstrate that standards of proficiency have been achieved
- curricula which mirror, where appropriate, medical training programmes to create synergy between medical and scientist training and to optimise training resources

Equivalence

- equivalence for prior knowledge, skills, experience and learning at each stage, so that where evidence demonstrates that previous training, qualifications and experience meet specified learning outcomes, training need not be repeated

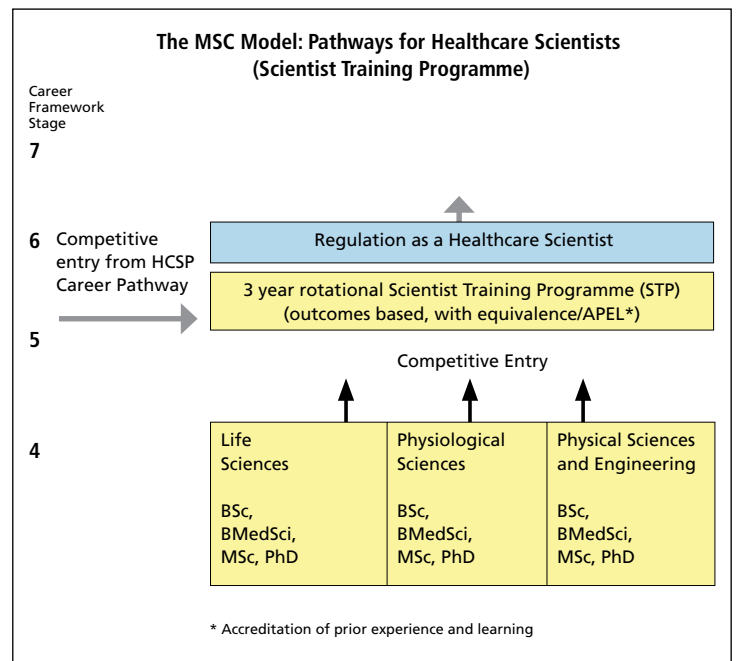
Statutory regulation

- subject to a separate consultation process, it is proposed that successful demonstration of achievement of the outcomes of the standards set for the Scientist Training Programme will result in regulation

Funding

- offer better value for money in developing and planning the future healthcare science workforce
- working with education funding bodies and other stakeholders, the Modernising Scientific Careers Programme will seek to secure funding for the duration of the training period. In England it is expected that trainees will be fully funded, and that scientists' training posts will be supernumerary in nature, whether in stand alone programmes or as part of integrated academic training programmes within universities

47. The rotational element of the STP will provide a broad clinical and scientific understanding of health in related specialty areas, giving a more coherent approach to the 51 disciplines within the three healthcare science divisions, delineating similarities and synergies rather than differences. The rotational programmes described in this document are *indicative* and their content will be influenced by local workforce needs and service arrangements.



Draft Indicative Rotational Scientist Training Programmes

	Life Sciences	Physiological Sciences	Physical Sciences and Engineering
Themes	1. Blood Sciences 2. Cellular Sciences 3. Infection Sciences	1. Cardiovascular and Respiratory Physiology 2. Neurosensory Sciences	1. Clinical Engineering 2. Medical Physics

Life Sciences: Draft Indicative Rotational Scientist Training Programmes

	Blood Sciences (BS)	Cellular Sciences (CS)	Infection Sciences
Year 1	1) Clinical Biochemistry 2) Molecular Science and Genetics	1) Histology 2) Molecular Science and Genetics	1) Bacteriology 2) Molecular Science and Genetics
Year 2	3) Immunology 4) Haematology/ Transfusion	3) Cytology 4) Reproductive Science (andrology/ embryology)	3) Infection Control & Health Protection 4) Virology
Year 3 (Discipline Specific)*	a) Clinical Biochemistry or b) Haematology/ Transfusion science or c) Immunology or d) Genetics (BS) or e) Histocompatibility and Immunogenetics	a) Histopathology or b) Cytopathology or c) Reproductive Science or d) Genetics (CS)	a) Microbiology (includes Virology, Bacteriology, Mycology and Parasitology)

* Subject to availability and workforce needs.

Physiological Sciences: Draft Indicative Rotational Scientist Training Programmes

	Cardiovascular and Respiratory Physiology	Neurosensory Sciences
Year 1	1) Cardiovascular Science 2) Perfusion Science	1) Neuroscience 2) Ophthalmic/Vision Science
Year 2	3) Respiratory/Sleep Science 4) Paediatric placements in the above/or other locally relevant placements in physiological science**	3) Audiological Science 4) Paediatric placements in the above/or other locally relevant placements in physiological science**
Year 3 (Discipline Specific)*	One of the above disciplines	One of the above disciplines

*Subject to availability and workforce needs.

**The disciplines of Critical Care Technology (CCT), GI Physiology and Urodynamics are undergoing service reviews in recognition that these physiological services are not found everywhere and indeed, that other professional groups may deliver them. Where they are available, they offer opportunity and local flexibility for the rotational scientist training programmes.

Physical Sciences & Engineering: Draft Indicative Rotational Scientist Training Programmes**

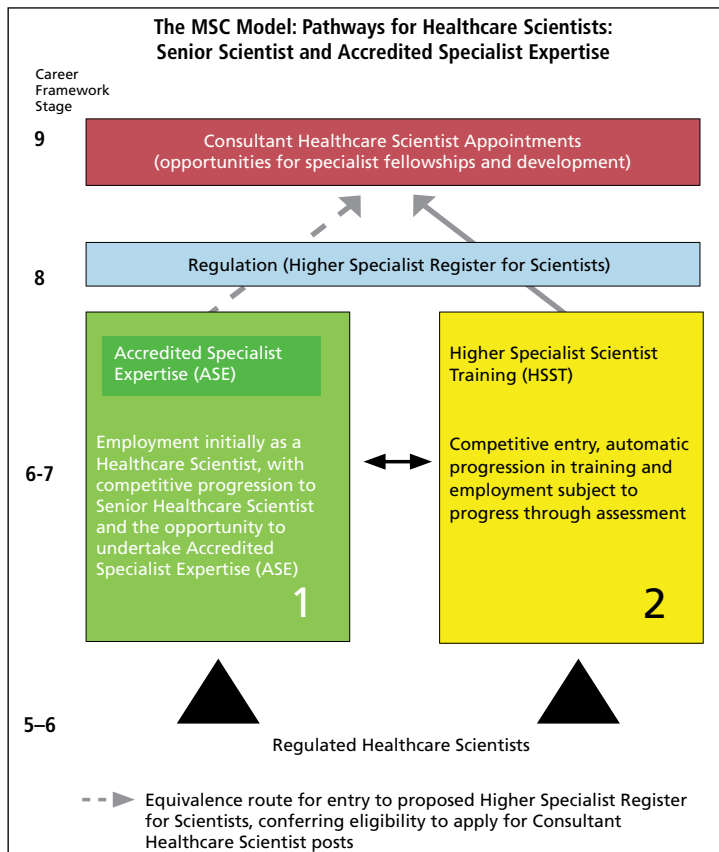
	Clinical Engineering	Medical Physics
Year 1	1) Rehabilitation Engineering 2) Clinical Measurement & Information and Communication Technology (ICT)	1) Radiotherapy Physics 2) Radiation Safety
Year 2	3) Design & Development 4) Medical Device Risk Management & Governance	3) Imaging with Ionising Radiation 4) Imaging with Non-Ionising Radiation
Year 3 (Discipline Specific)*	1, 3 or 4 above	One of the above options

*Subject to availability and workforce needs.

**A number of disciplines are represented within the placements identified above. Discussions are still on-going with the professions of maxillofacial prosthetics, clinical photography and renal technology to determine the details of their training and career pathway.

Career pathways after exiting from the Scientist Training Programme

48. There will be two principal career pathways on successful completion of the STP:
- substantive employment as a Healthcare Scientist with professional development and competitive progression leading to employment as a Senior Healthcare Scientist with opportunities to undertake specific training in identified areas of advanced specialist practice and accredited specialist expertise (ASE) or
 - competitive entry into Higher Specialist Scientist Training (HSST).



Senior Healthcare Scientists and Accredited Specialist Expertise (ASE)

49. Senior Healthcare Scientists will:
- have developed skills and theoretical knowledge to a very high standard
 - be performing an in-depth highly complex role
 - continuously develop clinical, scientific or engineering practice within a defined field
 - potentially have management responsibilities for a section/small department
 - undertake research and development.

50. They may also:

- have a significant role in the education and training of others
- have accredited specialist expertise.

51. As technological and scientific developments continue to support improvements in patient care, the requirement for specialist advanced practice resulting in ASE is likely to increase, leading to:

- the development of programmes to support ASE which will acknowledge expert knowledge, skills and experience in a closely defined area of practice
- employers and the service identifying specific areas within disciplines where ASE is required
- explicit national standards, qualifications and experience being identified and set out in defined curricula
- existing academic programmes (e.g. Masters, specific professional body examinations) which currently support specialist training being built upon, where it is appropriate to do so
- accreditation which will be recognised through a validated and formal process enabling employers to identify those who have achieved ASE.

Higher Specialist Scientist Training (HSST) and Higher Specialist Scientist Training Programmes (HSSTP)

52. Healthcare Scientists will have the opportunity to compete for selection into Higher Specialist Scientist Training Programmes. Workplace-based curricula will be based on explicit standards and set to clear outcomes, achievement of which will be demonstrated through validated assessment procedures. Academic training, integrated with the workplace-based clinical component, will promote research and development skills and contribute to increased opportunities for research and innovation. Details are still being developed but are likely to complement higher specialist training for medical trainees where this is appropriate.

53. Scientists successfully completing HSST will have been trained to compete for the most senior level consultant healthcare scientist posts and undertake roles such as:

- providing clinical and scientific expertise and leadership
- providing consultant level advice within the context of direct patient care
- giving strategic direction, innovation and highly developed and specialised skills to service development and provision
- carrying substantial management responsibilities
- initiating or leading formal research activities
- leading education and training activities
- initiating and leading innovation and improvement projects.

- 54. Subject to a separate consultation process, it is proposed that successful demonstration of achievement of the standards set for the HSSTP will result in meeting the requirements of a Higher Specialist Register for Scientists.
- 55. Scientists who have not undertaken a HSSTP will have the opportunity to demonstrate, by presenting evidence, that they have had equivalent training, education and qualifications to meet the outcomes necessary to achieve the standards of the proposed Higher Specialist Register for Scientists. This would make them eligible to compete for Consultant Healthcare Scientist posts.
- 56. The key features of the HSSTP will be:

Competitive entry and employment

- competitive entry for applicants after becoming a healthcare scientist
- guaranteed training and employment throughout the programme, subject to satisfactory progress
- subject to separate consultation, evidence of achievement of the standards and outcomes of the HSSTP will potentially be recognised by entry to a Higher Specialist Register for Scientists, making them eligible to compete for Consultant Healthcare Scientist posts. More robust workforce planning should ensure a better match of the supply of those undertaking HSSTP with available senior appointments

Service based training with academic opportunities

- a specialty modular training programme of approximately four to five years’ duration which explores the breadth

- and to some extent the depth in a given clinical healthcare science discipline
- advanced learning about science in health and clinical practice
- training grounded in the service with academic and research opportunities (at PhD or postdoctoral level)
- clear high level assessment outcomes (e.g. Fellowship of the Royal College of Pathologists [by examination] or equivalent). Exit assessments are likely to be developed in conjunction with other Medical Royal Colleges, demonstrating that the requirements of the training programme have been met
- demonstration of attainment in leadership, research, innovation and education

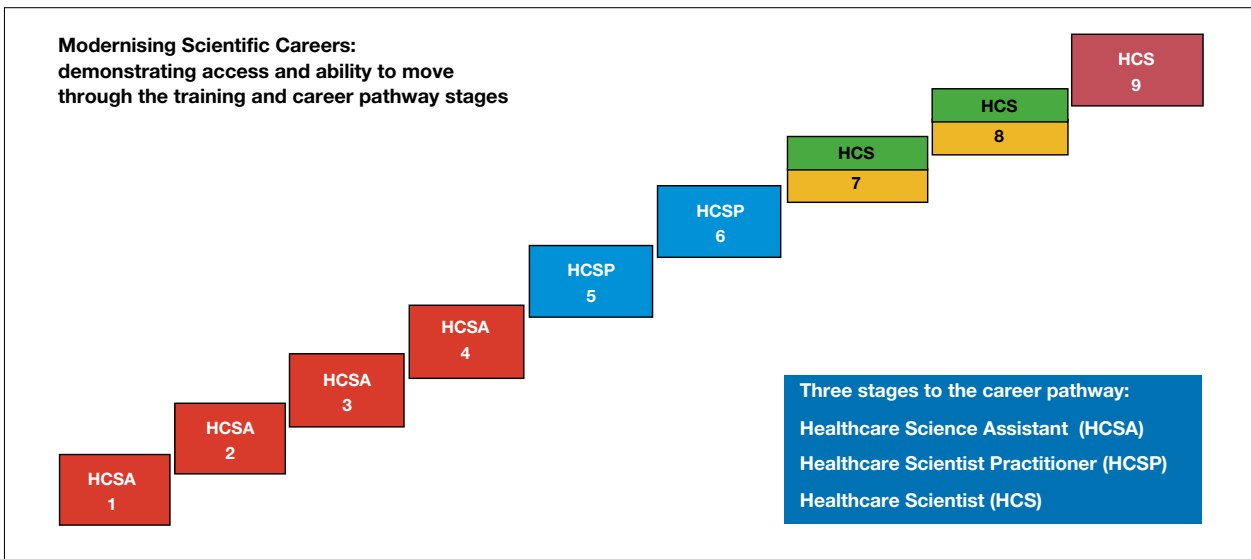
Funding

- it is envisioned that a shared funding model between education funding streams and employers will be agreed

The opportunities of the healthcare science career pathway

57. The diagram below shows how the various stages in the healthcare science career pathway link and flow together. There are opportunities for movement from one stage to the next by acquisition of the relevant entry qualification, e.g. acquisition of at least a Foundation Degree or Diploma (or the equivalent) by healthcare science assistants to enable their competitive application to the Practitioner Training Programme (PTP).

58. Furthermore, interested and talented individuals at all stages can potentially progress by being developed to undertake management and/or training and educational roles.



Chapter Six: The Educational Framework

- 59.** Modernising Scientific Careers will depend on the development and implementation of curricula that are fit for purpose and have been developed in conjunction with a wide range of stakeholders:
- they will enable learners and trainees at all levels of the healthcare science workforce to fulfil the roles that will meet the changing needs of patients, the population and the healthcare system
 - the curricula will look forward and provide a strong foundation for the application of science to practice, research and innovation in a range of health settings
 - they will be informed by the suite of National Occupational Standards (NOS) in healthcare science and other relevant NOS, where available and appropriate
 - they will include, as appropriate throughout the curricula, modules and programmes on leadership.
- A *curriculum* is a statement of the intended aims and objectives, content, experiences, outcomes and processes of an educational programme and includes:

 - a description of the training structure, entry requirements, length and organisation of the programme including its flexibilities, and assessment programme
 - a description of expected methods of learning, teaching, feedback and supervision
 - both generic professional and specialty specific areas
 - its syllabic content stated in terms of what knowledge, skills, attitudes and expertise the learner will achieve.
- 60.** The Modernising Scientific Careers Programme will use a comprehensive approach to curriculum design. Many stakeholders will be involved in the work, including employers, professional bodies, doctors and other health professionals from relevant specialties, academics, practising healthcare scientists and technologists, and patient representatives.
- 61.** Pending the outcome of this consultation, outcomes for each of the training programmes' curricula will be defined, which will enable Healthcare Science Assistants, Healthcare Scientist Practitioners and Healthcare Scientists to meet employers' requirements.
- 62.** Academic programmes will be developed in parallel with the workplace-based training curricula. They will foster scientific rigour, curiosity and leadership roles appropriate to the workforce stage and role.
- 63.** Features of the academic programme are as follows:
- there will be a specific learning and development programme for healthcare science assistants, currently being developed by Skills for Health and linked to awards and qualifications
 - there will be specifications of the PTP for each healthcare science division and linked where appropriate to awards and qualifications
 - a range of Masters level programmes (details of which are yet to be defined) will be developed to support the STP; some existing programmes may be fit for purpose, whilst others may need to be further developed
 - specific programmes will be developed for certain aspects of scientific practice, including for the extension of prescribing arrangements to appropriate HCS
 - more intensive academic training will be encouraged for trainees as appropriate and depending on their career aspirations
 - leadership and clinical management programmes will be developed and integrated into the PTP, STP and HSSTP as appropriate
 - specific programmes will be developed for certain aspects of specialist advanced practice leading to ASE.
- 64.** The assessment programme for the HCSA learning and development programme, the PTP, STP and HSSTP, will be an integral part of curriculum design and will support the delivery of training. Importantly it will set out clear pathways for career progression, and will:
- comprise an integrated set of assessments which will be in place for the training programmes at PTP and above. It may comprise different methods, and be implemented as nationally accredited examinations, as well as assessments in the workplace
 - provide evidence for progression through any pathway within the model, since curricula must be supported by an assessment programme which sets out a coherent and proportionate approach to the collection of evidence. This will be achieved by a design that follows best practice, including a requirement for evidence about validity, reliability and standard setting of the assessment methods to be available for external quality assurance
 - enable trainees to receive meaningful feedback about their progress which supports personal learning plans for the next stage of training
 - establish at key points during training, a national standard for knowledge and skills. This evidence for progression will be considered alongside evidence from workplace assessments and academic achievements.

Chapter Seven: Implementation Issues

65. This chapter sets out proposals for the local and national infrastructure which it is anticipated will be required to enable this vision for the future healthcare science workforce to be implemented.

Education and training commissioning

66. The MSC proposals will require a more explicit and structured approach to education and training commissioning. Commissioning intentions and specifications will need to be informed by those with relevant expertise in healthcare science.

67. Education commissioners will need to work in partnership with training providers and partners in further and higher education where relevant to ensure that:

- workplace-based training programmes for the PTP, STP and HSSTP are relevant, with curricula well designed and learning outcomes clearly stated so that the placements provide the right experience and exposure with appropriate supervision to ensure that the curricula outcomes are achieved
- academic programmes supporting the PTP, STP and HSSTP are well designed and address the breadth of knowledge which the healthcare scientists of the future will need in order to play a full part in the multi-professional healthcare team. This will include learning about ethics, leadership, patient perspectives, evidence-based practice and professional development in addition to the scientific knowledge required at the appropriate academic level for specific training programmes.

Establishing structures to deliver healthcare science training programmes

68. To deliver the vision, infrastructure and organisational structures will be required in each of the four countries to take oversight and co-ordination of local delivery of nationally specified and accredited:

- Practitioner Training Programmes
- Scientist Training Programmes
- Higher Specialist Scientist Training Programmes

and to:

- oversee competitive selection of trainees into training programmes and ensure that numbers recruited to specific rotational programmes align with local workforce plans for healthcare science
- provide the requisite educational, mentoring and pastoral support to trainees
- ensure the delivery of training programmes and their learning outcomes
- assure the quality of local training programmes

- ensure that trainees pass through the rotational elements of programmes, gaining the necessary experience in subspecialties
- ensure that trainers and assessors are themselves trained, including in equality and diversity matters, and professionally developed
- ensure that commitment to, and expertise in, education and training are acknowledged in trainers' job plans and appraisals.

69. Close association with employers and education funders to further ensure delivery of programmes to support nationally accredited programmes for advanced specialist expertise, will also be required.

70. In England, the Department of Health's Modernising Scientific Careers Programme will work in partnership with Strategic Health Authorities and other key stakeholders to take these proposals forward. NHS Schools of Healthcare Science will be established, which will align with education and training arrangements for doctors and other healthcare professions.

71. In Northern Ireland, the work will be taken forward by the Department of Health, Social Services and Public Safety (DHSSPS), working with stakeholders in healthcare and education to ensure robust and workable arrangements.

72. In Scotland, a new healthcare science workstream has been established within NHS Education for Scotland (NES) to consolidate and oversee all branches of healthcare science workforce education and training. NES will immediately take forward the delivery of key priorities identified within the Scottish Government's policy document *Safe, Accurate and Effective*⁹. The new healthcare science programme at NES will be capable of giving focus to and oversight of the MSC structures proposed in this document. NES is represented on the UK MSC Oversight Board.

73. In Wales, education and training of the healthcare science workforce is currently managed on a countrywide basis by the Workforce Unit in the National Leadership and Innovation Agency for Health. Consideration is being given as to how this may be more closely aligned with medical education and training arrangements.

74. As MSC is a workplace-based training and education programme, consideration will be given to the establishment of an "awarding body" to certify individuals' completion of training to the necessary standard, as specified by the appropriate regulator. This will build upon similar models already in place, such as other professions' Royal Colleges. Options will be explored, and details will be developed, in liaison and discussion with existing professional bodies and other stakeholders. These proposals will be subject to separate

consultation. The awarding body will be complementary to the competent authority for the regulation of healthcare scientists.

Workforce planning

- 75.** Each administration will need to build an integrated workforce model for healthcare science which links to models for other parts of the healthcare workforce, paying particular attention to the workforce needs of key clinical services.
- 76.** In England, there will be a Healthcare Scientist Sub-Committee of Medical Education England (MEE) chaired by the Department of Health's Chief Scientific Officer, which, as the new workforce planning arrangements evolve and mature, will:
- manage the healthcare science workforce strategy and detailed work around workforce planning, supported by the Centre of Excellence
 - oversee implementation of Modernising Scientific Careers in England
 - advise on the healthcare science workforce requirements in the context of plans for the wider NHS workforce
 - scrutinise and advise on the healthcare science aspects of SHAs' wider and more complex workforce plans
 - scrutinise and advise on SHAs' healthcare science education and training commissioning plans.
- 77.** In England, Strategic Health Authorities will collate healthcare science workforce plans on the basis of detailed requirements of employers, working in partnership with Primary Care Trusts (PCTs). These will be scrutinised and approved by the MEE HCS Sub-Committee, and will underpin decisions about the numbers of trainees to be recruited to specific local healthcare science training programmes at the different stages.
- 78.** In Northern Ireland workforce planning for healthcare science will be taken forward in the light of service delivery requirements. It will be linked to workforce planning for the medical, allied health and nursing professions. The healthcare science workforce will also be addressed in the context of multi-professional and "programme of care" workforce planning. Projections for future requirements for this workforce will take into account the service delivery and service development plans of provider Trusts, and this will inform decisions about the number of training places to be provided under the proposed new arrangements.
- 79.** In Scotland, healthcare science workforce numbers will be better described and represented in new annual statistical tables for NHS Scotland, enabling NHS Boards and regional planners to secure a coherent view of healthcare science staffing. NES, via its healthcare science workstream, will engage directly with NHS Boards to determine training needs for healthcare science, consistent with NES's current operating practice for other healthcare professions.
- 80.** An integrated workforce planning system is currently being implemented in Wales and brings together service, financial and workforce planning. This will provide data on which to base future education and training commissioning. The Education Commissioning Board of NHS Wales will receive recommendations for workforce requirements from the Workforce Unit and make the final decisions on training commissions. Implementation of MSC Wales will be overseen by an Implementation Board within the Assembly.

Establishing a secure funding stream

- 81.** The establishment of clearly identified and secure funding streams to support the Modernising Scientific Careers training programmes is crucial to the sustained development of the healthcare science workforce, and the development of the necessary infrastructure to support trainees, trainers and training programmes.
- 82.** In England we will seek to establish transparent, rational, equitable and sustained funding arrangements to cover, for example, the salary costs for supernumerary trainees and some costs of the training programmes, and the costs of the delivery of training in a service setting. We will continue to work closely with the Learning and Skills Councils and the Higher Education Funding Council for England (HEFCE), to align our funding arrangements and to ensure that high quality academic learning opportunities are in place to support healthcare science training programmes at all levels.
- 83.** In Northern Ireland, arrangements for provision of education and training funding are currently under review.
- 84.** In Scotland, an important dialogue with employers in the NHS is required, regarding scope for national pooling at NES of existing NHS funding for healthcare science work-based training. Such pooling will facilitate an expanded STP and HSSTP. At NES consideration is currently being given to the establishment of a competitive entry higher specialist training programme for clinical scientists. Their current pre-registration scheme is now embedded within NES. These schemes are potential prototypes for an expanded STP and HSSTP.
- 85.** In Wales, funding for the scientific workforce is through either Higher Education Funding Council for Wales (HEFCW) (for biomedical science programmes) or the non-medical education and training budget in NHS Wales. In order to ensure sustainable and responsive funding, discussions will take place at the Education Commissioning Board of NHS Wales with HEFCW and Learning and Skills Councils.

Principles for the transition phases

- continuity of service for patients must be guaranteed
- the current workforce will be actively engaged in the process and actively retained
- timely communication with stakeholders as the programme is developed
- where they apply, national terms and conditions of employment (Agenda for Change) will be the vehicle for delivery
- current local employment policies will be respected
- existing staff will be offered opportunities to develop through additional training, supported by education and training funding arrangements
- equality of opportunity for further development of the existing HCS workforce will be available on a competitive basis
- no current trainees will be disadvantaged and all will be able to complete their current education and training programmes

Regulation of the workforce

- 86.** Proposals for a new regulatory framework will be consulted upon, and will reflect the emerging recommendations of the UK Extending Professional Regulation Working Group. The Department is trying to gain better evidence about the risks of certain activities/professions and the extent to which regulation (in all different forms) can actually reduce this risk. This will assist in making more robust decisions concerning which groups should be regulated and will ensure that the public is protected by levels of oversight and regulation which are proportionate to the risk associated with practice. Additionally, it will be informed by the work to be undertaken by the Council for Healthcare Regulatory Excellence (CHRE) on advanced practice for the non-medical healthcare professions.
- 87.** There will be a separate consultation on proposals for the regulation of the roles described here as Healthcare Scientist Practitioner (HCSPP) and Healthcare Scientist (HCS). All matters relating to the regulation of the five aspirant groups who have already been recommended to the Secretary of State for extension of statutory regulation will be resolved as part of this consultation.
- 88.** This separate consultation will also include proposals for the establishment of a Higher Specialist Register for Scientists.

- 89.** The titles for roles used in this document are working titles only and those that will be associated with statutory regulation will form part of ongoing work and this separate public consultation.

Enabling the change

- 90.** MSC potentially offers exciting opportunities for the current workforce who may wish to apply for and access some of the new training opportunities. It aims to make the new career pathways attractive to both new recruits and to the current workforce, so that existing staff will see the benefits of moving into the new career pathways in line with local arrangements.
- 91.** Work will be taken forward across the four countries to develop understanding of how the current workforce can adjust in response to the four countries' policy objectives.
- 92.** Some early elements of the programme will be piloted and evaluated. This will both help with implementing the proposed programme and support the development of a detailed transition plan for the current workforce, to enable them to take advantage of the new arrangements. The need to continue to recruit and retain a skilled workforce while MSC is implemented, and trainees go through the new programmes, is recognised and will be a priority.

Enabling the change locally

- 93.** The ambitions of MSC will have to be delivered locally by the healthcare science workforce, their employers, and commissioners and providers of healthcare science education and training, all working in partnership with the health departments in the four countries and other relevant healthcare bodies.
- 94.** A phased process will be designed in a partnership approach between, for example, NHS Employers, employee representatives and others. It is anticipated there will be:
- a national timetable for implementation with staged milestones
 - a national recruitment process (with local selection) for some elements of the career framework
 - an implementation guide for employers
 - lessons and case studies from pilots
 - new national profiles based on job evaluation and agreed through the NHS Staff Council process with indications on the Knowledge and Skills Framework outlines for particular posts
 - tools to help employers re-profile the workforce to deliver a modern service according to the MSC framework
 - a methodology to ensure consistency in how current staff are assessed, accredited and assimilated into the new MSC structure

- materials to help employers and employee representatives communicate the changes to all staff at all levels.

95. In England:

- each SHA has identified an MSC lead to work with the Department of Health MSC team and to support local implementation by employers in the NHS. These SHA leads are vital to the co-ordination of the implementation programme across England. The Healthcare Scientist Sub Committee of MEE, chaired by the Chief Scientific Officer, will have national oversight responsibility for the implementation of MSC in England
- it is anticipated that Strategic Health Authorities will:
 - ensure there is the capacity and expertise to drive through implementation within their areas
 - encourage local networks to form in order to share best practice as well as resources to implement and promote consistency
 - bring together employers, employee representatives and education providers to work in partnership to develop the local infrastructure for workforce planning, education and training planning and commissioning.

96. In Northern Ireland, this work will be taken forward by the Department of Health Social Services and Public Safety (DHSSPS), working in conjunction with the Health and Social

Care sector, and engaging with the range of education and other stakeholders to ensure robust and workable arrangements for the future. The approach set out above for the English SHAs will be reflected in the work led by the DHSSPS.

97. In Scotland, the development of *Safe, Accurate and Effective*⁹ has been characterised by a willingness of healthcare science staff to support, engage and implement aspects of that plan. In part, that willingness arose in recognition that other healthcare professions were unlikely to champion the development of healthcare science. Similarly, the MSC proposals should be regarded as an opportunity for healthcare science staff in Scotland to enhance visibility and presence in the delivery of patient services. Links will be established with each regional workforce planning agency and NES could be developed to ensure consistency of approach and appropriate reporting of healthcare science education and training needs.

98. In Wales, there will be an MSC Implementation Board, chaired by the Chief Scientific Adviser, with membership which will include representatives from employers, professions, education providers and Trades Unions.

99. Following the outcome of the consultation process, further documentation will address additional issues around implementation and transitional arrangements.

Chapter Eight: How to Respond to this Consultation

- 100.** This consultation seeks views on the proposals contained within this document. We are keen to hear from a range of people and organisations who have an interest in modernising the training and career pathway of the healthcare scientist workforce.
- 101.** The consultation begins on 26 November 2008 and closes on 27 February 2009.
- 102.** Responses should be submitted to the Modernising Scientific Careers Programme Team at the Department of Health via the online consultation at: http://www.dh.gov.uk/en/Consultations/Liveconsultations/DH_091137.
- 103.** The consultation responses will be fully analysed, including on an individual country basis. The responses will be used to inform the development of further proposals on Modernising Scientific Careers in each of the four countries.
- 104.** The impact assessment accompanying this consultation can be viewed at: http://www.dh.gov.uk/en/Consultations/Liveconsultations/DH_091137. If you experience IT problems in responding to this consultation, please call 0207 633 7420.
- 105.** If you would like further copies of this document, you can download it from the Department of Health website at the address above.

References

- 1 Based on the broad recommendations from the Extending Professional Regulation Working Group. See the Department of Health's website: <http://www.dh.gov.uk/en/Managingyourorganisation/Humanresourcesandtraining/Modernisingprofessionalregulation/ProfessionalRegulationandPatientSafetyProgramme/ExtendingProfessionalRegulation/index.htm>
- 2 Department of Health (2008a) *High Quality Care for All. NHS Next Stage Review Final Report*. Cm 7432. London: The Stationery Office.
- 3 Scottish Government (2007) *Better Health, Better Care: Action Plan*. Edinburgh: Scottish Government.
- 4 Welsh Assembly Government (2005) *Designed for Life: Creating World Class Health and Social Care for Wales in the 21st Century*. Cardiff: Welsh Assembly Government.
- 5 Including the Health Protection Agency (HPA) and NHS Blood and Transplant (NHSBT).
- 6 Throughout this document, the phrase 'the NHS' also includes publicly funded healthcare in Northern Ireland.
- 7 Department of Health (2008b) *A High Quality Workforce. NHS Next Stage Review*. London: Department of Health.
- 8 See the Department of Health's website: http://www.dh.gov.uk/en/Consultations/Closedconsultations/DH_085812
- 9 Scottish Government (2007) *Safe, Accurate and Effective: An Action Plan for Healthcare Science in NHS Scotland*. Edinburgh: Scottish Government. Welsh Assembly Government (2005) *op cit*.
- 10 Including the Society, Health and Development Diploma and the Science Diploma.

The Consultation Process

1 Criteria for consultation

This consultation follows the 'Government Code of Practice', in particular we aim to:

- formally consult at a stage where there is scope to influence the policy outcome;
- consult for at least 12 weeks with consideration given to longer timescales where feasible and sensible;
- be clear about the consultations process in the consultation documents, what is being proposed, the scope to influence and the expected costs and benefits of the proposals;
- ensure the consultation exercise is designed to be accessible to, and clearly targeted at, those people it is intended to reach;
- keep the burden of consultation to a minimum to ensure consultations are effective and to obtain consultees' 'buy-in' to the process;
- analyse responses carefully and give clear feedback to participants following the consultation;
- ensure officials running consultations are guided in how to run an effective consultation exercise and share what they learn from the experience

The full text of the code of practice is on the Better Regulation website at:

<http://www.berr.gov.uk/whatwedo/bre/consultation-guidance/page44420.html>

2 Comments on the consultation process itself

If you have concerns or comments which you would like to make relating specifically to the consultation process itself please

contact Consultations Coordinator
Department of Health
3E48, Quarry House
Leeds
LS2 7UE

e-mail consultations.co-ordinator@dh.gsi.gov.uk

Please do not send consultation responses to this address.

3 Confidentiality of information

We manage the information you provide in response to this consultation in accordance with the Department of Health's Information Charter.

Information we receive, including personal information, may be published or disclosed in accordance with the access to information regimes (primarily the Freedom of Information Act 2000 (FOIA), the Data Protection Act 1998 (DPA) and the Environmental Information Regulations 2004).

If you want the information that you provide to be treated as confidential, please be aware that, under the FOIA, there is a statutory Code of Practice with which public authorities must comply and which deals, amongst other things, with obligations of confidence. In view of this it would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information we will take full account of your explanation, but we cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded as binding on the Department.

The Department will process your personal data in accordance with the DPA and in most circumstances this will mean that your personal data will not be disclosed to third parties.

4 Summary of the consultation

A summary of the response to this consultation will be made available before or alongside any further action, such as laying legislation before Parliament, and will be placed on the Consultations website at:

<http://www.dh.gov.uk/en/Consultations/Responsestoconsultations/index.htm>

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