

Modernising Scientific Careers The UK Way Forward



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Executive summary



- 1** The healthcare science workforce plays a central role in safe and effective patient care across all pathways of care from health and wellbeing to end of life. It comprises approximately 5% of the healthcare workforce in the UK, and 80% of all diagnoses can be attributed to their work.
- 2** Scientific and technological advances are being developed all the time. These provide opportunities to improve the quality of care for people at all stages of their lives. The way care is delivered is also changing, with new models of integrated care emerging for people in different care settings. Roles for the healthcare science workforce are changing as a result. We need to modernise scientific careers to equip staff with the right set of knowledge and skills for 21st century care and the changing demands.
- 3** We need to simplify career structures and education and training for the healthcare science workforce to a common framework. This will mean that career pathways are more aligned with other healthcare professionals and more transparent for those already in the workforce or thinking of entering it. We need the training and education framework to provide greater flexibility in skills and knowledge development, with less emphasis in initial training on uni disciplinary experience.
- 4** We need to identify, in light of changes we will be making through Modernising Scientific Careers, any regulatory implications. Any recommendations we make on regulation will reflect the principles and recommendations in the report of the UK Extending Professional Regulation Working Group and the Council for Healthcare Regulatory Excellence (CHRE) Report and will be proportionate to risk.
- 5** We need to improve workforce planning for healthcare science, to become more strongly driven by and integrated with service needs, informing commissioning of education and training, and supporting re profiling of the workforce. These changes can achieve significant improvements in value for money as well as quality of care.

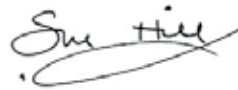
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6 Overall, there has been broad support for the proposals we set out in November 2008 and in subsequent deliberative events for Modernising Scientific Careers. We now set out here the way forward for action across all four countries of the UK, taking account of what we heard during the consultation. The key changes are:

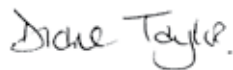
- introduction of a new simplified healthcare science pathway, with roles defined along the Healthcare Science Career Framework one to nine,
- identification of regulatory implications from Modernising Scientific Careers, proportionate to risk,
- development of new training and education programmes, including academic and workplace-based training, with associated awards and qualifications clearly defined or arrangements for assessment of equivalence clearly set out,
- supporting delivery through new communication strategies, further work on employment aspects, improved workforce planning, improved education commissioning, and transparent, sustainable funding arrangements that are fit for purpose and offer value for money.

7 The timetable for change will be set out in separate implementation plans for each country, including transition arrangements and processes for evaluating successful delivery. Throughout the next phase of change, we will continue to work in partnership with our key stakeholders to ensure effective delivery.

8 These proposals will ensure we have a sustainable fit for purpose scientific workforce for the future that is affordable, builds upon the past and ensures that patients and the public benefit from their skills and talents.



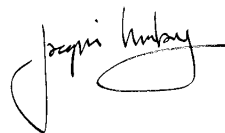
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Overview



- 1** The healthcare science workforce is at the heart of safe and effective care for patients, working across some 51 disciplines. It provides expert diagnostic advice and therapeutic care for the treatment of patients and prevention of disease. The workforce develops and applies new technologies that help improve the care of people, including those in priority groups such as older people, women, and children, patients with mental health problems and the acutely ill. They are central to developing high quality care for all.
- 2** Although constituting only 5% of the healthcare workforce in the UK, 80% of all diagnoses can be attributed to their work. This contribution is across all clinical pathways from prevention and early life through to acute and end-of-life care.
- 3** Roles are changing as developments in science and technology bring new opportunities to diagnose and treat patients more effectively and efficiently in different care settings. The changes we will introduce through simplified career structures, new education and training programmes and review of regulation will ensure that the healthcare science workforce is equipped with the right up-to-date knowledge and skills to care for patients in the 21st century.
- 4** In November 2008, the UK Health Departments published for consultation *The Future of the Healthcare Science Workforce. Modernising Scientific Careers: The Next Steps*. The document set out proposals to ensure that the workforce was educated and trained to meet the challenges of modern healthcare, consistent with policy proposals across the four countries. It addressed the need to:
 - meet future service needs by ensuring scientific and technological advances are incorporated into emerging models of integrated care
 - provide an improved approach to workforce planning and development of an appropriate skill mix
 - bring the education and training of the healthcare science workforce more into line with that of other healthcare professionals

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- create clear career pathways and education and training programmes in a common framework for the whole of the scientific workforce
 - ensure the focus in education and training programmes is on training and enhancing the training experience rather than on trainees being required to deliver service
 - include greater flexibility in skill and knowledge development in initial training, rather than an emphasis on extensive uni-disciplinary experience.
- 5** The consultation closed on 6 March 2009. We received nearly 1,000 responses from organisations and individuals in England, Scotland, Wales and Northern Ireland. (A description of the consultation process is in Annex 1). The responses have been independently analysed. A summary report¹ of the responses is published alongside this document.
- 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.'

The Future of the Healthcare Science Workforce. Modernising Scientific Careers: The Next Steps, published November 2008
- 6** Overall, there is support for the direction of travel proposed and our vision for healthcare science. However, people asked for more detail on how change will be implemented and funded. Some raised concerns over aspects of the training and education model, the links between regulation and training, and
- employment implications. These all needed further clarification.
- 7** Since the consultation closed, we have held deliberative events to think through the detail of our approach and address areas where concerns remained. These views have helped inform what we now set out for the implementation phase of this major programme of modernisation.
- 8** Many recognised that our proposals are about more than education and training. The healthcare science workforce plays an important role in adding value to patient care and quality outcomes. Healthcare science can improve access for patients to healthcare, particularly through the provision of diagnostic services. The healthcare science workforce can take on clinical leadership roles and contribute to new clinical pathways and models of integrated care as well as to innovation in healthcare. The changes can contribute to the transformational changes required by patients of the healthcare system across the UK.
- 9** Many respondents, in all four UK countries, emphasised the importance of ensuring that healthcare science is seen as an attractive profession at the forefront of innovation in diagnostics and treatment. People supported the proposals for better communications to raise the profile of this often unrecognised professional group and improve understanding of the central role of healthcare science in the delivery of modern, evidenced based care for patients.
- 10** They saw significant benefits in a clear description of opportunities for awards and qualifications at all levels, linked to career progression and continuous professional development. They also saw significant benefit in the integration of career pathways with opportunities for research and innovation training to help bring new therapies and diagnostic techniques quickly into clinical practice.

¹ *Modernising Scientific Careers: A Consultation Analysis of Organisational, Individual and Deliberative Event Responses* (conducted for the Department of Health) September 2009. Ipsos MORI Social Research Institute.

- 11** Respondents generally agreed with the need for greater flexibility between healthcare science disciplines but had some concerns that the right balance had not yet been struck between the necessary broad-based knowledge in early training and subsequent specialisation. This partly reflected the current approach to developing experience as well as skills and knowledge during the initial training period. The ratio between specific and broad based training might need adjustment, with more emphasis on specialisation so that those working in healthcare science could practise safely, with less supervision, on completing education or training.
- 12** People recognised that while some new technologies required specialist knowledge, a broad knowledge base was also needed to be able to respond to the changing way in which patients expect services to be delivered and changing patient demographics themselves. This included the growing role of community based services and increasing numbers of people living with long term conditions. Respondents also stressed that training and education should be adaptable. Some respondents suggested an accredited modular approach to create a workforce that can take advantage of the rapid developments in scientific and technological advances and new models of care. Others felt that some disciplines were already achieving the appropriate degree of specialisation through tried and tested training programmes and regulation to the benefit of patients. Introducing greater flexibility should not undermine these areas of strength.
- 13** Respondents voiced strong and widespread support for the introduction of formal awards and qualifications for Healthcare Science Assistants (HCSAs). They also gave general support to a Practitioner Training Programme (PTP) but wanted to know how more specialist training for particular job roles would be achieved. People also asked for more detail on how the equivalence of prior knowledge and specialist experience would be assessed for entry at each level and how this would relate to the European Qualification Recognition Agreement.
- 14** There was strong support for Higher Specialist Scientist Training (HSST) as an important part of workforce development allied to clearer career pathways, leading to opportunities to compete for Consultant Healthcare Scientist posts. HSST was seen as providing greater potential for continuing scientific contribution and expertise, rather than having to switch into management-based roles. There were some concerns that the potential length of training for HSST might deter applicants, particularly given the limited number of consultant posts available. Some also wanted more clarity on the demonstration of equivalence for existing staff.
- 15** Respondents saw regulation as important to patient safety and quality of care. People wanted to see early progress in the introduction of regulation of those groups that had already been recommended by the Health Professions Council to government for statutory regulation. They also asked for greater clarity on how training would relate to regulation, the level at which regulation would need to apply, and for more detail on transition arrangements and protected titles.
- 16** Respondents raised employment issues, including how Agenda for Change would be applied in implementing the changes. People wanted to understand more clearly security of tenure, proposals for supernumerary posts and how equality of opportunity would be safeguarded in competitive entry and career progression at each level. A number of respondents also raised the need for local opportunities to 'grow your own' to meet particular local service needs.
- 17** A significant number of respondents said that it would be important to ensure that the most appropriate techniques and equipment were used during training. This might have funding implications. People generally asked for more detail on funding arrangements and timescales for implementation.
- 18** Based on what we have heard, we believe that a common approach across all four countries in our model for training and education, and a review of the regulation of the healthcare

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science workforce are needed. We need to address concerns over the detail of the model. We need to do further work to set out clearly how changes will be resourced, the timetable for change and the way we will now take forward modernisation in partnership with health service bodies, employing bodies, trades unions, professional bodies, higher education institutions, regulatory bodies and others, including, importantly, users of the service.

19 The following chapters set out what we propose to do on career pathways, regulation and standards of education and training, training and education programmes and on supporting delivery. This includes work on mobilising healthcare science expertise in the delivery of high quality, safe and effective patient care, raising the workforce profile, developing leadership, addressing skill mix and employment issues, improving workforce planning and education commissioning and clarifying funding. We set out what we heard on these issues and our approach to further engagement to take forward the modernisation process.

The case for change



- 1** In the consultation, we said we wanted to modernise scientific careers to benefit patients, employers, workforce planners, commissioners and staff. Patients would get the most appropriate scientific and technological approaches to their care, as staff would have the right level of up to date knowledge and expertise. Patient safety and quality of care would be further safeguarded through appropriate professional regulation. Employers would be able to plan and use their workforce more easily, with more flexibility between disciplines and with greater transparency in requirements for career development and for matching skills to service functions. Workforce planners and commissioners would better understand the role of the healthcare science workforce and have an improved ability to match workforce demand with supply. They would also be in a better position to ensure quality outcomes in education and training from higher education institution (HEI) providers. Staff would have a clearer view of their opportunities to enter the profession and progress in their careers within an environment of dynamic innovation.
- 2** Nothing we have heard in the consultation has changed our view of these fundamental aims and the issues that need to be addressed. Respondents supported the overall vision we set out. They had concerns over aspects of the way we proposed to effect these changes and wanted to ensure we did not overlook what is currently working well during the transformation.
- 3** We now need to address these specific concerns during the implementation phase. We need to demonstrate how Modernising Scientific Careers will deliver a workforce fit for the future and provide quality, efficiency and better value for money. We need to ensure that we have a sustainable workforce by making healthcare science an attractive career for anyone with an interest and who demonstrates capability at every level, including as leaders and partners in care.
- 4** Above all, we want to ensure that the changes we make bring the benefits of scientific and technological progress into high quality patient care, safely and quickly, through an effective and productive workforce.

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- 5** The healthcare science workforce will increasingly be at the forefront in providing the diagnostic support to underpin sound clinical judgements and patient management decisions. They will increasingly provide specialised support through new therapeutic interventions and in complex diagnostics and clinical engineering. And they will bring new solutions for patient care, often much closer to people's homes. We need to ensure that the skills in the current and future workforce are deployed in the most cost effective way. We need to release the full potential of healthcare science to support responsive patient care through technological advances, research and innovation. This will be achieved through the development of both non-scientific and scientific skills including leadership, team working and interpersonal skills.
- 6** The following chapters set out how we will now implement this vision.

Key aspects of the approach to Modernising Scientific Careers

These consist of:

- a whole workforce solution, creating a cohesive professional grouping and alignment with other healthcare professionals
- showing how healthcare science adds value to healthcare and delivers safer, more effective, patient-centred care
- creating professionals who are partners and leaders in patient care and in promoting and developing science in health
- ensuring a flexible workforce: adaptable, sustainable, efficient and productive; responsive to innovation and technological advance
- raising the profile of the healthcare science workforce and careers, making it an attractive career of choice for people interested in science

- piloting key elements of the programme where possible
- promoting opportunity, equality and equity in careers
- agreed models of education and training provision and career pathways
- defined educational standards and learning outcomes
- responsive workforce planning from more defined workplace training in multi-disciplinary themes, such as blood sciences, rather than within narrower uni-disciplinary boundaries
- proportionate regulation with priority attention to those groups that have been recommended by the Health Professions Council to government for statutory regulation and clarity on protected titles
- recognition of equivalence of previous experience, training and qualifications through establishment of a UK Healthcare Science Education and Training Board
- ability to 'grow your own' through local career progression pathways
- sustainable approaches to commissioning and funding of training
- greater clarity for higher education institutions (HEIs) on health service requirements and funding arrangements
- recognition of infrastructure requirements (including Schools of Healthcare Science and training for trainers and assessors).

Career pathways



This chapter covers:

- the Career Framework for the healthcare science workforce, from Healthcare Science Assistant (HCSA) to Consultant Healthcare Scientist (HCS)
- roles they will undertake
- career entry points and the avoidance of 'glass ceilings'.

We now propose:

- establishing a new healthcare science career pathway, with roles along the Healthcare Science Practitioner Career Framework one to nine and with the ability to:
 - enter the pathway at various stages
 - progress along the pathway subject to achievement of entry requirements and exit qualifications at each stage, or their equivalent in prior knowledge, skills, experience and learning

- distinguishing clearly between Healthcare Science Assistants at Career Framework levels one to three and Healthcare Science Associates at Career Framework four.
- establishing the role of Healthcare Science Practitioner (HCSP) at Career Framework five. They will usually have completed training on an approved BSc (Hons) programme with certified workplace-based training or equivalent. There will be opportunities for career progression as a Healthcare Science Practitioner through professional practice and development into Senior Healthcare Science Practitioner roles, as well as progression into management or education and training or academic career pathways.
- establishing the role of the Healthcare Scientist at Career Framework six, who will have completed an approved Scientist Training Programme (STP) with an associated approved MSc academic award. There would be two career options into:

- i Higher Specialist Scientist Training (HSST) leading to entry onto a Higher Specialist Register for Scientists and potential employment as a Consultant Healthcare Scientist
- ii competitive progression to Senior Healthcare Scientist, with opportunities to undertake further specialist training to achieve Accredited Specialist Expertise (ASE) and, over time, to demonstrate through a portfolio of evidence, equivalence to meet the requirements of the Higher Specialist Register.

In addition, there will be opportunities to develop an academic and education career pathway and management careers within these two routes.

recognition of achievement of 'equivalence' of their prior learning and experience at each progression point. Throughout the career pathway there would be opportunities for personal, professional and leadership development. The existing healthcare science workforce, as well as new entrants, would be able to participate in these new career pathway opportunities.

- 4 This vision reflects commitments in each country of the UK to provide staff with well-designed and rewarding jobs, personal development opportunities and line management support to succeed.
- 5 We propose three key components to the career pathway, supported by defined education and training programmes: Healthcare Science Assistant; Healthcare Science Practitioner; and Healthcare Scientist. There would be opportunities for professional development and career progression within those career pathway components, and for progression from one component to the next, provided that the requisite standards were met. For practitioners and scientists, the pathway would include opportunities to move into management, education and training, research or academic careers, in addition to posts requiring specific healthcare science practice.
- 6 The Healthcare Science Assistant would enter the workforce at any of several different entry points between Career Framework levels one to four. They would perform a range of task-based roles with appropriate levels of supervision. They would have access to a learning and development programme which would enable them to acquire a relevant vocational qualification. The Healthcare Science Assistant workforce would be diverse, creating equal opportunities for school leavers and those with initial qualifications. With the support of their employers, they would be able to develop further and compete to progress to training as a Healthcare Science Practitioner if they so wished.

What we said in our consultation document

- 1 We set out a vision for the future healthcare science workforce of a clear career pathway spanning the nine stages of the Healthcare Science Career Framework.² It would have several entry points and opportunities for staff from all backgrounds to progress competitively through the career pathway to the most senior positions.
- 2 A key tenet of our proposals was that there should be no 'glass ceilings'. Individuals should be able to enter the career pathway at any point and progress through it, where there are opportunities to do so, on the basis of achievement and merit.
- 3 We wanted to encourage a series of entry points to the healthcare science workforce. High quality training and development programmes would enable progression along the career pathway for talented individuals, irrespective of their starting point. There would be opportunities to train or work on a flexible or part-time basis at each stage of the career pathway. People would be able to apply for

² A Career Framework for Healthcare Scientists in the NHS. Published by the Department of Health and Skills for Health, November 2005.

- 7** Healthcare Science Practitioners would have a defined role in delivering and reporting quality assured investigations and interventions for patients, on samples or on equipment in a healthcare science specialty grouping. They would also provide direct patient care. There would be opportunities for professional development and career progression into more senior Healthcare Science Practitioner roles in specialist practice and into management. An academic career pathway would enable the combination of practice with teaching and/or research and innovation. There would also be opportunities for Healthcare Science Practitioners to compete for entry to the STP, if entry requirements were met, including demonstration of prior experiential learning.
- 8** Healthcare Scientists would have clinical and specialist expertise in a specific clinical discipline, underpinned by broader knowledge and experience within a healthcare science theme. Healthcare Scientists would undertake complex scientific and clinical roles, defining and choosing investigative and clinical options, and making key judgements about complex facts and clinical situations. Many would work directly with patients. They would be involved, often in lead roles, in innovation and improvement, research and development and education and training. Some would pursue explicit joint academic career pathways which combined clinical practice and academic activity in research, innovation and education.
- 9** Following qualification and statutory regulation, Healthcare Scientists would have two principal career pathways: employment, with professional development and competitive progression to specialist Senior Healthcare Scientist posts, or competitive entry into Higher Specialist Scientist Training. Senior Healthcare Scientists would undertake highly complex roles within a defined field, with a role in research and development and in education. They might also have management responsibilities. Following further training, they might have ASE in a closely defined area of practice. Scientists completing the HSST would be trained to compete for the most senior level Consultant Healthcare Scientist

posts and would provide consultant level clinical and scientific expertise and leadership in direct patient care. They would play a leading role in research, innovation, education and/or management. HSST could lead to statutory regulation on a Higher Specialist Register for Scientists and, for some, appointment to Consultant Healthcare Scientist posts.

What we heard from the consultation

- 10** There was broad support for our Career Framework and progression proposals. Some respondents expressed concern that despite the vision of a single career pathway offering individuals real development and progression opportunities, there could be ‘ceilings’ and deterrents to progression, particularly for Healthcare Science Assistants and Practitioners. There were also some concerns about security of employment tenure as people progress to the next Career Framework level, particularly if this meant entering a new training programme as a supernumerary trainee. People raised questions about equality of opportunity if existing employees were competing with new entrants for training programme places. The need for explicit funding to support the training proposals was frequently raised.
- 11** There was particularly strong support from some stakeholders for the proposals for Healthcare Science Assistants to have the opportunity to develop and progress to Healthcare Science Practitioner, with employer support. Some expressed concerns that this might raise expectations, that could not be fulfilled. Healthcare Science Assistants also needed clear recognition of the contribution they can provide at Career Framework four.
- 12** Respondents raised some concerns that the distinction between Practitioners and Scientists could be divisive, and that professional practice should be a more explicit route for career progression as a Practitioner. Some asked for the potential career pathways of Practitioners into more senior roles to be articulated more clearly, with recognition of clinical responsibility and competence. There were some concerns that current qualifications

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might be discontinued, that no formal academic award for the Practitioner Training Programme was described and that foundation degree entry to the workplace-based Practitioner Training Programme could be seen to devalue the profession.

- 13** There was strong support for a clear career pathway to Consultant Healthcare Scientist appointments through Higher Specialist Scientist Training.

Our assessment

- 14** Diagrams illustrating each level in the new career pathway are in Annex 2.

- 15** We agree that we need to clarify the progression for Healthcare Science Assistants. At Career Framework levels one to four we will make a distinction between Healthcare Science Assistants at Career Framework levels one to three and Healthcare Science Associates at Career Framework levels four. Healthcare Science Assistants will undertake a range of clearly defined task and protocol-based roles, supervised by Healthcare Science Associates at Career Framework four, or by Healthcare Science Practitioners at Career Framework five, or by Healthcare Scientists at Career Framework six or above, depending on the needs of the service. Experienced Assistants would be able to progress to Healthcare Science Associate posts.

- 16** Healthcare Science Associates at Career Framework four will undertake more advanced and complex investigative tasks and treatment procedures than Assistants, with appropriate supervision either by a Healthcare Science Practitioner at Career Framework five or six, or by a Healthcare Scientist at Career Framework six and above. This will depend on the needs of the service and on the scope for technology to automate or standardise certain tasks and procedures and the ability to define protocols and activities.

- 17** Using agreed protocols, Healthcare Science Associates may refer patients or other work, for example in community settings, on to more senior colleagues and services. Progression

further along the career pathway will be by either:

- entry into the relevant point of an integrated BSc (Hons) for the Practitioner Training Programme, having gained a foundation degree, or

- progression to Healthcare Science Practitioner, having demonstrated achievement of equivalence of the Healthcare Science Practitioner standards of proficiency in prior knowledge, skills, experience and learning, which may have included the requirement for some additional education and training.

- 18** Newly qualified Healthcare Science Practitioners with BSc (Hons) and the requisite certificate of achievement of practice-based learning outcomes will be regulated at Career Framework five. They will work in a range of healthcare settings, with a clearly defined technologically based role in the delivery and technical reporting of quality assured tests, investigations and interventions for patients, on samples or equipment. There will be scope to progress to Senior Healthcare Science Practitioner roles at Career Framework six within a defined area of specialist practice, including key quality assurance roles. There will also be scope to progress into academic training and career pathways.

- 19** There will also be scope for Healthcare Science Practitioners to progress beyond Career Framework six into management roles and career pathways or, by competitive entry into the STP. Employers will be able to develop Healthcare Science Practitioners into Healthcare Scientists based on workforce need through local progression pathways.

- 20** Integral to this is the opportunity for Healthcare Science Practitioners to demonstrate achievement of equivalence of prior knowledge, skills, experience and learning, or through defined education and training to meet all of the exit outcomes of the STP. They would then be able to apply for progression to Healthcare Scientist if they met the standards of proficiency.

- 21** Newly qualified Healthcare Scientists with an MSc and clinical training will have two career options:
- competitive entry into HSST, leading, where appropriate, to entry onto a Higher Specialist Register for Scientists and potential employment as a Consultant Healthcare Scientist
 - further professional development, which could lead to competitive progression to employment as a Senior Healthcare Scientist, and opportunities to undertake further specialist training to achieve ASE. Some Consultant Healthcare Scientists may also undertake training for ASE.
- 22** In addition, there will be opportunities to develop an academic career and a management career within these two career options.
- 23** Those Healthcare Scientists who successfully complete HSST and go onto a Higher Specialist Register will be eligible to compete for Consultant Healthcare Scientist posts as they become available. This will also include Senior Scientists, who through prior experience, knowledge and expertise (usually supported by employers through local progression pathways) are able to demonstrate that they have met all the outcomes of HSST.
- 24** Each scientific service in the health service and associated agencies will not necessarily need both Healthcare Science Practitioners and Healthcare Scientists. The Career Framework outlined will ensure that the profile of the healthcare science workforce properly meets the needs of the service.
- 25** The next chapter describes our approach to regulation of the workforce and standards in education and training.

Regulation and standards of education and training



This chapter covers:

- regulation
- the proposed UK Healthcare Science Education and Training Board (referred to in consultation as an 'awarding body')
- equivalence.

We now propose:

- the establishment of a UK Healthcare Science Regulation Liaison Group
- taking forward discussions to explore an appropriate Higher Specialist Register for Scientists
- to explore establishing the functions of a UK Healthcare Science Education and Training Board in consultation with professional bodies and others
- setting out arrangements for assessment of equivalence of prior experiential learning.

What we said in our consultation document

- 1 In our consultation we said we needed to address three challenges: inconsistency in regulation across different groups in the healthcare science workforce; the fact that only two groups were regulated by statute (Clinical Scientists and Biomedical Scientists); and the need to consider regulation to safeguard patient quality and safety, particularly as Healthcare Scientists took on more patient facing roles in clinical care. We said that the healthcare science workforce should be consistently regulated in a way proportionate to the clinical risk of its practice. This would give the public confidence there was appropriate scrutiny of practice and conduct.

- 2 We said that we would consult on proposals for a new regulatory framework, which would reflect the recommendations of the UK Extending Professional Regulation Working Group. We would base our action on evidence of risk and the extent to which regulation could reduce risk. We would take account of the work of the Council for Healthcare Regulatory Excellence (CHRE) on advanced practice for the non-medical healthcare professions. We also said that the separate consultation on regulation would include proposals for a Higher Specialist Register for Scientists.
- 3 We said there would be opportunities to demonstrate equivalence or prior knowledge, skills, experience and learning at each stage in Practitioner Training Programmes, Scientist Training Programmes, and HSST so that where evidence demonstrated previous training, qualifications and experience met specified learning outcomes, the trainee or scientist would not have to repeat that training.
- 4 We said that we would consider establishing an awarding body to certify individuals training to the necessary standard as specified by the appropriate regulator, including a mechanism to recognise equivalence. It would build on existing models in similar areas. Details would be developed in discussion with professional bodies and other stakeholders.

What we heard from the consultation

- 5 There was broad support for a framework of regulation that was proportionate to risk. Risk to patients and the public was likely to be lower for those working at Career Framework levels one to four. There was strong support for regulation as soon as possible of those groups that had already been recommended for statutory regulation to government to ensure patient safety. There was support for the establishment of a Higher Specialist Register for Scientists. Respondents also asked for clarity on protected titles. There were particular concerns from the Institute of Biomedical Science about the future of the current protected title of Biomedical Scientist.
- 6 There was also broad support for the establishment of an awarding body but respondents wanted to feel confident that the body would provide quality assurance of those delivering training. Professional bodies wanted to be fully involved in discussions to take this proposal forward. People also asked for clarity around the need to separate the functions of the awarding body from those of the regulator.
- 7 There was also strong support for a system of educational qualifications equivalence and APEL (Accreditation of Prior Experiential Learning) of practice. This would ensure what people had already achieved was properly recognised, avoiding the need to repeat education or training unnecessarily.

Our assessment

- 8 There is clear support for a new regulatory framework. We have therefore established a UK Healthcare Science Regulation Liaison Group to consider further the regulation of the healthcare science workforce. The UK Healthcare Science Regulation Liaison Group will be a vehicle to engage stakeholders on the issues surrounding regulation, which will assist officials in the development of policy advice for ministers and help inform an eventual draft Section 60 Order and associated public consultation document. Issues to be considered will include parts of the register, protected titles and transitional arrangements. The group will take account of proposals set out in the White Paper, *Trust, Assurance and Safety – The Regulation of Health Professionals in the 21st Century*,³ the Extending Professional Regulation Working Group and the CHRE work on advanced practice. It will also refer to the new regulatory framework proposed in *The Future of the Healthcare Science Workforce. Modernising Scientific Careers: The Next Steps*. The UK Healthcare Science Regulation Liaison Group will reflect the fact that decisions about the regulation of new groups of staff are devolved to the Scottish Parliament and Northern Ireland Administration. The membership of the Liaison Group includes the Health Departments of

3 *Trust, Assurance and Safety – The Regulation of Health Professionals in the 21st Century*. February 2007. The Stationery Office.

Modernising Scientific Careers
The UK Way Forward

Northern Ireland, Scotland and Wales as well as other key stakeholders.

- 9** We will take forward discussions to explore the creation of a Higher Specialist Register for Scientists in those who successfully complete the HSST programme and we will consult where appropriate. This will include arrangements for demonstrating equivalent training, qualifications and experience.
- 10** As our proposals include a significant level of workplace-based education and training across the programmes, we will work with professional bodies and other key stakeholders to identify methods for recognising achievement, through the establishment of a UK Healthcare Science Education and Training Board. This will also include the assessment of equivalence for those professionals and other stakeholders who have not undertaken the recognised education and training route but who nevertheless can demonstrate that they have the necessary knowledge, skills and competence to achieve the standards of proficiency and entry to the register. This will also apply to EU and overseas entrants.
- 11** The next chapter describes our approach to training and education across the UK.

Training and education programmes



This chapter covers:

- training programmes and levels of practice
- awards and qualifications.

We now propose, in all four countries of the UK, working with the health service, professional bodies, the Academy of Medical Royal Colleges, Skills for Health, employers, education bodies and other key stakeholders to:

- develop appropriate curricula to inform academic and workplace-based training for 21st century patient care
- develop an assessment strategy

For Healthcare Science Assistants (HCSAs) and Associates:

- work with Skills for Health to define the learning and development framework and the appropriate awards and qualifications

For Healthcare Science Practitioners (HCSPs):

- develop proposals for the right balance of academic and workplace-based training leading to a BSc (Hons) award;
- explore the development of programmes to support additional Recognised Technical Expertise;
- develop national standards to enable transferability between employers

For Healthcare Scientists (HCSs):

- develop proposals for the Scientist Training Programme (STP) with the right balance between broad-based clinical training and more specialist scientific training leading to an MSc academic award

- work with employers and the health services to develop Accredited Specialist Expertise (ASE) in closely defined areas of practice with explicit national standards, building on available existing professional qualifications and academic training programmes;
- develop workplace-based curricula based on explicit standards for HSST programmes resulting in clearly defined qualification outcomes at doctoral or professional equivalent levels;
- work with Medical Royal Colleges on appropriate professional qualifications for HSST outcomes.

What we said in our consultation document

- 1** We said in *The Future of the Healthcare Science Workforce. Modernising Scientific Careers: The Next Steps* that we wanted to develop a healthcare science workforce with the right set of skills and experience to take maximum advantage of the benefits that science and innovation can bring to patient care.
- 2** We proposed broadening the learning and experience of the healthcare science workforce so that it could develop a better understanding across scientific disciplines and specialties of how to improve the quality of care for patients. This would benefit patients by ensuring that the healthcare science workforce could take a more holistic view of the diagnostic and therapeutic opportunities available. It would make career pathways more flexible and transparent. It would simplify workforce planning. And it would be more attractive to new entrants as well as those currently in the workforce who wanted to develop their skills further.
- 3** We proposed three components of training on the career pathway: Healthcare Science Assistants (broadly working at Career Framework levels one to three or four), Healthcare Science Practitioners and Healthcare Scientists.

- 4** The three components related to six levels of practice, each associated with a defined training programme and entry requirements. Demonstration of relevant prior experience and training and academic qualifications could contribute towards training recognition.
- 5** One of the most significant changes we proposed was to the training available for Healthcare Science Practitioners in the Practitioner Training Programme (PTP). We expected the workplace-based training to last up to two years. We set out the key features of the PTP, including workplace-based training, competitive entry, statutory regulation and some proposals for funding arrangements.
- 6** We proposed that successful completion of the Scientist Training Programme (STP) for Healthcare Scientists could lead, through competition, to either:

- employment as a Healthcare Scientist. Further professional development and competitive progression could lead to employment as a Senior Healthcare Scientist. There would be opportunities to undertake specific training and gain ASE. Senior Healthcare Science Practitioners would have a more defined area of practice as well as opportunities to progress into management and training and education. They would also be able to undertake research and development; or
- entry into Higher Specialist Scientist Training (HSST). Those entering HSST would be trained and on successful completion of their training, would be eligible to compete for the most senior-level consultant-equivalent Healthcare Scientist posts.

What we heard from the consultation

- 7** There was general support for a broader overall approach to education and training, although with some concerns that there might be insufficient experiential learning in specific areas. Respondents were concerned that this could result in practitioners who did not have sufficient skills to take on the required service role, particularly if they were unsupervised.

Some thought that a broader experience would encourage entry into healthcare science as a profession.

- 8** There was almost unanimous support for more and better training arrangements for Healthcare Science Assistants. Respondents wanted to see opportunities for employers to 'grow their own' workforce and to develop local talent without the need for supernumerary training placements so that security of employment was not lost. A national approach for consistency and transferability was nevertheless required through a clear awards and qualifications framework.
- 9** There was significant support for development of the Healthcare Science Practitioner role to provide the necessary expertise in applied scientific techniques in a range of healthcare settings across all three healthcare science divisions. The main concerns raised were over the amount of time spent in developing a more specific specialty focus and expertise to meet patient service needs. The tension between a predominantly specialty specific approach and a broader approach to learning was particularly evident in the physiological sciences, where a number of respondents urged that the proposed rotational programme be replaced by more specialty specific training. In other disciplines, including life sciences and physics and engineering, there was support for broad-based training. Some suggested that an apprenticeship model should be considered. People also asked for more clarity on the academic award at the end of training.
- 10** There was broad support for a Senior Healthcare Science Practitioner role but there were concerns over the length and make up of the proposed rotational elements of the training at this level.
- 11** Our proposals for Healthcare Scientists and the STP were broadly welcomed. Respondents raised some concerns over the length of proposed rotational elements of the training and expressed differing views on the indicative rotations we suggested. There was support for an MSc as the academic outcome of training.

- 12** There was general support for ASE programmes. Many asked for more detail and clarity on the distinction between ASE and HSST programmes. Several respondents pointed out that there was already some academic provision in this area, which was well regarded, especially in clinical physiology. There was a call to ensure that existing high quality training programmes were recognised and accredited. Many existing programmes were held in high regard by people working in the health service.
- 13** There was strong support for an HSST programme leading to opportunities to apply for Consultant Healthcare Scientist posts. Some raised concerns that non-medically trained staff could be taking on roles in direct diagnostic and patient care for which their training could be insufficient. People said that it would be important to develop roles for scientists at this level together with other clinicians for workforce planning reasons. There was strong support for research and development to be a core activity at this level and a call for skills training in research and development to be included at all levels of training as an important way to reinvigorate scientific research, development and innovation to the benefit of patients. People also asked for clarification on the level of qualification that would be attained.

Our assessment

- 14** For Healthcare Science Assistants and Associates there is now a clear way forward. We intend working with Skills for Health within Career Framework levels one to four to define the learning and development framework and appropriate awards and qualifications. This is likely to include National Vocational Qualifications/Scottish Vocational Qualifications, apprenticeships and foundation degrees. (A leaflet showing how awards and qualifications compare in each country is available at www.qaa.ac.uk/standardsandquality/otherrefpoints/qualsboundaries.asp.)
- 15** We want to modify our proposals for the Healthcare Science Practitioner role. We agree that a one size fits all approach is not the right way forward, and there will need to be similar but not necessarily identical arrangements

within each of the three healthcare science divisions. In response to what we heard through the consultation and through further discussion with our partners and stakeholders, we intend moving towards providing a three year (four year in Scotland⁴) 'integrated' undergraduate degree programme primarily in technological areas, which will be the principal training route for Healthcare Science Practitioners. This will combine and 'integrate' both academic and workplace-based learning. The academic award will be a BSc (Hons). There will also be opportunities for trainees with prior relevant education and workplace-based experience to be assessed for equivalence of achievement and to receive the requisite academic and workplace-based learning to complete the PTP.

16 In the first year of study, the experiential component will start broad with short 'tasters' in groups of specialisms within the division. This will give the trainee a wide appreciation of the many specialisms and a more holistic view of the areas, which contribute to high-quality patient care. There will be greater specialisation, usually in a single specialism. In the physiological sciences, there will be a focus on a single specialism from the second year, in both the academic and the workplace-based components of the degree programme. There is clearly a balance to be struck between specialisation and broadening skills. We believe this modified approach will provide a more holistic view of the diagnostic and treatment opportunities available to patients, as well as equipping the workforce with the right depth of expertise necessary at this level.

17 We propose developing further, with the health service, training programmes to support a formal role of Senior Healthcare Science Practitioner. We will explore whether the programmes could provide opportunities to gain additional Recognised Technical Expertise. This will provide a system of local 'credentialling' by employers, recognising that the employer requires the role and wishes to

'grow' someone into it by providing additional training and experience. The role of Senior Healthcare Science Practitioner will therefore be determined largely by local service need but we intend to develop broad national education and training standards so there is the possibility of transferability between employers. This will help provide career progression opportunities for Healthcare Science Practitioners as well as optimising the application of diagnostic and therapeutic techniques for patient care.

18 We will modify our proposals for the STP to provide a different balance between broad and more specialist training. We propose shortening the rotational elements of the workplace-based programme to three months in each of four areas, one of which will be the specialism to be pursued in an 18 month workplace-based programme, following the 12 month period of rotation. This will be combined with an academic programme at Masters (MSc) level over the three year programme (four years in Scotland). The first part of the academic programme will introduce the basic science of the rotational specialisms and an induction into healthcare services and their values. These changes will give Healthcare Scientists a wider view of the diagnostic and treatment opportunities available for patients. Their clinical and specialist expertise will be underpinned by a sound scientific knowledge base, routed in healthcare practice.

19 We believe that the need for training at ASE level for Healthcare Scientists is likely to increase to keep pace with growing technological and scientific innovation in patient care. We intend to work with employers and the healthcare service to develop programmes to support ASE for Healthcare Scientists in closely defined areas of practice. We intend to develop explicit national standards and programme curricula with formal accreditation processes. We will build on existing academic programmes and professional body examinations where appropriate.

⁴ Undergraduate BSc honours degrees in Scotland run for four years, as the entry point for the majority of students is a year earlier than in other UK countries. Higher degrees such as MSc and PhD in Scotland follow a UK-level format.

- 20** Healthcare Scientists will have the opportunity to compete for selection into HSST programmes. Workplace-based curricula supporting these programmes will be based on explicit standards with clearly defined outcomes. Achievement will be demonstrated through validated assessment procedures. There will be a significant research training component to promote skills in research and development. The training will equip Healthcare Scientists with the ability to compete for the highest level scientist roles, providing significant clinical input into patient care and taking on clinical leadership roles. The associated academic qualification will be at doctorate level. Where these are available it will include relevant professional examinations such as Fellow of the Royal College of Pathologists. We will work with the Academy of Medical Royal Colleges to further define such professional examinations in other areas and to seek endorsement of the areas in which HSST will be developed.
- 21** Academic award and qualifications programmes at each level will largely be offered through further education and higher education institutions as we proposed in our consultation.
- 22** The next chapter covers our approach to supporting delivery.

Supporting delivery



This chapter covers:

- raising the workforce profile
- addressing employment issues
- improving workforce planning
- improving education commissioning and funding arrangements.

We now propose:

- developing a communication strategy that supports national and local delivery of Modernising Scientific Careers
- working in partnership with employer representative bodies, trades unions and others, to take forward UK employment issues
- developing a robust workforce planning model to support planning for the healthcare science workforce at a national and local level

- working with healthcare bodies on commissioning and funding arrangements
- developing implementation plans for England, Northern Ireland, Scotland and Wales, working in partnership with stakeholders.

What we said in our consultation document

- 1 We said that science and innovation were at the heart of high quality healthcare for patients and the public. Although the healthcare science workforce represents approximately 5% of the publicly funded healthcare workforce in the UK, there was little understanding of the skills and knowledge this workforce could bring to high quality, safe and effective care based on the latest scientific and technological developments. We said we wanted to raise the profile and awareness of healthcare science.
- 2 We said that one of our key aims was to make healthcare science more attractive and visible as a career, both for existing staff and for new recruits in a competitive market for young adults and graduates interested in science.
- 3 We said the changes we proposed would require new national job profiles based on job evaluation and agreed through the NHS Staff Council process, with knowledge and skills framework outlines for particular posts. A methodology to ensure consistency in how those current staff would be assessed, accredited and assimilated into the new scientific careers structure would be needed.
- 4 We said that more needed to be done to improve workforce planning. We proposed that each administration should build an integrated workforce model with links to models for other parts of the healthcare workforce.
- 5 Improved workforce planning would inform education commissioning, which should be more explicit and structured to ensure that:
 - workplace-based training programmes are relevant with curricula, well designed and with learning outcomes clearly stated so that placements provide the right experience and exposure with appropriate supervision, to ensure curricula outcomes are achieved
 - academic programmes are well designed and address the breadth of knowledge, which the healthcare science workforce of the future will need.
- 6 We proposed the establishment of clearly identified and secure funding streams to support Modernising Scientific Careers education and training programmes. This would ensure the sustained development of the healthcare science workforce and the development of the necessary infrastructure to support trainees.
- 7 We said we would take forward work across the four countries to develop understanding of how the current workforce could adjust in response to the four countries' policy objectives. Some early elements of the programme would be piloted in England and evaluated. This would help with implementing the proposed programme and support the development of detailed plans for the current workforce to enable them to take advantage of the new arrangements. We set out principles we would apply during implementation for employment and for training.

Principles for the implementation of Modernising Scientific Careers

- continuity of service for patients must be guaranteed
- the current workforce will be actively engaged in the process and actively retained
- timely communication will take place 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 funding arrangements

- equality of opportunity for further development of the existing healthcare science 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

What we heard from the consultation

- 8** Many respondents agreed that healthcare science needs to be more widely seen as an attractive career at the forefront of innovation in diagnostics and treatment. A clear description of opportunities for qualifications at all levels, linked to career progression and continuous professional development, was seen as important. The central role of healthcare science in modern healthcare needed to be better understood.
- 9** There was strong support for the development of a clear and accessible career pathway for healthcare science where progression is supported by training and development opportunities and resources and based on equality of opportunity. People saw this as an important recruitment and retention tool for employers. They also supported competitive entry both to employment and to training at all levels of the pathway.
- 10** Trades unions welcomed opportunities for existing trained staff to further personal and career development by tapping into the new training programmes as appropriate to their specific circumstances. People said that this was what made a good employer and supports staff retention. Some asked for more detail about the body that will assess the equivalence of prior knowledge and experience for entry to Practitioner Training Programmes (PTPs) and Scientist Training Programmes (STPs) by the current employed workforce.
- 11** People raised questions about equity of opportunity in the competitive entry process between a direct entrant and an existing employee if both became seconded trainees.
- They also raised some concerns if they needed to resign a substantive post to enter a training post. Some also raised concerns about any need for trainees to move around the country during their rotational training.
- 12** Currently trainees make, in some disciplines, a major contribution to service delivery at the same time as developing skills and expertise. There was concern that their contribution to service would be reduced under our proposals.
- 13** There was strong support for trainees being fully funded and supernumerary. But some respondents raised concerns that the supernumerary nature of the proposed training posts would mean that many more applications would be from direct entrants than from current employees. People also asked for greater clarity on how supernumerary trainees would progress to a substantive appointment at the end of training, particularly if posts were not available. Concerns were also raised about those taking career breaks.
- 14** Some respondents suggested that the career pathway should be designed without the need for a Practitioner to enter the supernumerary rotation of the STP in order to progress to Scientist. The necessary skills to demonstrate meeting the requirement of the outcomes could be acquired through continuous professional development instead. People suggested this could also apply to Healthcare Science Assistants (HCSAs).
- 15** Some people said there was a risk that there might appear to be a 'glass ceiling' to career development at Healthcare Science Practitioner level and that this could increase current recruitment difficulties. Some noted that the healthcare science workforce has a very high proportion of female entrants but that relatively few succeed into the most senior positions within the profession.
- 16** People raised the need for equity of pay for the same roles across the UK. Although Agenda for Change was seen as an enabler of the proposals, there was some doubt as to whether it would deliver equity and maintain current salaries. Trades unions wanted us to deal

with implementation arrangements through existing Agenda for Change job evaluation and negotiating arrangements. They also offered to work with us in the implementation of Modernising Scientific Careers.

- 17** People raised concerns over the training of trainers and assessors and their resourcing. They saw gaining adequate commitment from employers and sufficient funding for the proposals as vital to success. Professional bodies asked to be involved in the process.
- 18** Many asked for more detail about the impact of implementation on the existing workforce and trainees.
- 19** People said that trainees should be properly prepared for the role they would be recruited into with the right balance of generic and specific education and training. They also said that workforce planning processes should result in trainees being confident there will be suitable jobs for them when they complete their training.
- 20** People said there needed to be a clear and robust workforce planning process that engages the health service and improves links between national and local planning. Workforce planning should balance the tensions between managing short-term pressures and ensuring a sustainable workforce in the long term.
- 21** We heard that there needs to be a good balance between any national planning and local autonomy so that informed decisions can be made at the right level. People told us they would prefer a phased implementation of Modernising Scientific Careers to ensure there is sufficient time to plan locally. They also said that there should be national commissioning where numbers of trainees are small and that national and local responsibilities should be clearly defined.
- 22** People said there needs to be a clear national funding model with transparent and equitable funding streams to support the trainee and workplace-based training. They told us that funding should follow the trainee in the same way as it does for other professions. They said that there should be equity of access to career

progression, including a clear progression route for existing healthcare science staff.

Our assessment

- 23** There is clear support for our proposals to mobilise healthcare science expertise in the delivery of high quality, safe and effective patient care and to raise the visibility of the healthcare science workforce in service delivery. We will now develop a communication and engagement strategy appropriate to each country. The strategies will identify the key drivers for raising the profile of the healthcare science profession and the key stakeholder groups we need to communicate and engage with. The strategies will aim to increase recognition of the healthcare science workforce to help attract and retain the right calibre of professionals, presenting a valued and respected workforce to the wider world. They will provide greater transparency around healthcare science as an attractive and rewarding career choice.
- 24** There is clear support to maximise the contribution that can be made by all healthcare science staff to meet patients' needs by raising the profile of healthcare science. We envisage that employers will determine the right pace of change to gradually alter the profile of their workforce in response to drivers such as service improvement, increasing productivity and value for money demands, staff turnover or recruitment and retention issues, and the need to address any issues of equality and diversity. The current workforce may be developed through continuous professional development or through staff development opportunities identified by employers in line with changing service needs.
- 25** A priority for all aspects of implementation (employment and education) will be retaining the current workforce and cohort of trainees to ensure continuity and enhanced quality of services for patients. We do not anticipate those already employed in the healthcare science workforce will be adversely affected by Modernising Scientific Career. Local progression pathways will be available to them either through employer support for those applying

for entry to the new accredited training programmes or through demonstration of equivalence to ensure they can access the new career pathways. Existing staff transferring to new roles or training programmes may require some education and training to prepare them.

- 26** The education transition phase will be the period in which healthcare science training and education undergoes a change from current to future programmes. There will be a phased approach to introduction across the four countries of the UK in line with relevant workforce commissioning and provision arrangements. We will take account of the time required for existing legacy programmes to run out. We will need to ensure that nobody caught up in the transition phase is disadvantaged.
- 27** We anticipate that Assistants will be recruited and employed by NHS organisations and trained in accordance with the learning framework currently under development by the Modernising Scientific Careers programme. This may also apply to Associates although we anticipate that there may be some direct entrants to full-time accredited university foundation degree programmes for specific roles in the scientific workforce. This would be enhanced by NHS placement support or through part-time NHS employment based training models accompanied by part-time academic study.
- 28** We anticipate the largest numbers entering PTPs will be via direct entry to a university education programme enhanced by placement arrangements in healthcare (similar to other professional groups).
- 29** Employment based arrangements and part-time academic study may also feature in the education solutions for development of some staff in the healthcare science workforce. However, employers will also be able to second their staff onto university programmes or into training posts for the duration of their training programme.
- 30** The arrangements for the support of staff on the STP and HSST are still being discussed and may vary across the four countries. They will be set out in country-specific implementation plans.
- 31** We accept concerns over the proposals for any health service employed member of staff wanting to apply for or undertake the next level of training to resign a substantive post. We have now developed the training and education model so that this is not a requirement and have introduced the concept of local progression pathways. We will also ensure there are part-time training opportunities and people opting to take a career break (step off) have the opportunity to return to their training programmes (step on again).
- 32** At the end of any training programme trainees, however funded, will be eligible to compete for vacant posts either with their current employer or in response to wider advertisements for vacant posts. We will work very closely with workforce planners to ensure that supply is well matched to demand in health services.
- 33** We will work through the appropriate NHS Staff Council process to agree how appointments of new Healthcare Scientist Consultants and the most senior scientific roles will be made in accordance with Agenda for Change arrangements. This will include the role of assessors and their training.
- 34** We need to develop capability in both data capture and workforce planning for healthcare science. Workforce planning needs to be integrated with service delivery planning and planning for other members of healthcare teams. We will share approaches to workforce planning across the four countries and details of our approach will be set out in country-specific implementation plans.
- 35** We agree there should be a phased approach to implementation. Detailed implementation plans will be developed for each country within the arrangements for funding healthcare science education and training programmes.

Conclusion



- 1** Previous chapters set out the need for healthcare science expertise to support the delivery of high quality, safe and effective patient care as well as the contribution to sustainable and affordable clinical teams. We also set out the drivers for modernisation of the healthcare science workforce through changes in training and education and career pathways. We set out how we have modified our proposals in response to what people have told us. We will now take forward changes in partnership with key stakeholders.
- 2** Implementation will be incremental, based on a phased approach and local pilots. Implementation plans will be developed separately for each country and will include arrangements for transition.
- 3** We will evaluate our progress as part of our implementation plans and continue to ensure the healthcare science workforce evolves to take maximum advantage of the rapid innovations in technologies and new care pathways that continue to improve patient care.

Annex 1: The consultation process



Some 2,300 frontline staff, professional body representatives, educational providers, NHS managers and employers UK wide took part in a series of stakeholder engagement and listening events in spring and summer 2008. From these, the career and training pathway was developed, which was outlined in the policy document *The Future of the Healthcare Science Workforce. Modernising Scientific Careers: The Next Steps*.

A public UK wide consultation on the document ran from 26 November 2008 to 6 March 2009 and 980 responses were received. An independent analysis of responses showed broad support for the principle of modernising scientific careers and training pathways, but there was a desire for more detail and further clarity.

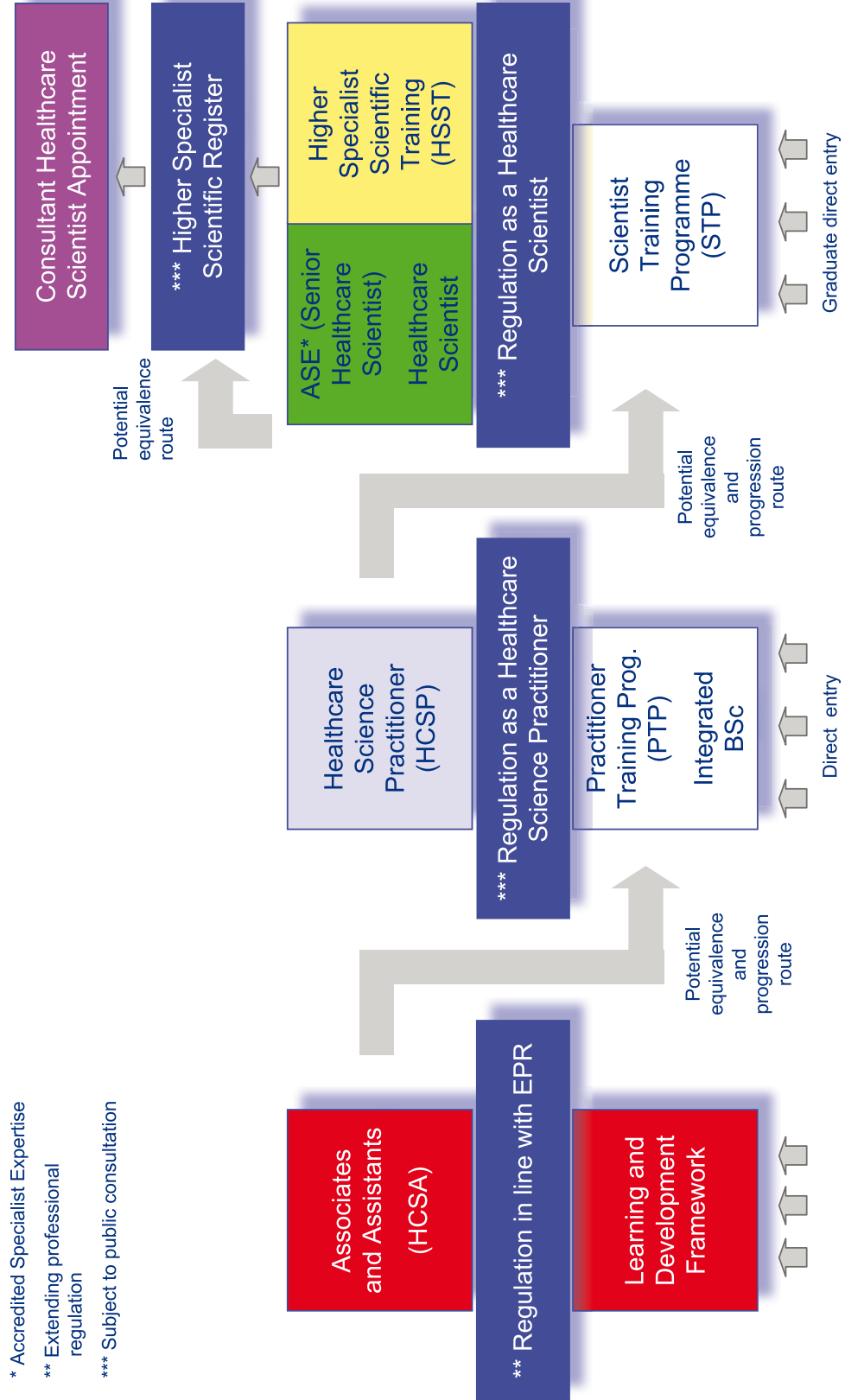
To this end, two deliberative events were held, in Liverpool on 22 July 2009 and in London on 27 July 2009, discussing the issues raised and working towards solutions with some key stakeholders, including patient groups, from across the four countries. The findings from the consultation and the deliberative events are set out in this document under the heading 'What we heard from the consultation' within the relevant chapters.

A summary report on the responses prepared by Ipsos MORI Social Research Institute (*Modernising Scientific Careers (MSC): A Consultation Analysis of: Organisational, Individual and Deliberative Event Responses (conducted for the Department of Health, September 2009)*) is published in parallel with this document.

Annex 2: Illustrative career pathways

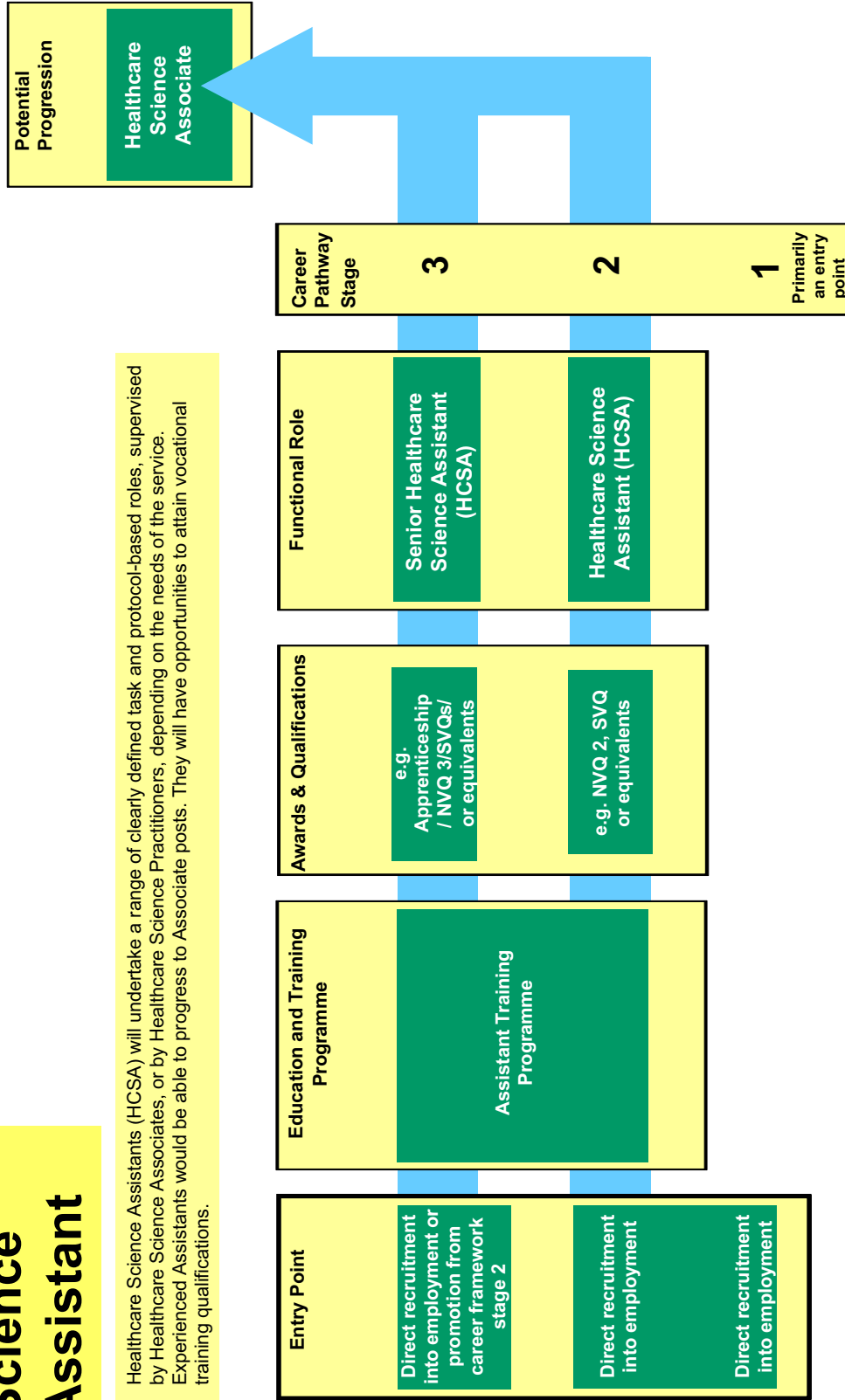


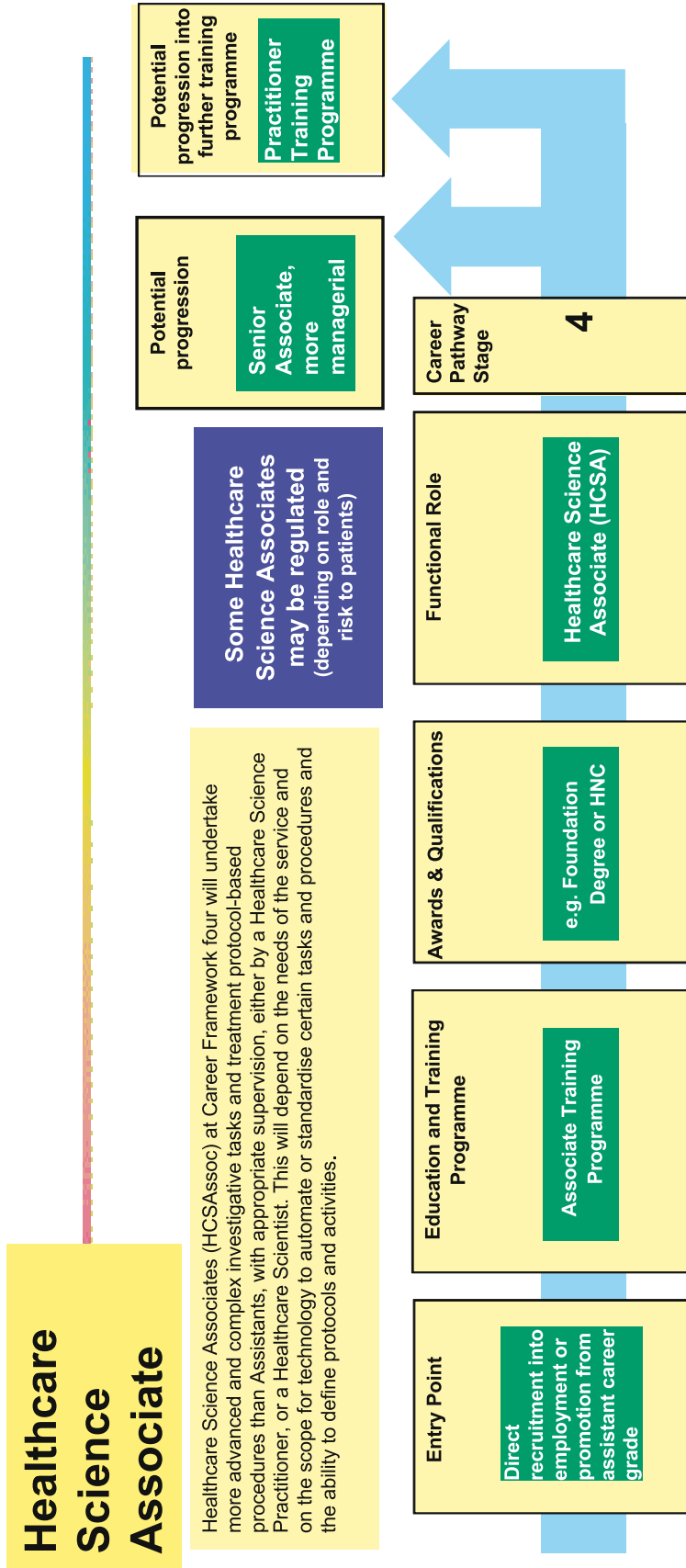
Modernising Scientific Careers: Career and Training Pathways

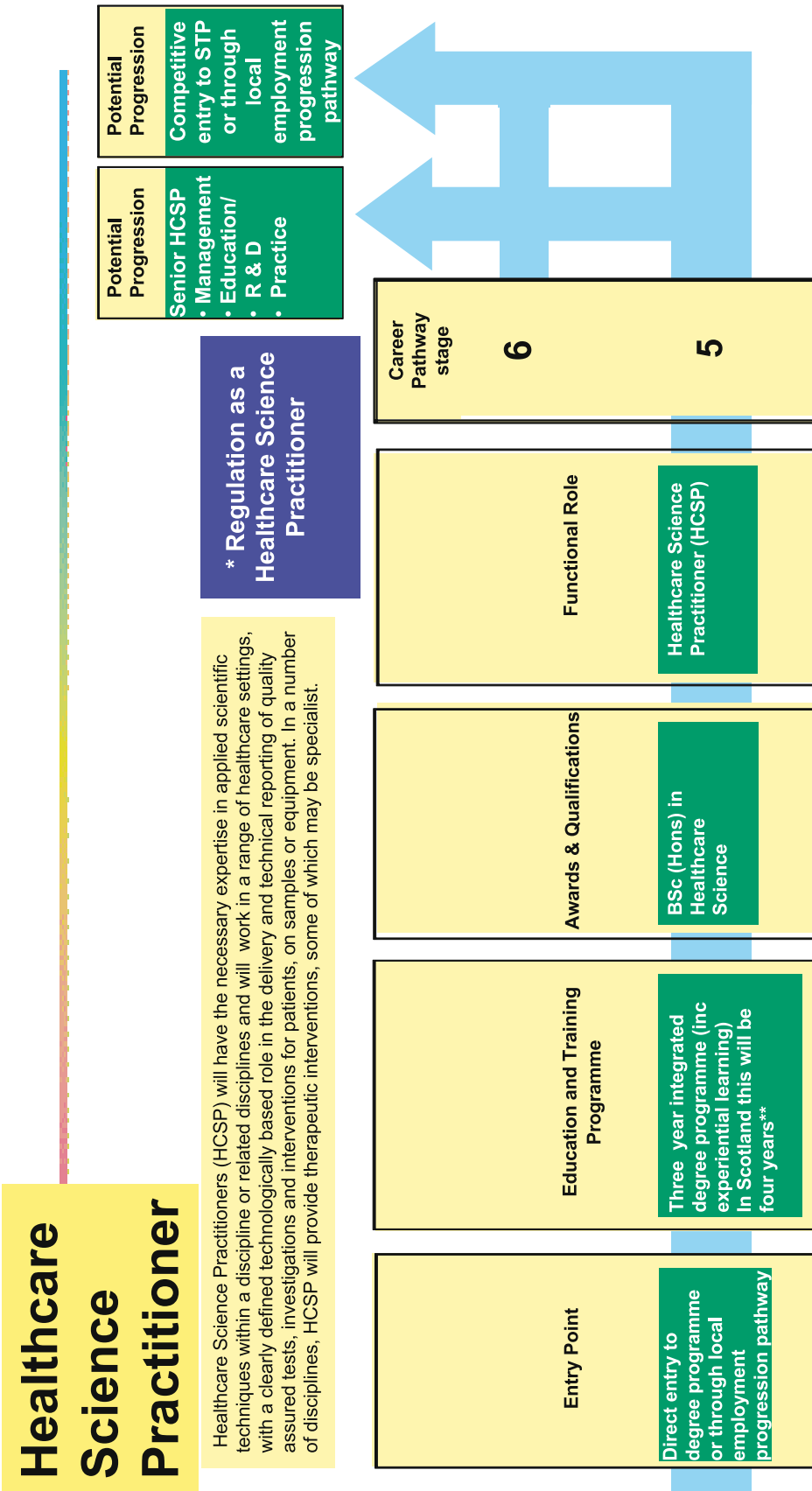


Healthcare Science Assistant

Healthcare Science Assistants (HCSA) will undertake a range of clearly defined task and protocol-based roles, supervised by Healthcare Science Associates, or by Healthcare Science Practitioners, depending on the needs of the service. Experienced Assistants would be able to progress to Associate posts. They will have opportunities to attain vocational training qualifications.



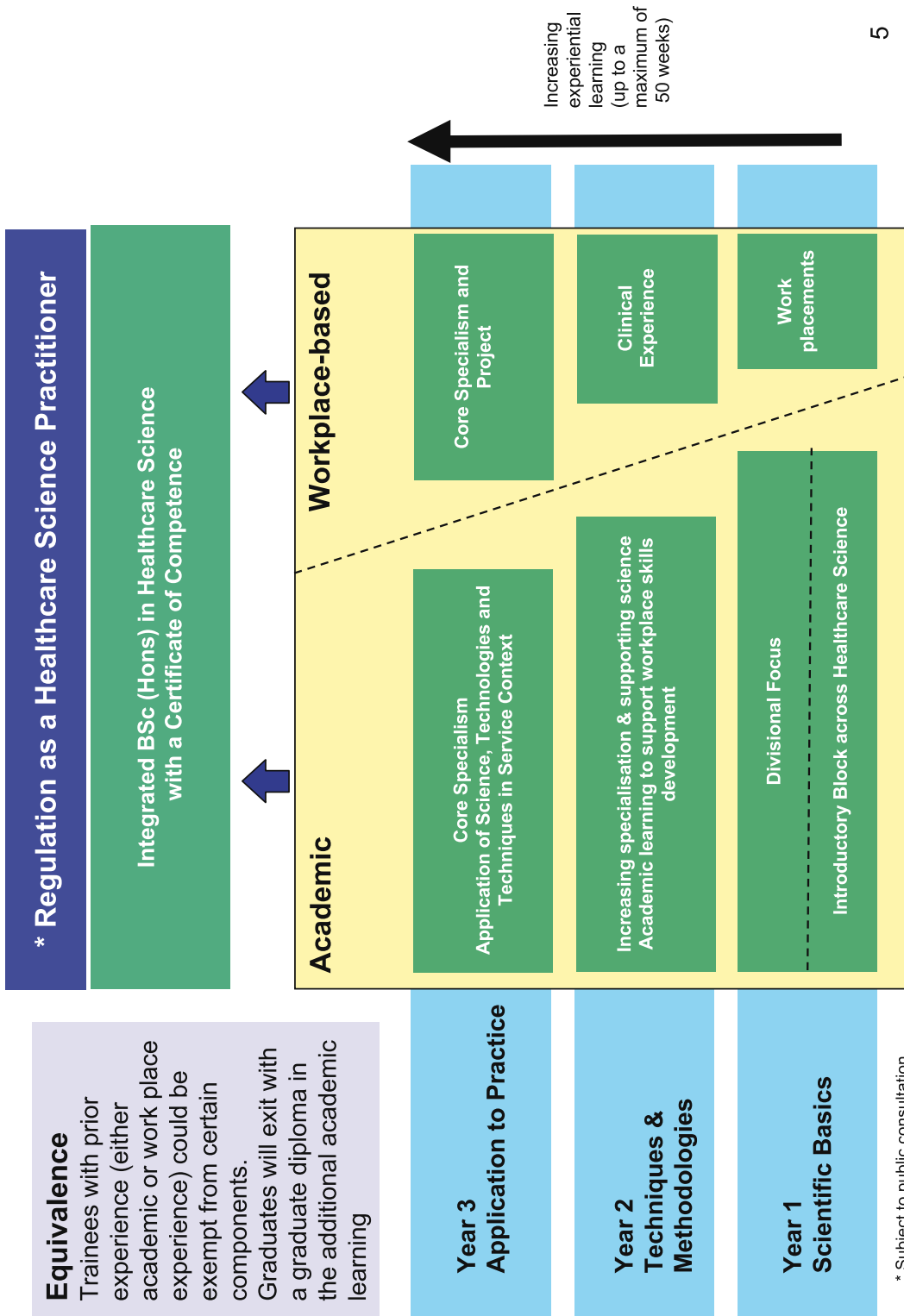




*Subject to public consultation

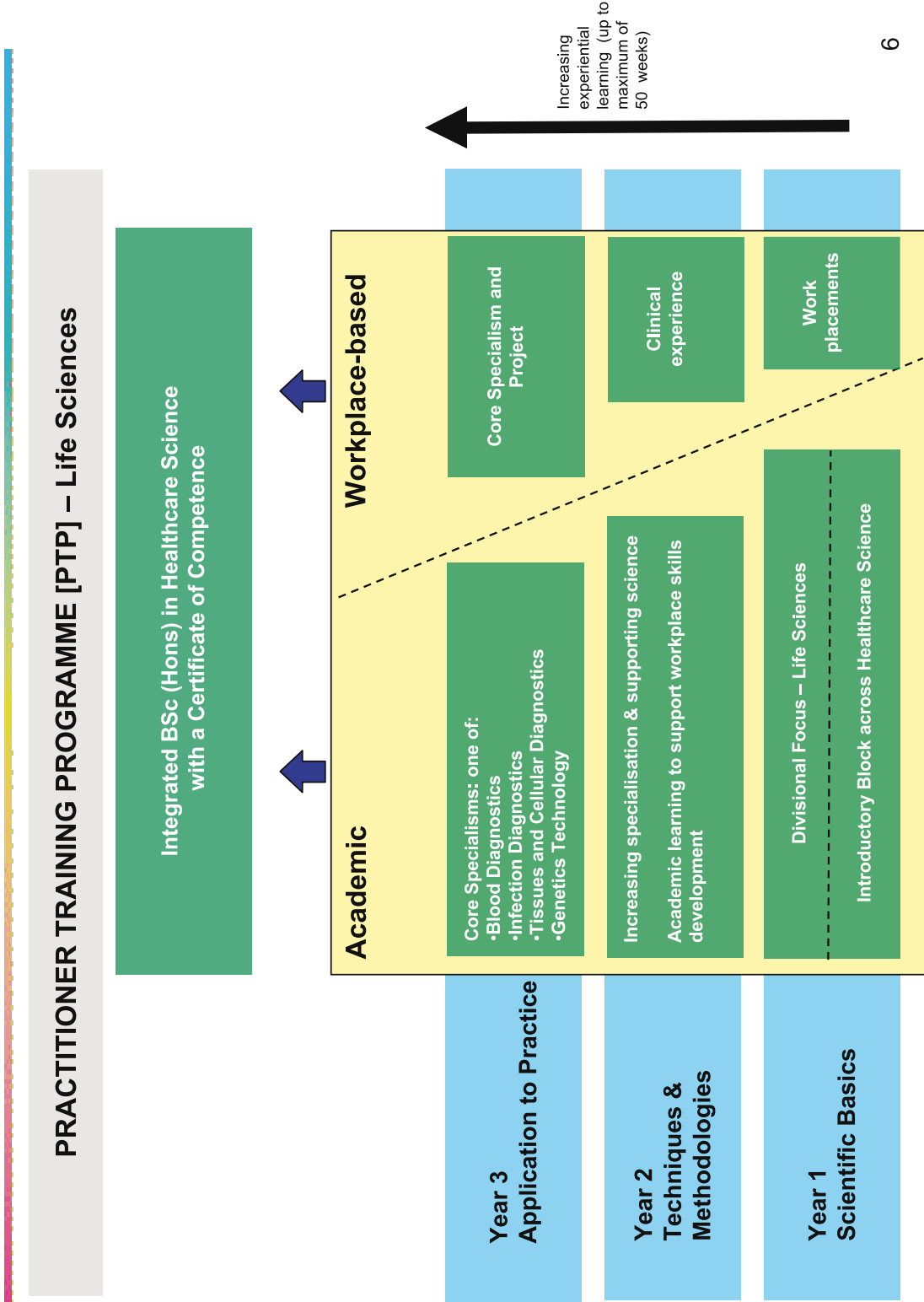
** Undergraduate BSc Hons degrees in Scotland run for 4 years as the entry point for the majority of students is a year earlier than in other UK countries. Higher degrees, such as MSc and PhD in Scotland, follow a UK level format.

HCSP – Training (PTP) – PRACTITIONER TRAINING PROGRAMME – Overview

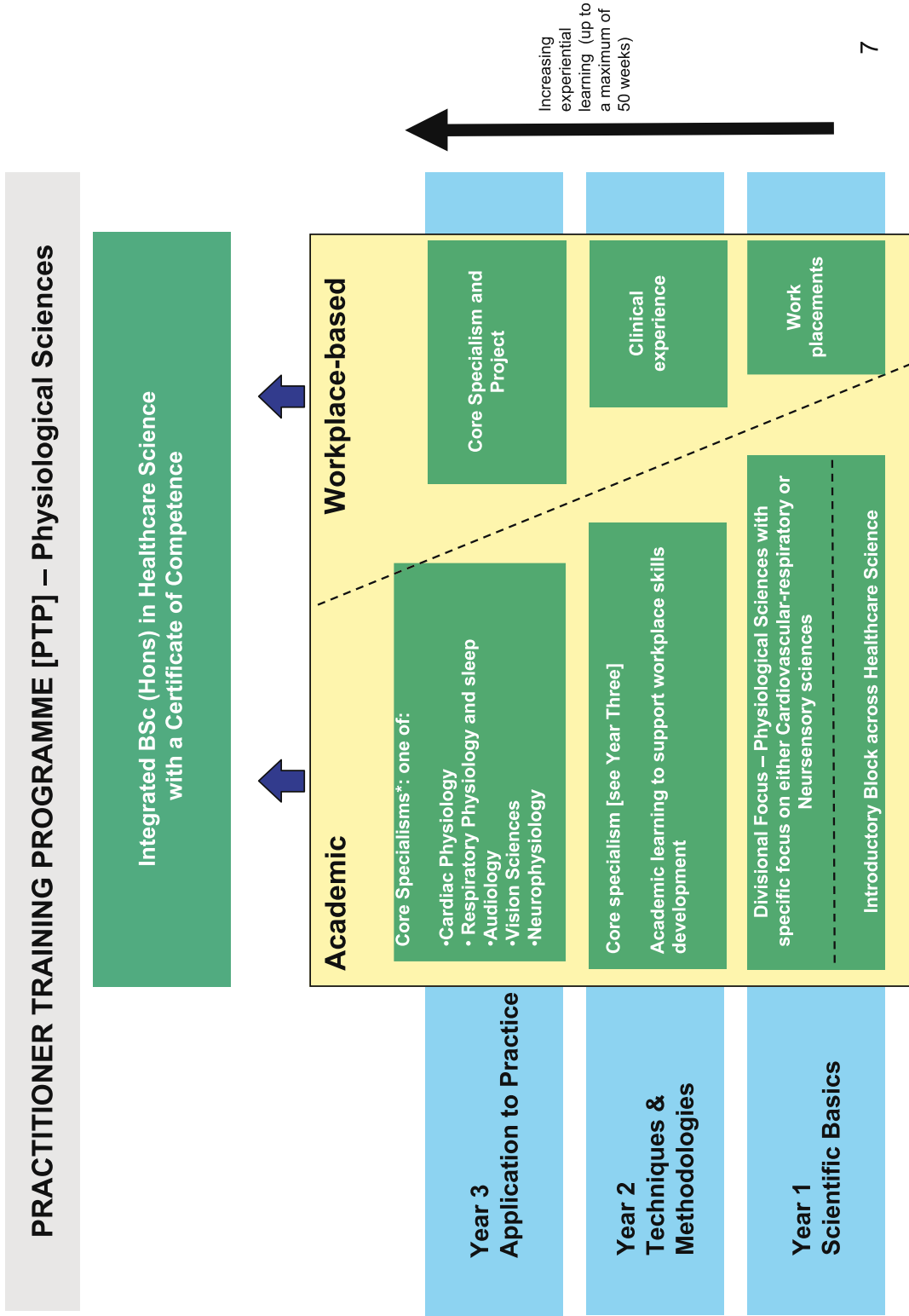


* Subject to public consultation

HCSP – Training (PTP)

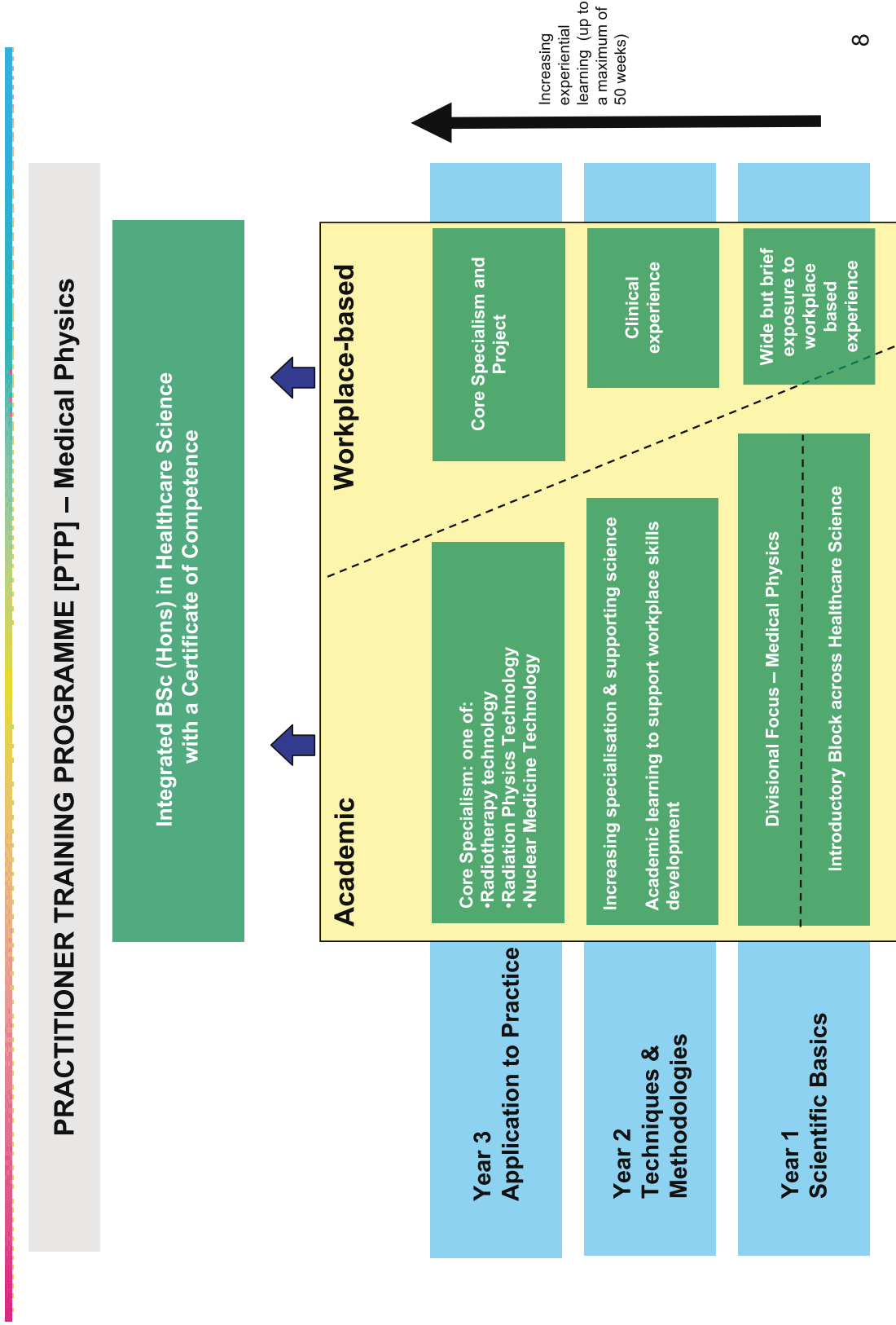


HCSP – Training (PTP)

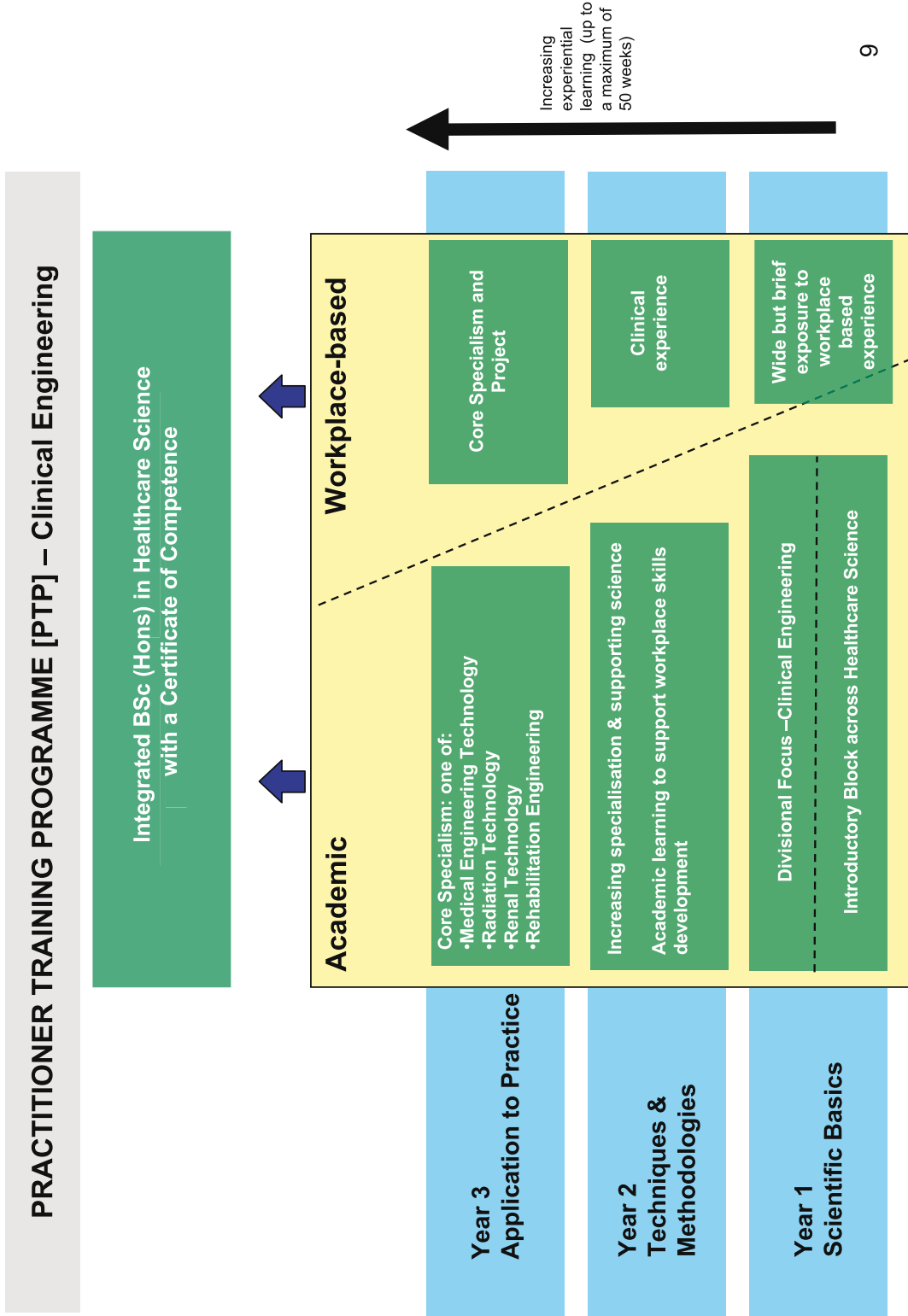


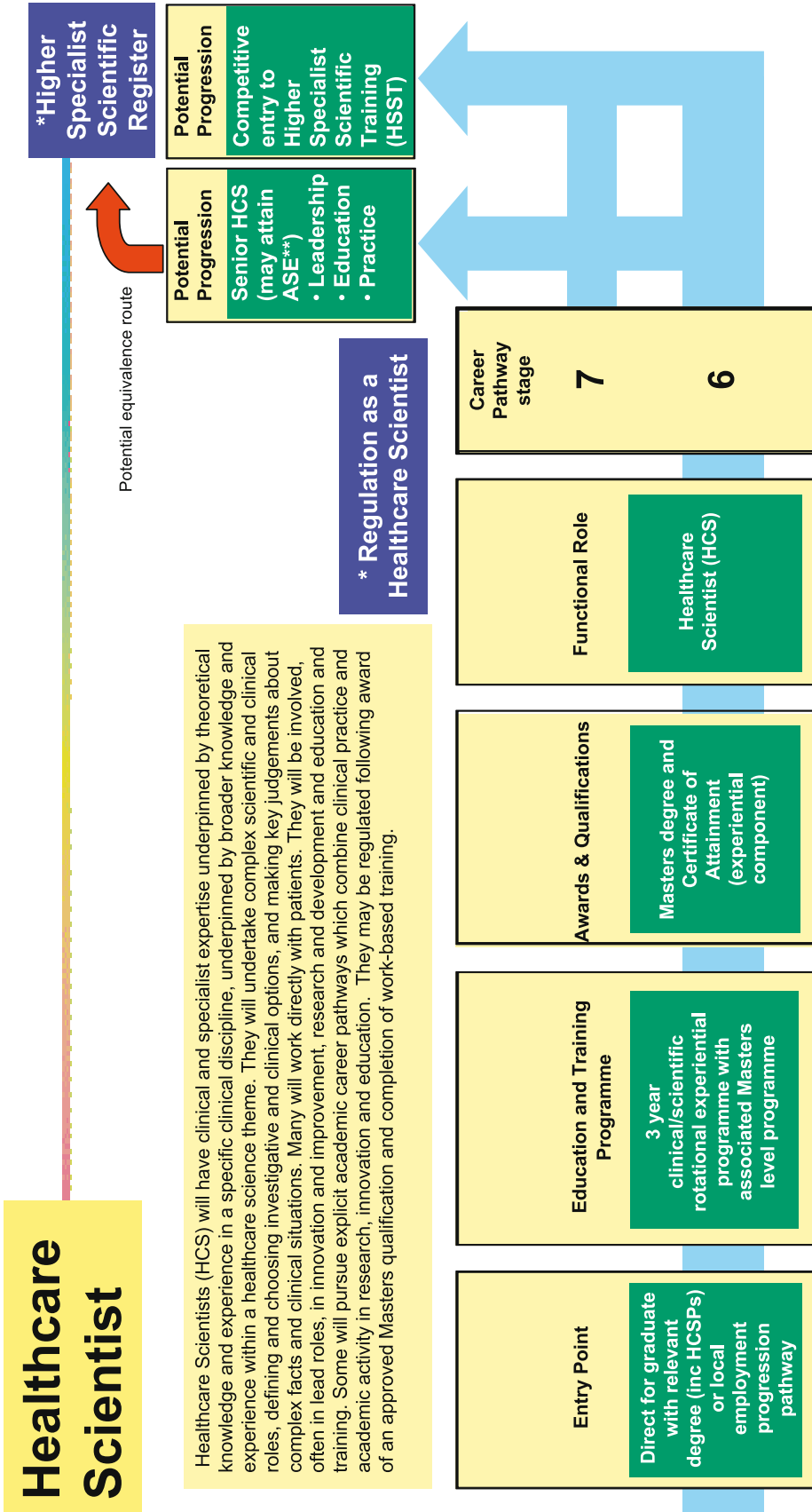
* Discussions still ongoing in respect of vascular, GI physiology, urodynamics, and critical care technology

HCSP – Training (PTP)



HCSP – Training (PTP)

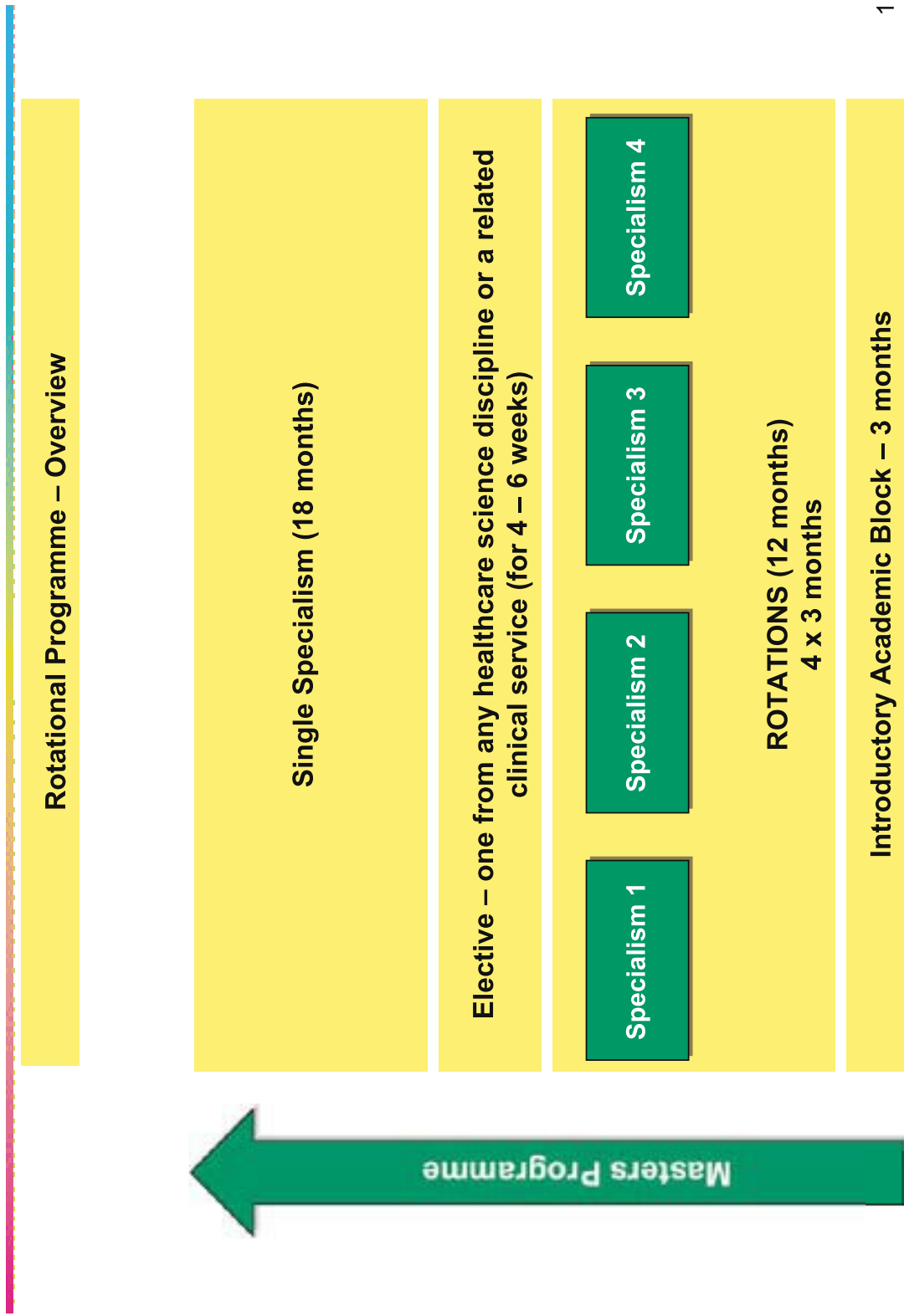




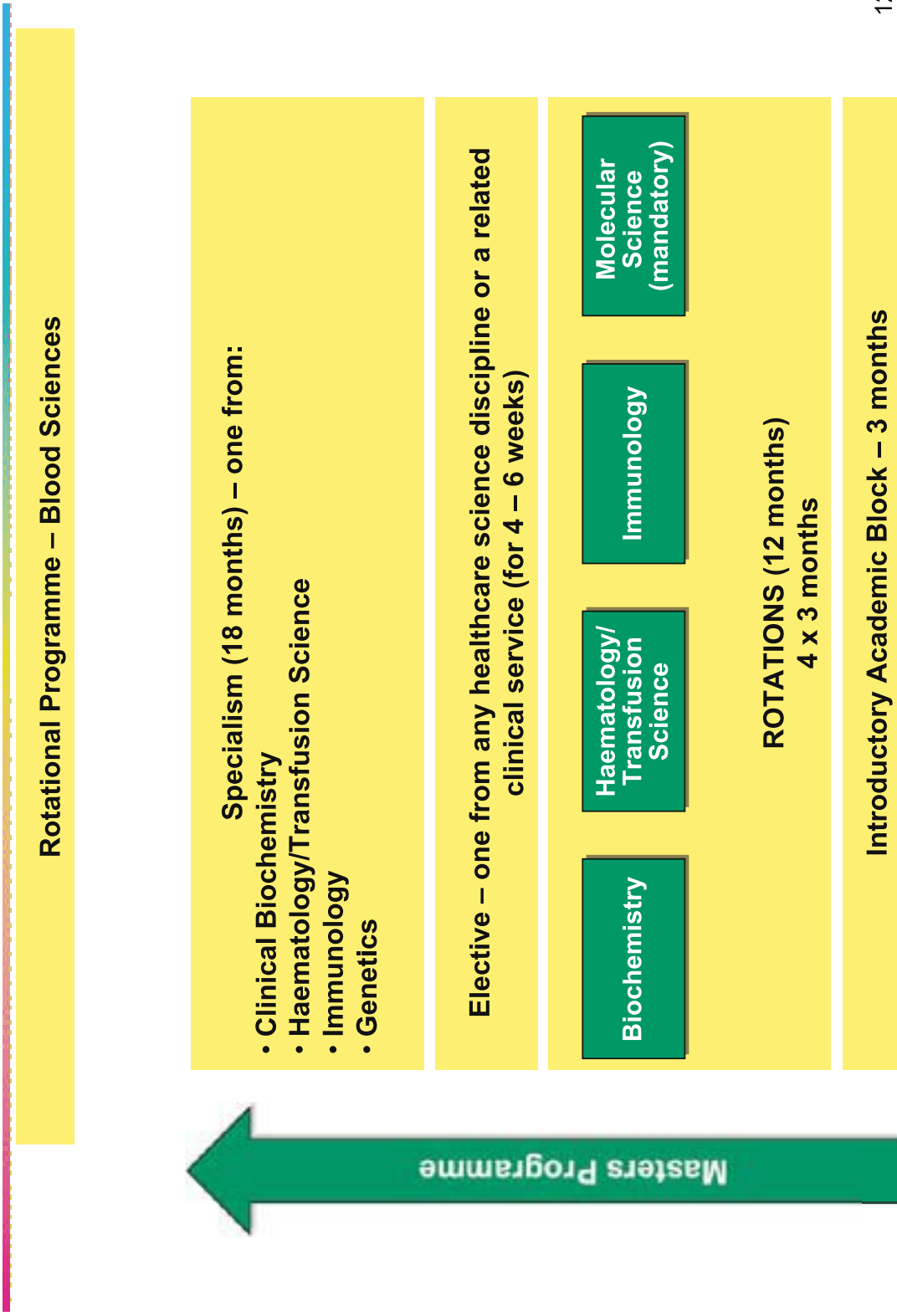
* Subject to public consultation

** Accredited Specialist Expertise

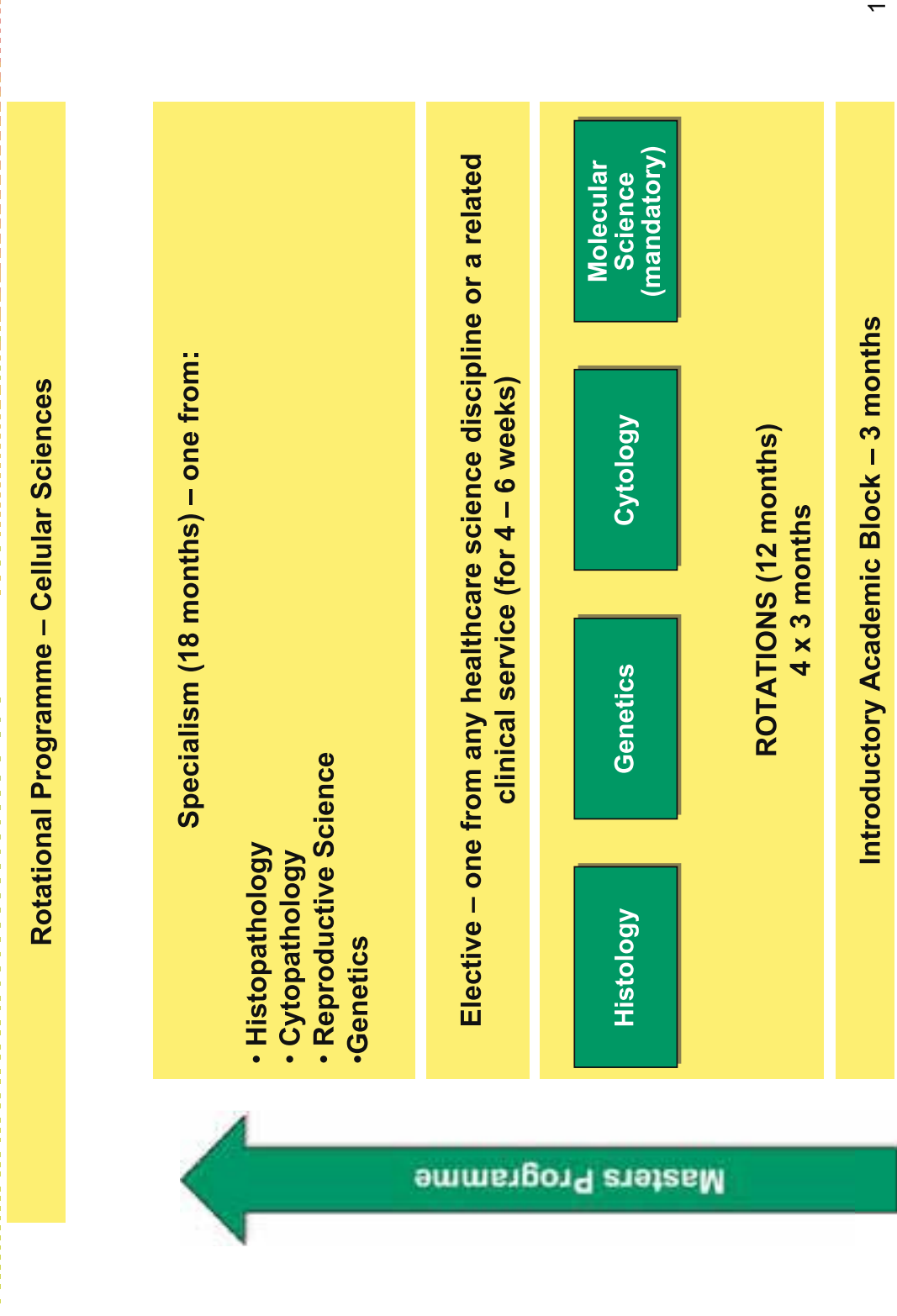
HCS – Training (STP)



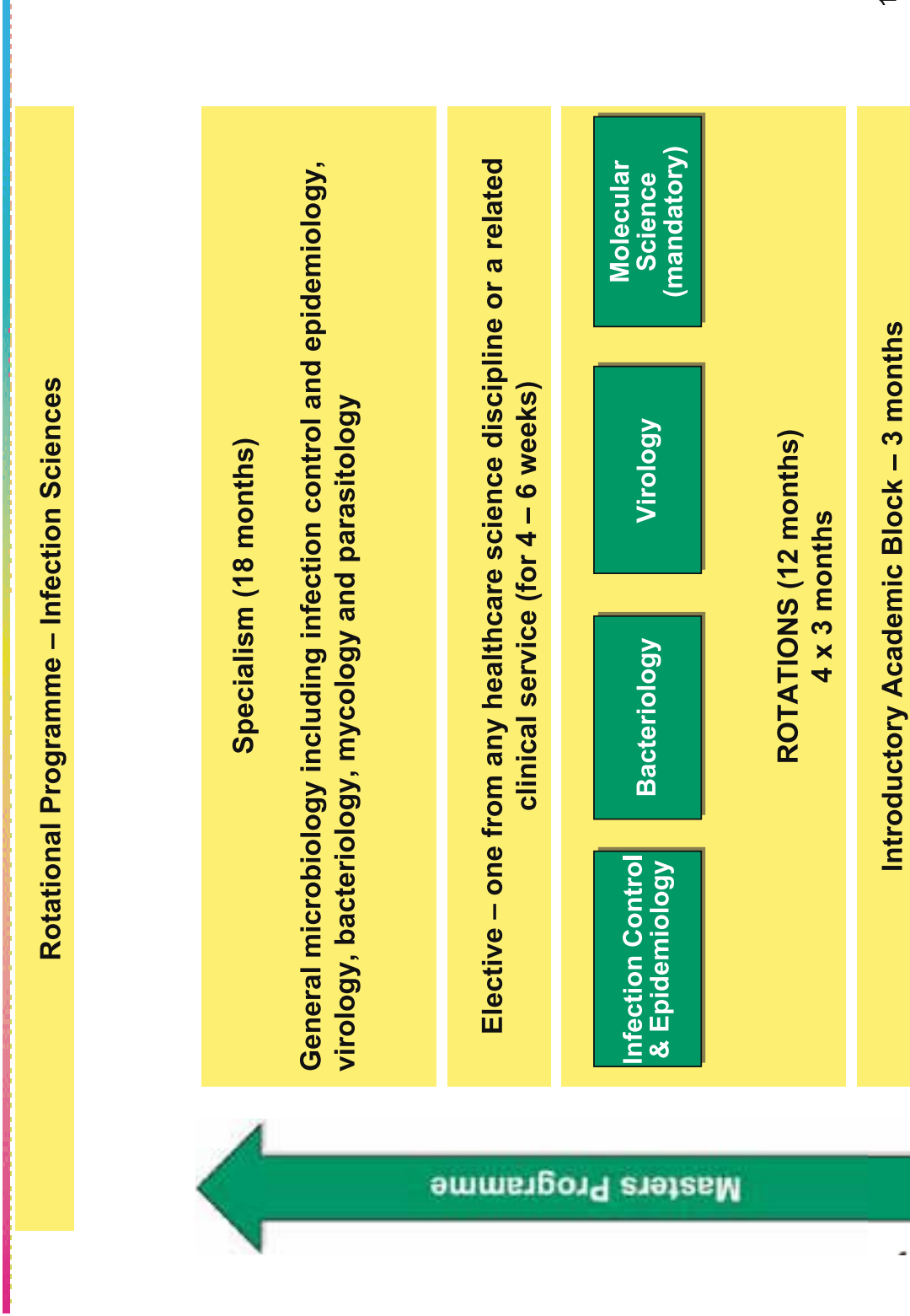
HCS – Training (STP)



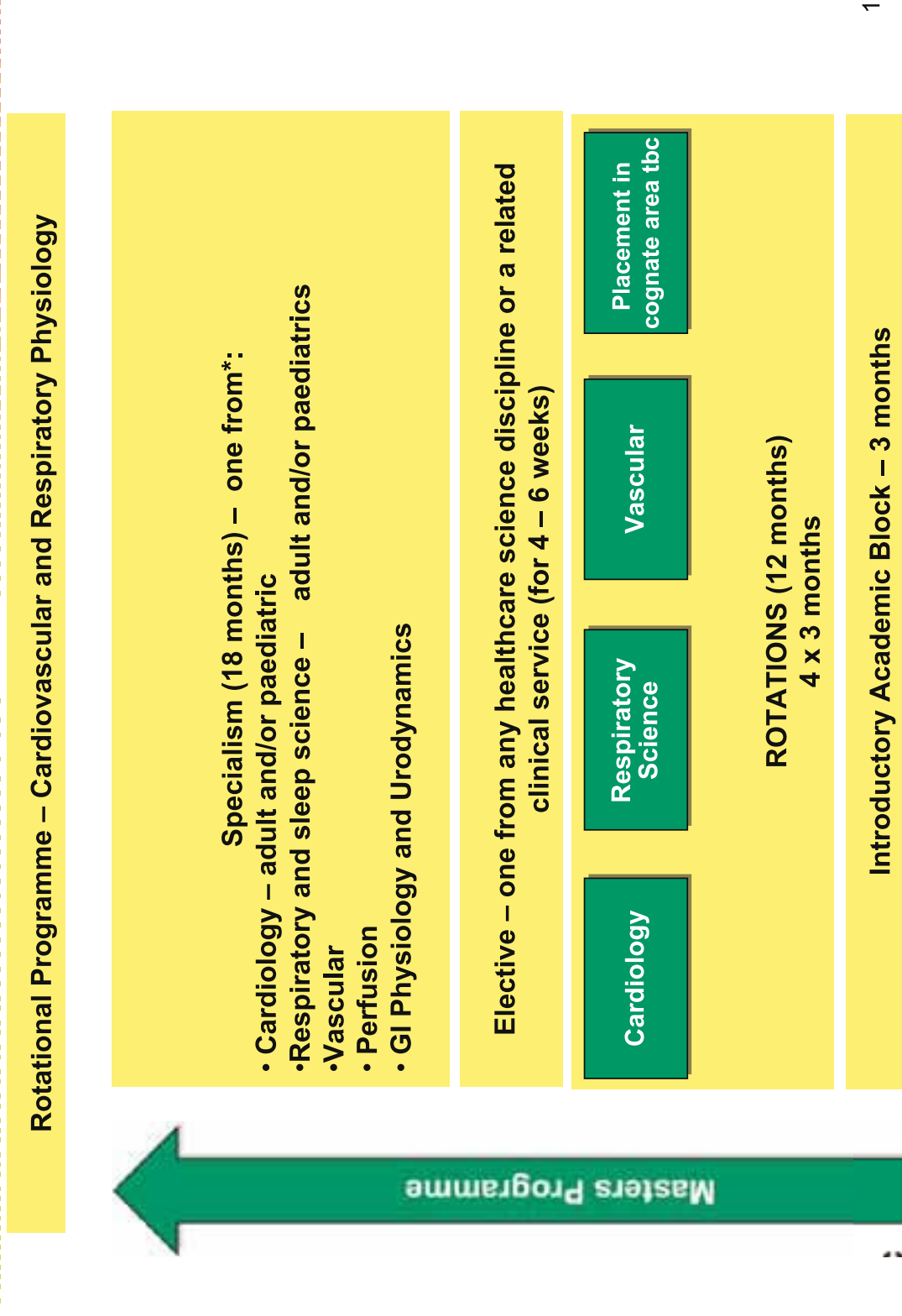
HCS – Training (STP)



HCS – Training (STP)



HCS – Training (STP)



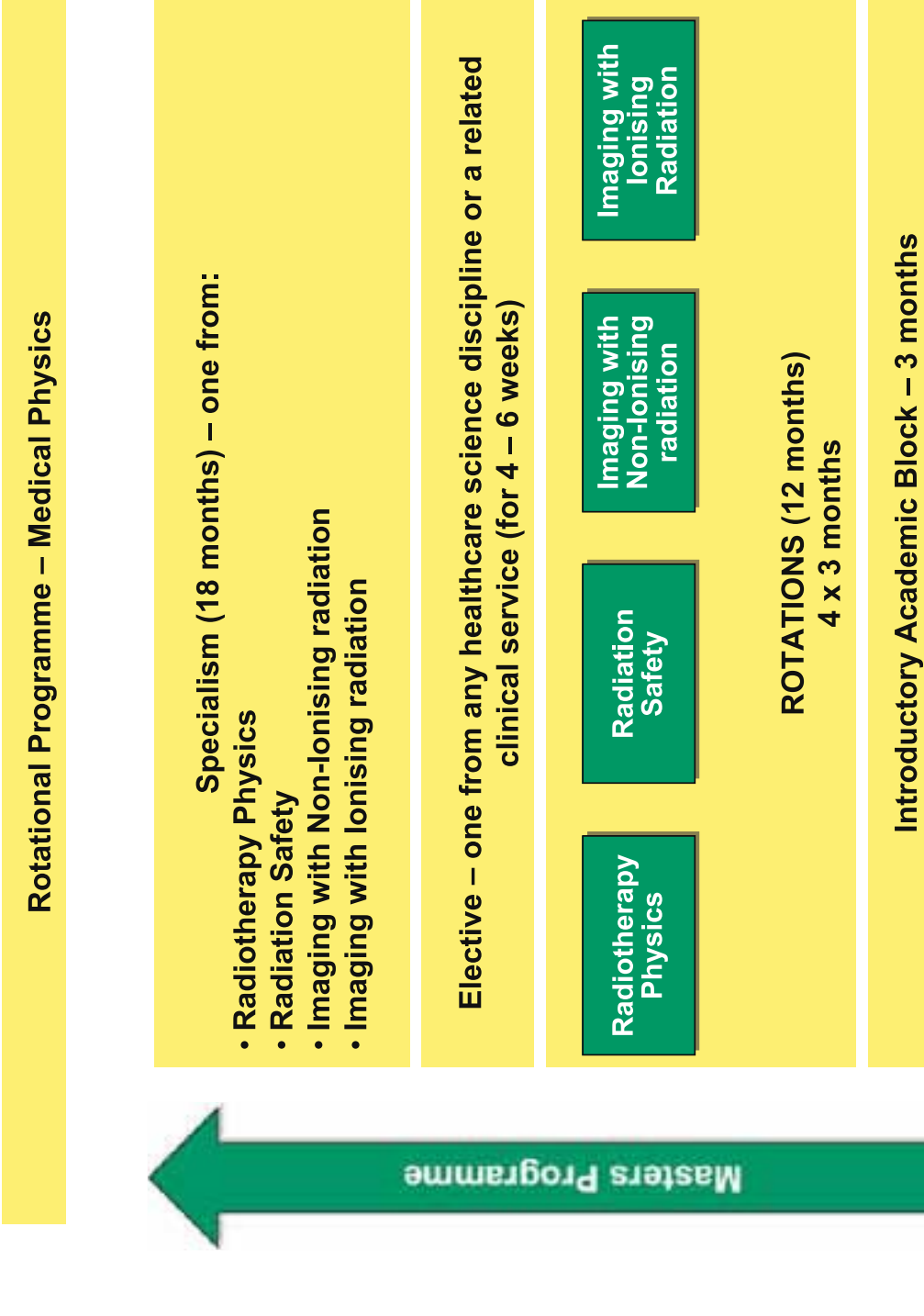
*May be subject to further refinement. Other related disciplines still to be agreed

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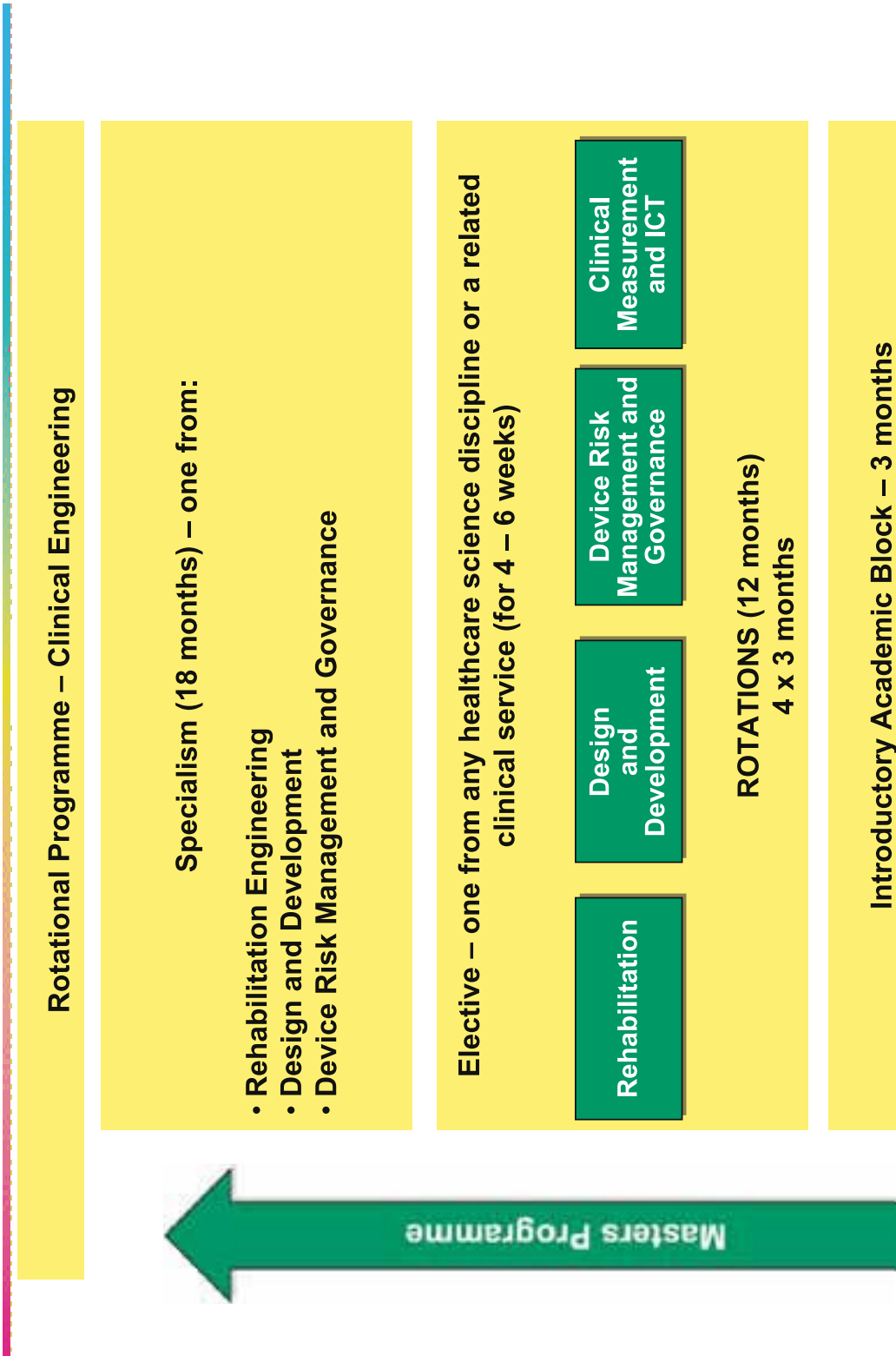


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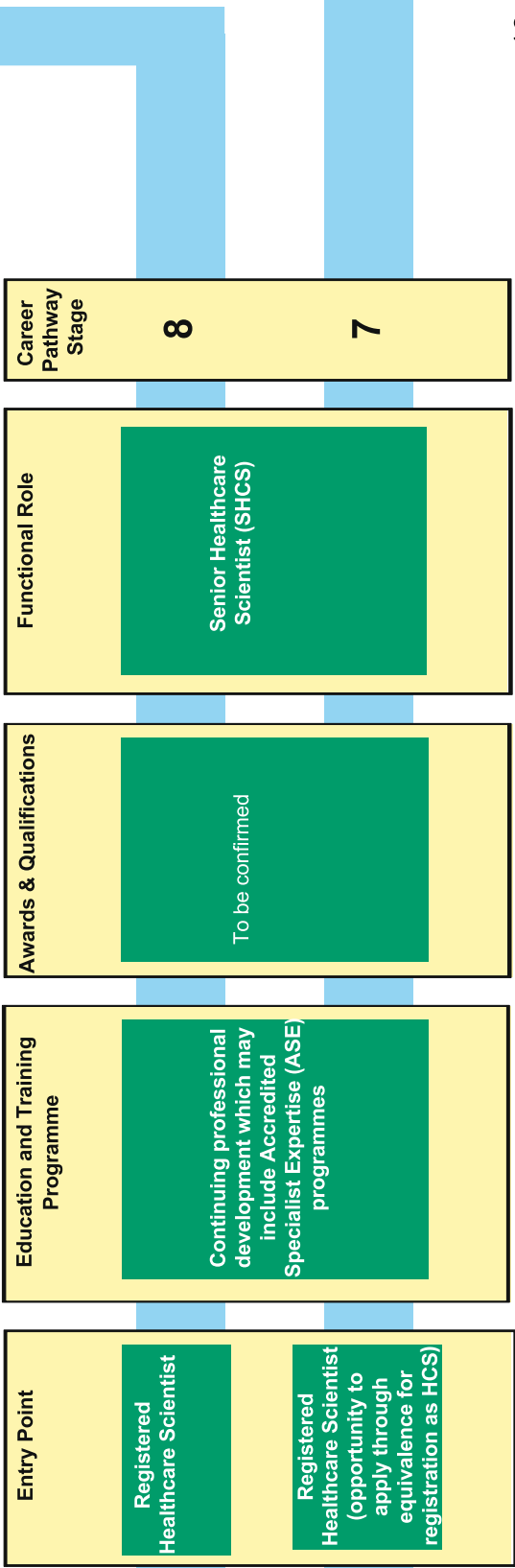


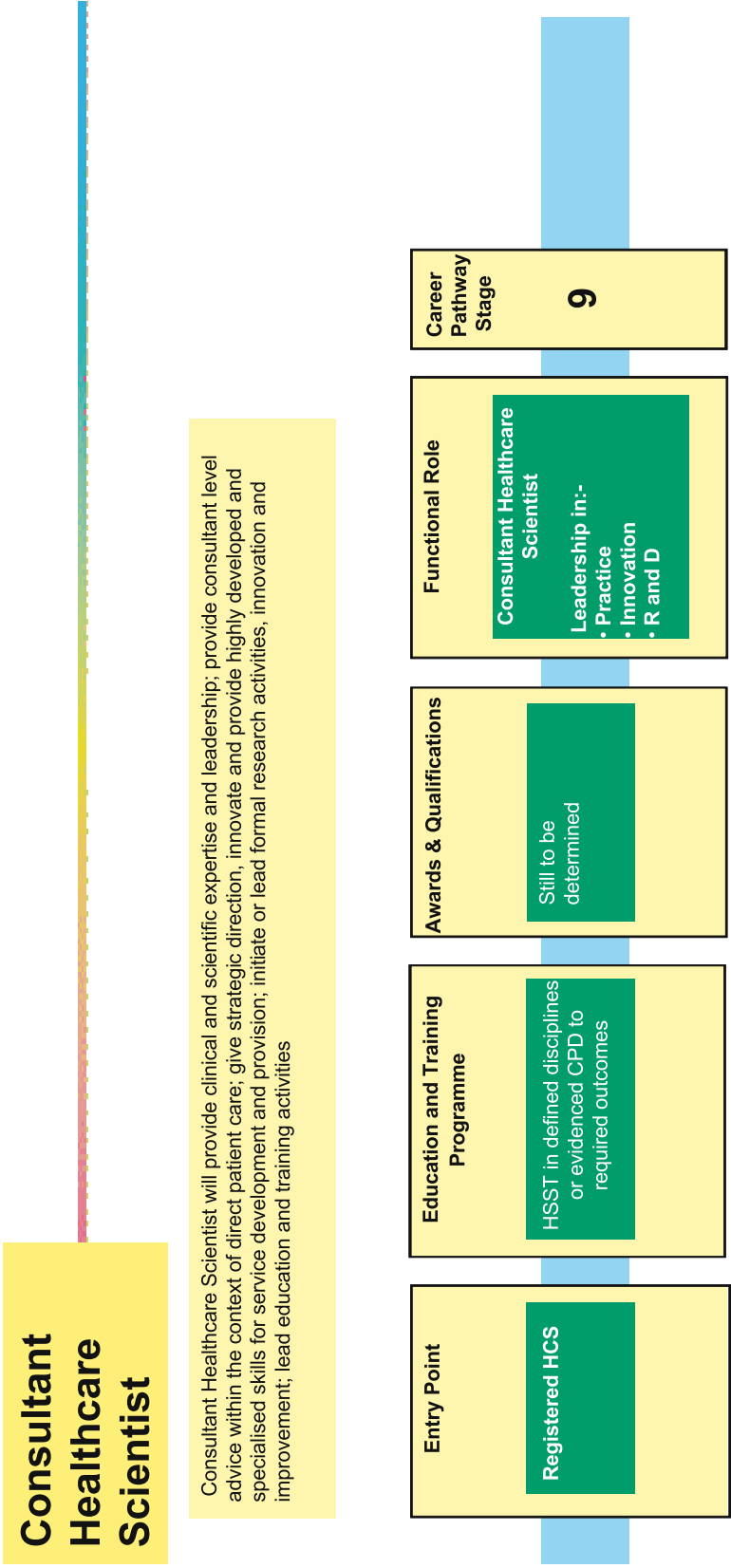
Senior Healthcare Scientist

A Senior Healthcare Scientist undertaking advanced scientific practice will be a healthcare scientist who has progressed competitively following qualification to a specialist post, and will have developed skills and theoretical knowledge to a very high standard. A senior healthcare scientist will undertake highly complex roles within a defined field, with a role in research and development, innovation and/or in education.

Potential Progression

- Consultant
- Leadership
- Education
- Research
- Advanced Practice





Annex 3: Glossary of terms



Accreditation of Prior Experiential Learning (APEL)

Accredited Specialist Expertise (ASE)

Consultant Healthcare Scientist: Consultant Healthcare Scientists will provide clinical and scientific expertise and leadership; provide consultant level advice within the context of direct patient care; give strategic direction, innovate and provide highly developed and specialised skills for service development and provision; initiate or lead formal research activities, innovation and improvement; and lead education and training activities.

Healthcare Science Assistant (HCSA): Healthcare Science Assistants will undertake a range of clearly defined task and protocol based roles, supervised by Healthcare Science Associates at Career Framework four, or by Healthcare Science Practitioners at Career Framework five, depending on the needs of the service. Experienced Assistants would be able to progress to Associate posts. They will have opportunities to attain vocational training qualifications.

Healthcare Science Associate: Healthcare Science Associates at Career Framework four will undertake more advanced and complex investigative tasks and treatment procedures than Assistants, with appropriate supervision either by a Healthcare Science Practitioner at Career Framework five or six or by a Healthcare Scientist at Career Framework six and above. This will depend on the needs of the service and on the scope for technology to automate or standardise certain tasks and procedures and the ability to define protocols and activities. Associates may be regulated.

Healthcare Science Practitioner (HCSP): Healthcare Science Practitioners will work in a range of healthcare settings, with a clearly defined technologically based role in the delivery and technical reporting of quality assured tests, investigations and interventions for patients, on samples or equipment. Newly qualified Healthcare Science Practitioners with BSc (Hons) and the requisite certificate of achievement of practice based learning outcomes may be regulated at Career Framework five. There will be scope to progress to Senior Healthcare Science Practitioner

roles at Career Framework six within a defined area of practice, including key quality assurance roles. There will also be scope to progress into management or academic training and career pathways.

Healthcare Scientist (HCS): Healthcare Scientists will have clinical and specialist expertise in a specific clinical discipline, underpinned by broader knowledge and experience within a healthcare science theme. They will undertake complex scientific and clinical roles, defining and choosing investigative and clinical options, and making key judgements about complex facts and clinical situations. Many will work directly with patients. They will be involved, often in lead roles, in innovation and improvement, research and development and education and training. Some will pursue explicit academic career pathways, which combine clinical practice and academic activity in research, innovation and education. They may be regulated following the award of an approved MSc qualification and completion of workplace-based training. Those Healthcare Scientists who complete Higher Specialist Scientist Training (HSST) will be eligible to compete for Consultant Healthcare Scientist posts, as they become available. This will also include Senior Healthcare Scientists who, through prior experience, knowledge and expertise (usually supported by employers through local progression pathways) are able to demonstrate that they have met all of the outcomes of the HSST.

Higher Specialist Scientist Training (HSST): training available for Healthcare Scientists through competitive entry. Scientists completing HSST will be trained to compete for the most senior level Consultant Healthcare Scientist posts and will provide consultant level clinical and scientific expertise and leadership in direct patient care. They will play a leading role in research, innovation, education and/or management. Those completing this training could be regulated on a Higher Specialist Register for Scientists and, for some, appointment to Consultant Healthcare Scientist posts could be available.

Local progression pathways: These pathways provide local opportunities for employers to 'grow their own' healthcare science workforce.

Practitioner Training Programme (PTP): This is a training programme that is available, through competitive entry, to Healthcare Science Practitioners.

Scientist Training Programme (STP): This is a training programme that is available, through competitive entry, to Healthcare Scientists.

Senior Healthcare Scientist: A Senior Healthcare Scientist who has progressed competitively following qualification to a specialist post. They will undertake highly complex roles within a defined field, with a role in research and development and in education. They may also have management responsibilities and they may be regulated. They will be able to compete for entry to the HSST programme.



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