A HEALTHCARE SCIENTIST DEVELOPMENT PLAN FOR NORTHERN IRELAND

December 2010

CONTENTS

1 Foreword……………………………………………………………...........3

2 Executive Summary……………………………………………...............5

3 Introduction…………………………………………………………….....7

4 Modernising Scientific Careers (MSC): UK-wide policy development…...14

5 MSC and the development of Healthcare Scientists in Northern Ireland..15

6 Financial considerations……………………………………………………29

7 Northern Ireland Healthcare Scientist development plan (including MSC implementation)……………………………………………………….......30

Appendices

Appendix A - Workforce by division, specialism and grade, age and gender profile

Appendix B – Current education courses and progression currently in / for Northern Ireland

Appendix C – Entry onto Voluntary Register of Clinical Technologists (VRCT)

Appendix D – Broad framework of Healthcare Science courses

Appendix E - Membership of MSC NI Working Group

Appendix F – Summary of acronyms

1.0 Foreword

Healthcare provision must change in response to changing or unmet needs of patients. Our demographic profile shows a higher proportion of older people, yet birth rates that are being sustained; we see a greater impact of chronic illnesses and people living longer with very serious illnesses, while we also face new infectious diseases. Providing effective healthcare places major strains on the resources of any developed country. In meeting our challenges we are fortunate that science and technology are advancing rapidly to provide new diagnostics, treatments and care procedures. A critical resource in order to take advantage of these developments is the scientific expertise in our workforce.

The work of scientists in healthcare is essential for the diagnosis and treatment of illnesses. However it is not unusual for both they and their work to be invisible. The overall scientific workforce is now fragmented and few scientists have any voice in decision-making about care or its development. Most of our scientists have invested, and been invested in, so that they are very highly educated, frequently to masters or doctoral levels. But their career pathways are unclear and, in Northern Ireland at least, there is minimal planned, strategic investment in their training or development. Retention in the health service of those who are highly trained is also an issue.

Now, the UK-wide Modernising Scientific Careers initiative aims to enable a single, visible workforce ‘Healthcare Scientists’ with structured education, training and career progression pathways. And all of these developments are being undertaken to meet the expressed need of the service providers and employers.

For over a year a Northern Ireland Working Group has considered how we can implement the Modernising Scientific Careers policy in a cost-effective way that delivers the greatest benefit to health services. The Working Group members achieved excellent consensus among representatives of Trusts, current senior Healthcare Scientists, union representatives and education providers. The Group engaged widely with colleagues across the province. I am most grateful to the Group for every person’s dedication and commitment of scarce time.

This document explains the contexts in which Healthcare Scientists work and the changes that can be put in place to optimize the contribution that they can make to health services now and in the future. A clear plan is set out that is challenging yet realistic in the face of necessarily constrained finances. The plan is consistent with the essential role of scientists in the delivery of healthcare that optimizes technologies, knowledge and expertise that are already available to our health services or will emerge in the very near future.

Modernizing Scientific Careers provides an opportunity. If we do not take it, the expertise and standing of our scientific workforce will be diminished and health services will gradually become less effective and less efficient.

I commend this plan to you.

Professor Bernie Hannigan,
Chief Scientific Advisor to DHSSPS

2.0 Executive Summary

Safe, efficient and effective healthcare services are underpinned by the work of scientists. Over 80% of all diagnoses for patients presenting to health services involve the work of scientists, frequently using complex technologies and procedures and contributing to the success of multi-professional healthcare teams.

The Healthcare Science workforce in Northern Ireland comprises 1,450 workers (2.7% of all healthcare staff) across all Health and Social Care (HSC) Trusts and the Northern Ireland Blood Transfusion Service (NIBTS). The UK-wide Modernising Scientific Careers (MSC) policy has been endorsed by all 4 countries and is being implemented to better support current and future routine and complex scientific services for patients. The implementation of MSC throughout the UK creates challenges and opportunities for the workforce and employers that must be addressed by NI so that our scientific services are not jeopardized.

A NI Working Group has considered the current Healthcare Science workforce composition and arrangements for their education and training in the light of MSC. In this Development Plan, advice is provided to DHSSPS on a series of outputs and actions that will enable high quality, effective scientific expertise to be sustained, developed, deployed and retained.

The envisaged outputs and advised actions are:

Output 1: A unified Healthcare Science profession

Action: Establish a Healthcare Scientist Advisory Group to monitor developments and support the Chief Scientific Advisor in making inputs to policy.

Responsibility: DHSSPS

Output 2: A Healthcare Science Workforce Plan to support the delivery and development of services

Action: Develop new Healthcare Science Workforce Plan to 2015

Responsibility: DHSSPS Workforce Planning Unit

Output 3: A Healthcare Science Education and Training scheme

Action: Provide support so that programmes can be accessed, locally or elsewhere in the UK, to meet workforce plans.

Responsibility: Healthcare Science Advisory Group, working with DHSSPS Education and Training Unit

Output 4: A NI Engagement Plan that continues the work that has been initiated to ensure appropriate and timely communication

Actions: Plan meetings, consider events, develop written materials, maintain interactions with cognate groups in England, Scotland and Wales

Responsibility: Healthcare Science Advisory Group working with HSC employers

Achievement of these outputs does not indicate significant funding requirements, though it will not be completely cost neutral. The advised actions would ensure that the resources currently provided for education and training of some of these specialisms within the Healthcare Science would be allocated in a planned, manner in line with service (employer) requirements. It is recommended strongly that the extent of support be reconsidered in line with the scale of the Healthcare Science workforce and the totality of annual budget for education and training within DHSSPS and other HSC organisations.

The timescale for action needs to be compatible with that of the rest of the UK. For example, England expects a lot of its new education and training programme to be in place by September 2011.

3.0 Introduction

3.1 The Department of Health, Social Services and Public Safety for Northern Ireland (DHSSPS) states its mission as ‘to improve the health and social well-being of the people of Northern Ireland’ To achieve this mission its activities include ‘ensuring the provision of appropriate health and social care services, both in clinical settings such as hospitals and GPs' surgeries, and in the community through nursing, social work and other professional services.’[1].

One of those key professional groups is Healthcare Scientists (HCS).

3.2 Across the healthcare sector, HCS have not previously been viewed as a single workforce although they comprise some 5% of the UK’s healthcare workforce. In Northern Ireland there are some 1,450 HCS which is just 2.7% of our health workforce. Now, for the first time, there is an opportunity to focus on how the contribution made by the HCS workforce might be optimized for the benefits of services and patients.

3.3 The work done by HCS covers an enormous range of activities that include:

- Direct interaction with patients, e.g. carrying out an electrocardiogram (ECG) or cardiac ultrasound test to detect abnormalities in heart activity;
- Discussing with people the potential implications for their children of an inherited genetic change detectable in the laboratory;
- Cancer laboratory diagnosis, e.g. examining patients’ tissue obtained by surgery, examining blood smears or cells acquired during screening tests for the presence of cancer-associated changes or analysing gene profiles;
- Blood Transfusion - Analysing blood samples and safely providing blood and blood products for patients in emergency situations e.g. childbirth or following road traffic accidents at any time of the day or night;
- Quality assurance and control, e.g. ensuring that an analysis or procedure carried out in a laboratory or hospital in Northern Ireland gives a similar result to one done in England or Scotland; ensuring an optimal and

[1] www.dhsspsni.gov.uk/index/about_dept.htm

accredited service for all patients and users of the healthcare service;

- Analysis and reporting of results, e.g. considering all the results from a battery of different tests on a patient and discussing them with a doctor who has examined the patient's clinical signs to reach a potential diagnosis e.g. whether the patient has suffered a heart attack;
- Using a range of established and innovative techniques to investigate microorganisms that cause infectious diseases, including. antibiotic resistant bacteria that may cause healthcare associated infections;
- Developing and implementing enhanced treatment and diagnostic techniques;
- Research and development – developing new clinical services which will improve the effectiveness and efficiency of patient care.

3.4 It is estimated that some 80% of all diagnoses made within health services depend on the work of a Healthcare Scientist. Critical developments that necessitate a focus on the work of Healthcare Scientists include the very rapid pace of change in technologies, e.g. tests for new infectious microorganisms to deliver results in hours instead of days and new understandings of the genetic basis of certain diseases that require the detection of gene variants. Most Healthcare Scientists work in complex environments Some examples are given below to highlight how they contribute to the care of patients.

Integrated Roles of Healthcare Scientists

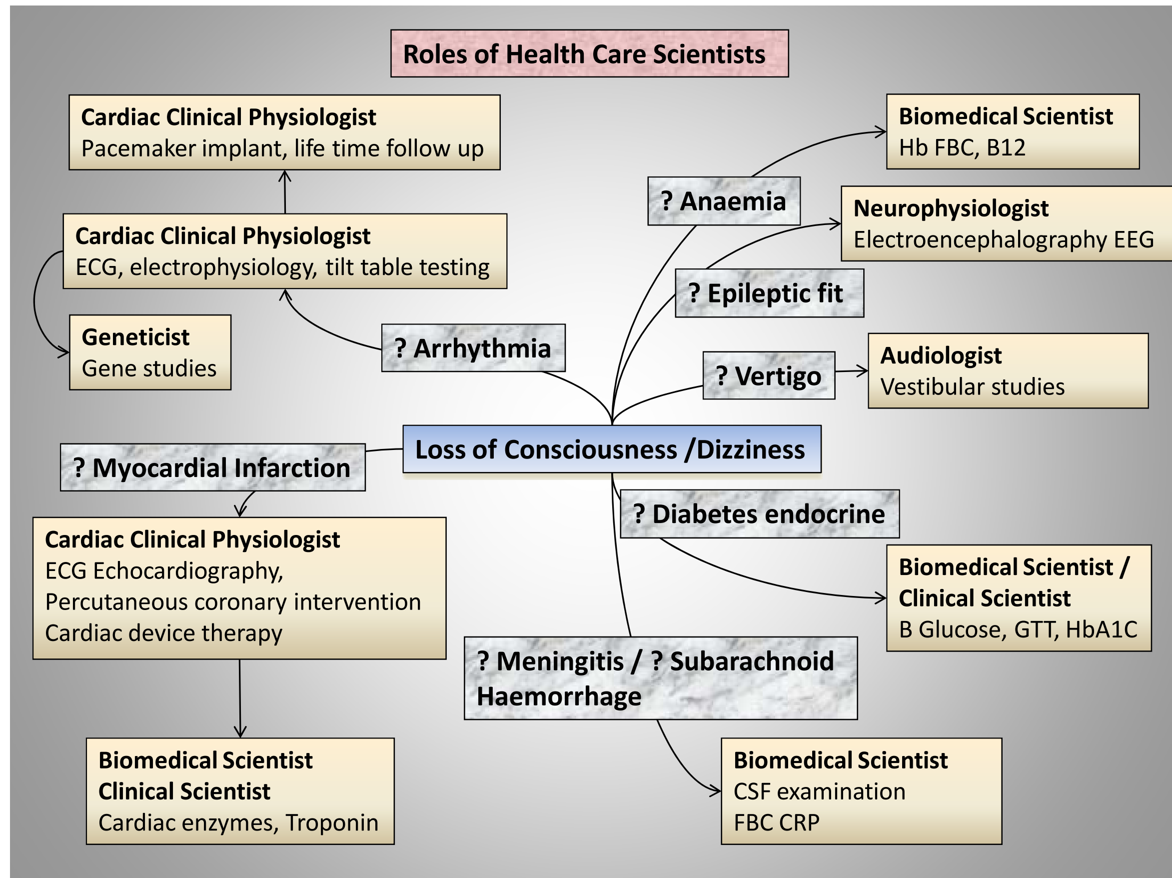
Healthcare Scientists provide a range of services which most patients will avail of in any pathway through a health event, for example:

> *A 45 year old man is out walking his dog and is seen to stagger and fall to the ground, seemingly unconscious. A passing dog walker goes to him: - he is now conscious but confused and remembers feeling dizzy before collapsing. An ambulance is called, he is taken to A&E and commences a pathway of evaluation, diagnosis and treatment.*

There are many possible causes of a loss of consciousness/dizziness and the

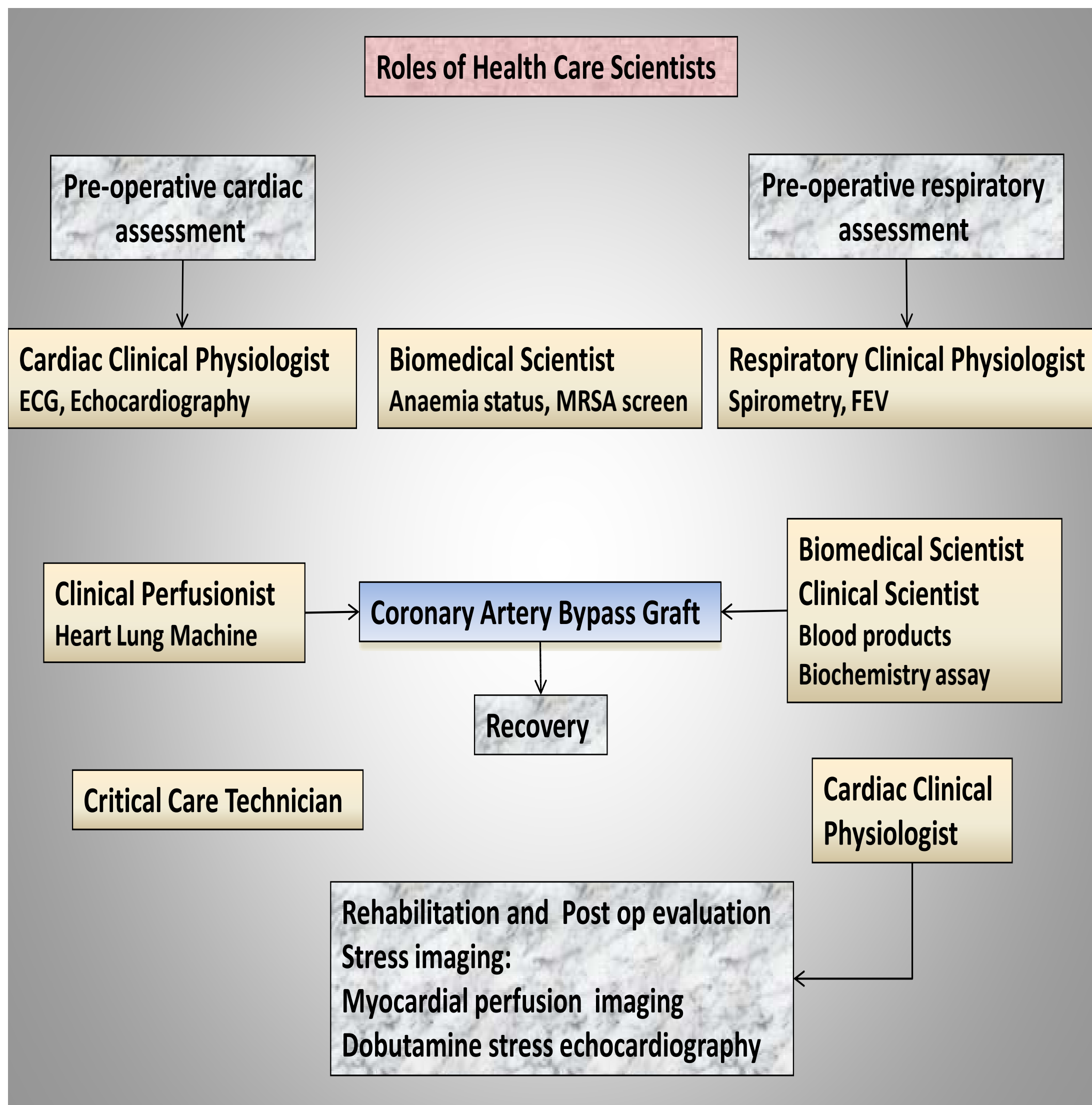
following figure indicates how a range of Healthcare Scientists are involved in the diagnosis and management of such a presentation:

Figure 1a Healthcare Scientists contributing to diagnosis



In this scenario the patient is diagnosed as having had a myocardial infarct (heart attack) and, following investigation and assessment, is scheduled for coronary artery bypass surgery.

Figure 1b Healthcare Scientists contributing to cardiac treatment and rehabilitation



Healthcare Scientists have important roles in the investigation, diagnosis and treatment of cancer.

Figure 2a, Healthcare Scientist roles in cancer diagnosis and surgical treatment

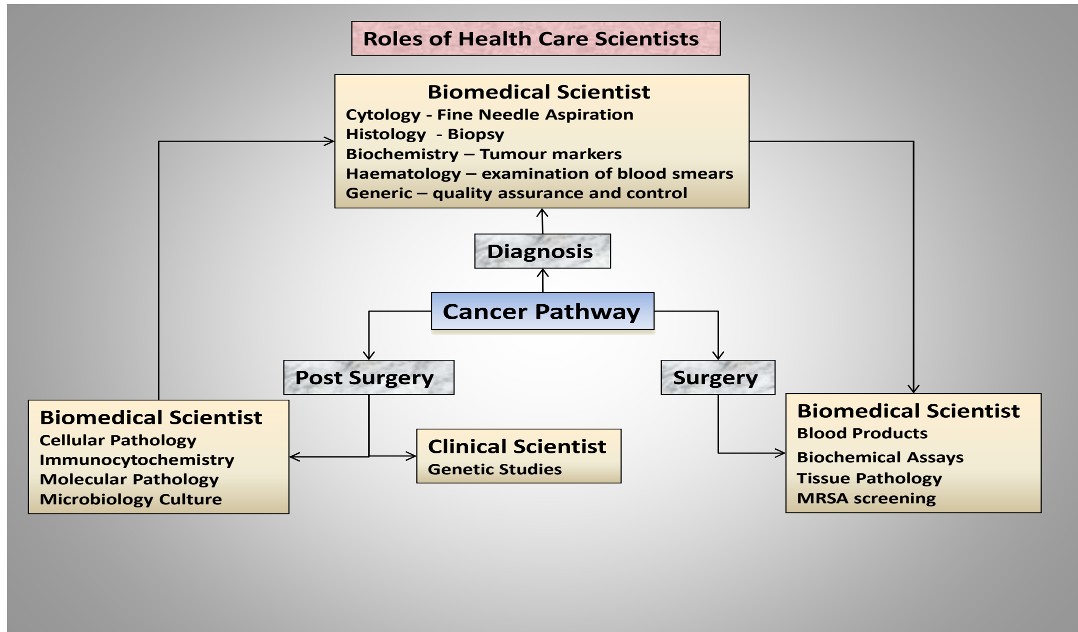
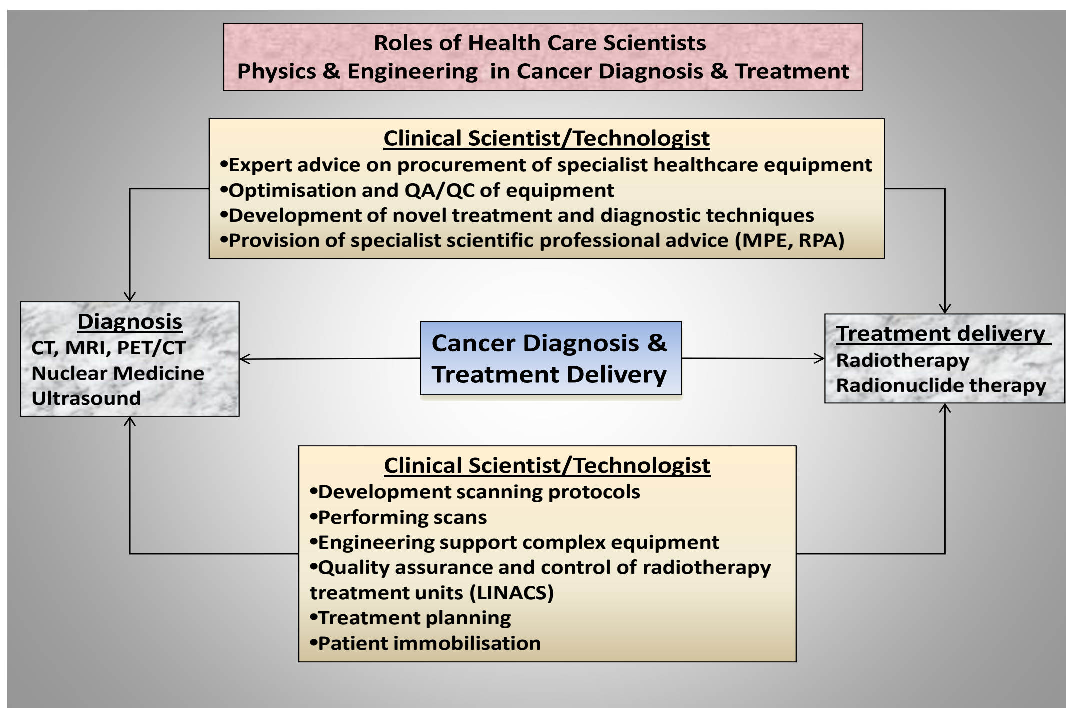


Figure 2a, Healthcare Scientists in cancer diagnosis and treatment involving radiation



3.5 In 2006 DHSSPS received a detailed report on one aspect of the work of Healthcare Scientists - Pathology Services “The Future of Pathology Services in Northern Ireland”[2]. Progress has been recorded against many of the recommendations in that report and those developments contribute to the context in which many Healthcare Scientists work currently. However the examples provided above indicate that Healthcare Science services extend well beyond Pathology.

3.6 The actual and potential value deliverable by Healthcare Scientists often is difficult to recognise. One reason for this is that, across the UK, some 50 different professional groupings comprise the Healthcare Science workforce, often working under an even greater number of job titles and many different career grades, e.g. Assistants, Technical Officers, Biomedical Scientists, Clinical Scientists etc. As well as working within our health services, Healthcare Scientists also underpin a significant component of the province’s industrial base. The approximately 60 companies involved in what is known as the Life Sciences sector have an annual turnover of almost £300M, employ some 4,000 people and produce diagnostic tests, drugs or medical devices for use in humans or animals.[3] . Some indigenous businesses in the sector that have grown to be successful multi-nationals are Almac, Norbrook and Randox. In general, that sector has proven to be resistant to the current economic decline.

3.4 It is very important to recognise the high levels of education and training in science, technology, engineering and mathematics (STEM) among Healthcare Scientists. The recent Northern Ireland STEM Review highlighted the need for such skills for the future development of our economy[4] By identifying and celebrating the career opportunities for Healthcare Scientists and the essential, challenging and interesting work in which they are involved, young people can be inspired and encouraged to see STEM subjects as worthwhile, valuable pursuits.

3.5 While scientific talent in our productive industries is an essential economic

---

[2] www.dhsspsni.gov.uk/index/hss/clinical_pathology_review.htm

[3] www.matrix-ni.org/downloads/matrix_vol2_lhs.pdf

[4] www.delni.gov.uk/index/publications/pubs-successthroughskills/stem-review-09.htm

driver, the main focus of this document is on scientists who work within the health and social care (HSC) sector .Ensuring a future pool of high quality STEM graduates for employment in health services is extremely important.

3.6 Table 1 shows many specialisms within which Healthcare Scientists work (some additional titles may also exist), under the general *division* headings of 'Life Sciences'; 'Physiological Sciences' and 'Physical Sciences and Engineering.

Table 1 Healthcare Science Professional Specialisms

Life Sciences	**Physiological Sciences**	**Physical Sciences and Engineering**
Blood Sciences Biochemistry Haematology Transfusion science Immunology Genetics	Cardiovascular and Respiratory Physiology Cardiology Respiratory science Sleep science Vascular Perfusion GI Physiology Urodynamics	Medical Physics Radiotherapy Physics Radiation Safety Imaging (ionising and non-ionising)
Cellular Sciences Histopathology Cytopathology Reproductive science Genetics	Neurosensory Sciences Neurophysiology Vision Science Audiology	Clinical Engineering Rehabilitation Engineering Engineering Design & Development Device Risk Management and Governance
Infection Sciences Microbiology Infection Control Epidemiology Bacteriology Virology Mycology Parasitology		

3.7 The Healthcare Science profession is made even more complex by the current variations in education and training for the different specialisms. This ranges, for example, from requirements for Masters' level education to minimal secondary level qualifications. Not all of the specialisms listed above are currently regulated by statute. (Regulation aims to ensure the safe and effective treatment of patients.)

4.0 Modernising Scientific Careers: UK-wide policy development

4.1 The Modernising Scientific Careers (MSC) initiative recognises the benefits that can accrue from optimizing the career structures, education, training and statutory regulation of a workforce that contributes to 80% of all clinical diagnoses. MSC was established across all 4 UK health departments in 2007. Following a series of 'Listening events' during 2008, of which two were held in Belfast, a UK-wide consultation document was signed off by all 4 health departments. 'The Future of the Healthcare Science Workforce. Modernising Scientific Careers: Next Steps[5]'

4.2 The proposals contained in the MSC consultation were developed as the result of detailed discussions with nearly 3000 stakeholders and set out to transform the future training and career pathways of the Healthcare Science workforce. By the close of the consultation on 6 March 2009, over 900 responses were received from individuals, employers, professional bodies, education providers and others, including a significant number from Northern Ireland. A full independent analysis of the responses was undertaken and further engagement or deliberative events were held to inform the emerging policy.

4.3 The policy document – 'Modernising Scientific Careers: The UK Way Forward' - was published in February 2010, again endorsed by all 4 health departments[6].

---

[5] www.dhsspsni.gov.uk/showconsultations?txtid=33214

[6] www.dhsspsni.gov.uk/msc-uk-the-way-forward-26-02-10.pdf

4.4 The policy advocates 'a common approach across all four countries in our model for training and education' but also states that 'the timetable for change will be set out in separate implementation plans for each country, including transition arrangements and processes for evaluating successful delivery.'

4.5 'Modernising Scientific Careers: The England Action Plan'[7] was published in March 2010. Implementation of the Plan includes a series of 'Early Adopter' sites across England. Feedback from these sites is being collated systematically and incorporated in to new plans. Similar work is underway in Scotland and Wales.

5.0 Modernising Scientific Careers and the development of Healthcare Scientists in Northern Ireland

5.1 A local Working Group was established in 2008, chaired by Professor Bernie Hannigan, Chief Scientific Advisor to the DHSSPS. The Working Group comprises representatives from the Healthcare Scientist professions within the Trusts, representatives of Unite The Union, the local universities, Human Resources in the Trusts and Workforce Planning Unit (WPU) in Human Resources Directorate of DHSSPS. The full Working Group membership is listed in Annex F.

5.2 The Terms of Reference of the group were to –

- consider views on the MSC consultation document within the local context;
- advise the Department on the implications, including financial implications, of the current proposals and of any amendments that may arise post-consultation;
- consider the development of an Implementation Plan and advise the Department accordingly;
- advise the Department on implications for workforce planning; and

[7] http://www.dh.gov.uk/en/PublicationsAndStatistics/Publications/PublicationsPolicyAndGuidance/DH_115143

- advise the Department on a communications strategy that would best serve all local stakeholders.

5.3 Through plenary and sub-group meetings, the local group has engaged extensively with colleagues across the healthcare and education sectors on two particular foci: the first on size and shape of the current and future workforce and the other on education and training. In addition, members of the Working Group have ensured they engage closely across the UK. This includes membership of groups working on policy, regulation (e.g. standards of proficiency; scopes of practice), workforce planning and education and training. This wide engagement is helping to ensure that Healthcare Science in Northern Ireland can benefit as far as possible from opportunities that arise from implementing new arrangements in any part of the UK.

5.4 The UK 'Way Forward' policy document reiterates the following Vision for healthcare Sciences that was set out initially in the consultation document 'The Future of the Healthcare Scientist workforce':

> '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.'

Objectives that will be achieved through implementation of the MSC policy in Northern Ireland will be at both organisational and individual levels as follows:-

- *Services for patients* that are of high quality, safe, accurate and clinically effective yet even more cost effective, sustainable and capable of development through innovations in technology or practice;

- An identifiable workforce that is appropriately skilled, motivated, provided with opportunities for development, recognised as an essential component of health service teams and accepted as a key driver of quality.

5.5 Outputs of the implementation will be:-

- A Healthcare Science workforce that is recognised, represented, celebrated and valued for the contribution that it makes;
- A Healthcare Science Workforce Plan that supports the delivery and development of current and future services;
- An Education and Training scheme, informed by workforce plans, that meets the needs of employers, is highly valued by employers and future recruits to the profession and interfaces with the statutory professional regulator(s) for Healthcare Scientists;
- A formal mechanism for the commissioning of Education and Training programmes by DHSSPS to support Workforce Plans

and;

- An Engagement Plan to maintain dialogue that has been initiated among the workforce, trades unions, employers and education providers.

5.6 In Northern Ireland, the context within which MSC will be implemented involves health and social care as an integrated service delivered through a number of organisations. These are summarized below and detailed on the Department's website[8]

- There are a total of 6 HSC Trusts. These are: Belfast (BHSCT), South Eastern (SEHSCT), Western (WHSCT), Southern (SHSCT) and Northern (NHSCT). HSC Trusts manage and administer hospitals, health centres, residential homes, day centres and other HSC facilities and they provide a wide range of HSC services to the community. The Northern Ireland Blood Transfusion Service (NIBTS) is a separate agency co-located with

[8] www.dhsspsni.gov.uk/index/hss.htm

BHSCT. The sixth Trust is the Northern Ireland Ambulance Service (NIAS);

- The Health and Social Care Board (HSCB) is responsible for commissioning services, resource and performance management and service improvement. It works to identify and meet the needs of the Northern Ireland population through its five Local Commissioning Groups which cover the same geographical areas as the HSC Trusts;
- The Public Health Agency (PHA) has the key functions of improving health and wellbeing, health protection and HSC Research & Development. The PHA is jointly responsible (with the HSCB) for the development of a fully integrated commissioning plan for HSC in Northern Ireland;
- The Patient and Client Council (PCC) is a regional body with local offices covering the geographical areas of the five integrated HSC Trusts. The overarching objective of the PCC is to provide a powerful, independent voice for patients, clients, carers, and communities on HSC issues.
- The Business Services Organisation (BSO) provides a range of business support and specialist professional services to the whole of the HSC sector including HR, finance, legal services, procurement and ICT.

5.7 Healthcare Scientists are employed by HSC Trusts and the NIBTS to support the delivery of commissioned services. Virtually every person works within secondary care settings. In recent years there has been substantial reorganisation of the workforce in parallel with the major changes to create the current structures that are outlined above in addition to other streamlining, e.g. of laboratory services to create a single provider within BHSCT. The BHSCT also manages a range of regional services on behalf of all Trusts. Regional Services include Medical Physics and complex specialisms such as Immunology and Genetics. Table 2 indicates the employment locations of Healthcare Scientists at March 2010.

Table 2 Healthcare Science **Workforce Summary**

Divisions	Disciplines	BHSCT	SEHSCT	WHSCT	SHSCT	NHSCT	NIBTS	Total
Life Sciences	Blood Sciences	199	41	82	63	75	60	520
	Cellular Sciences	135		26	29	26		216
	Infection Sciences	93	24	27	22	41	1	208
Physiological Sciences	Cardiovascular & Respiratory Physiology	119	24	33	34	24		234
	Neurosensory Sciences	55	10	19	24	24		132
Physical Sciences & Engineering	Medical Physics	77						77
	Clinical Engineering	44	7	11	7	6		75
	Total	**722**	**106**	**198**	**179**	**196**	**61**	**1462**

Appendix A gives further details of the workforce including age profile, career grades and gender as represented within healthcare science divisions and specialisms across all HSC Trusts. The principal features are:

- Some 50 % of all Healthcare Scientists are employed by BHSCT;
- The age profile is generally youthful with less than one third aged over 50;
- Some 60% are female;
- In Belfast, almost half of all staff are at grades 7/8/9 (consistent with the range and complexity of services);in all other Trusts the predominant grade is 5/6.

5.8 Currently only two groups of scientists are regulated by statute – Clinical

Scientists and Biomedical Scientists. Both are regulated by the Health Professions Council (HPC). The need for regulation to safeguard patient quality and safety, particularly as Healthcare Scientists take on more patient-facing roles in clinical care, is crucial. Healthcare Scientists should be consistently regulated in a way proportionate to the clinical risk of their practice. Despite healthcare regulation being fully devolved to N Ireland, in practice almost all healthcare professionals are regulated on a UK-wide basis which ensures consistency of approach, workforce mobility and achieves economies of scale.

5.9 Professional bodies currently play a role in statutory regulation. Entry onto the HPC Register of Biomedical Scientists is normally achieved through gaining a “Certificate of Competence” of the Institute of Biomedical Science (IBMS) on completion of an accredited undergraduate degree programme and a period of professional training that enables completion of an IBMS Registration Training Portfolio. Entry onto the HPC Register of Clinical Scientists is normally achieved through gaining a “Certificate of Attainment” of the Association of Clinical Scientists (ACS) (see Appendix B).

5.10 Voluntary Registers currently exist for several professional groups. For example, the Registration Council for Clinical Physiologists (RCCP) maintains a voluntary register on behalf of professional bodies in five Clinical Physiology disciplines. This Register includes those who practice in groups who were recommended, in advance of MSC, to Secretary of State for regulation. These are termed ‘aspirant groups’ and include Clinical Perfusion Scientists, Clinical Physiologists, Medical Illustrators and Maxillofacial Prosthetists & Technologists.

5.11 In October 2004 the HPC agreed that the Clinical Technologist profession should be regulated. Currently, Clinical Technologists are regulated by the Voluntary Register of Clinical Technologists (VRCT). Responsibility would pass to the HPC once the necessary planning legislation is in place. Details of how entry onto the VCRT is gained are outlined in Appendix C.

5.12 The UK Healthcare Science Regulation Liaison Group will consider further the regulation of the workforce including that of the aspirant groups. Working with

stakeholders, the Group will make recommendations to the four UK Health Departments to inform advice to Ministers on the content of a future draft Section 60 Order and associated public consultation document. Issues to be addressed will include parts of the Register, protected titles and transitional arrangements. Any proposals will be the subject of a separate public consultation.

5.13 In Northern Ireland, DHSSPS is responsible for workforce planning for the HSC sector. Workforce Planning Unit (WPU) works with HSC Trusts to gain intelligence on the extent and nature of the workforce that will be required to deliver future services offered by the Trusts. For Healthcare Scientists, a new workforce plan is due for completion during 2011. In England, The Department of Health (DH) has established the Centre for Workforce Intelligence (CfWI). Interactions will be maintained with that Centre to ensure that Northern Ireland can benefit from any possible synergies.

5.14 A Career Framework (Figure 4) was set out in 'The Way Forward' document, indicating 9 stages with the following titles and roles:

Stages 1,2,3 Healthcare Science Assistants (HCS Assistants) will undertake a range of clearly defined task and protocol-based roles, supervised by Healthcare Science Associates or by Healthcare Science Practitioners, depending on needs of the service. Experienced Assistants would be able to progress to Associate posts.

Stage 4 Healthcare Science Associates (HCS Associates) would undertake more advanced investigative tasks and treatment protocol-based procedures than Assistants with appropriate supervision either by a Healthcare Science Practitioner or a Healthcare Scientist. This will depend on the needs of the service and on the scope of the technology to automate or standardise certain tasks and procedures and the ability to define protocols and activities.

Stages 5,6 Healthcare Science Practitioners (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 clearly

defined practitioner-based role in the delivery and technical reporting of quality assured tests, investigations and interventions for patients, on samples or equipment. In a number of disciplines, Practitioners will provide therapeutic interventions that may be specialised.

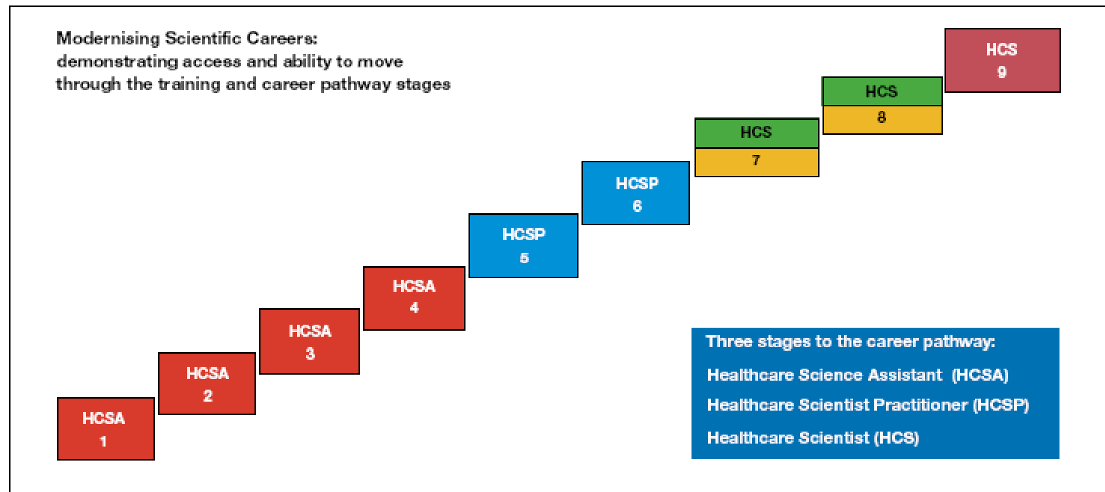
There will be scope for Practitioners to progress beyond Career Framework six into management and other career roles. Employers will be able to develop Healthcare Science Practitioners into Healthcare Scientists based on workforce need through local progression pathways. Integral to this is the opportunity for Practitioners through education and training to meet all of the exit outcomes of the STP.

Stages 7,8,9 Healthcare Scientists (HCS) will have clinical and specialist expertise underpinned by theoretical knowledge and experience in a specific clinical discipline, in addition to 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 practice and academic activity. In addition, a HCS who has progressed competitively to a specialised role, and holds appropriate qualifications, will become a Senior Healthcare Scientist. They will undertake highly complex roles within a defined field with a role in research and development and in education. The may also have management responsibilities.

Clinical and scientific expertise and leadership may be provided by a Consultant Healthcare Scientist. They would 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, lead education and training activities. New roles and responsibilities may include those previously carried out by other

high level professional groups such as doctors.

Figure 4 The Healthcare Science Career Framework.



5.15 Subject to the outcome of considerations on statutory professional regulation, in addition to the new protected titles that might be created, a range of different titles may be used by employers to designate specific roles within each of the four career framework stages. However it would be important to have coherence among such titles so that the designation of a single Healthcare Science workforce, or profession, is possible and advantages can be gained. This would be in common with other professional groupings held elsewhere on statutory registers, e.g. the title 'Medical Practitioner' is a protected title within the General Medical Council however registrants are generally entitled 'doctor'.

5.16 Key features of the Career Framework include:

A. opportunities for progression from one stage to the next that avoid any 'glass ceilings'. However progression would depend on the availability of posts and on individuals' performance in selection procedures;

and

B. education and training programmes at each career stage. Currently it is agreed that HCSP training will be included within BSc Hons programmes (Practitioner Training Programme, PTP), HCS education

and training will involve MSc level programmes (Scientist Training Programme, STP). Education programmes for grades below that of HCSP are under consideration but may involve Foundation Degrees, closely related to PTP programmes, At the higher level, above HCS, the Higher Specialist Scientist Training (HSST) scheme is also under consideration. Broad frameworks for BSc and MSc programmes are shown in Annex D.

5.17 Current education and training pathways for the different professions that would comprise Healthcare Scientists are distinct for those professions. Details of the programmes currently delivered in Northern Ireland are provided in Appendix D. Table 5 gives a summary of the local provision. In addition, doctoral level study is available in all specialisms.

Table 5 Relevant education programmes offered in Northern Ireland

		Foundation Degree	Bachelors Degree	Masters Degree
Life Sciences	Blood Sciences	Yes	Yes	Yes
	Cellular Sciences	Yes	Yes	Yes
	Infection Sciences	Yes	Yes	Yes
Physiological Sciences	Cardiovascular & Respiratory Physiology	No	Yes	No
	Neurosensory Sciences	No	No	No
Physical Sciences & Engineering	Medical Physics	No	No	No
	Clinical Engineering	No	Yes	No

5.17 Locally, funding for education relevant to healthcare science comes largely from within the education sector and students' own funds. This contrasts sharply with the provision made by DHSSPS for other professions that include medicine, nursing and allied health professions. For those professions, education programmes are commissioned by DHSSPS from the local universities, governed by contractual arrangements and aligned to needs as indicated through

workforce planning. In addition, for some professions, students receive a maintenance allowance. Elsewhere in the UK, Healthcare Science programmes up to BSc level are expected to be funded as in Northern Ireland however MSc courses, for the STP level, will be commissioned (at least in England) starting from September 2011.

5.18 The current local funding arrangements for Healthcare Scientist Education & Training are:-

- BSc Hons Biomedical Sciences: 25 subsistence awards for a work-based clinical placement year;
- BSc Hons Clinical Physiology: funding for a work-based clinical placement year;
- Funding for Clinical Scientists trainees is provided by DHSSPS on an ad hoc basis on receipt of robust requests from senior Healthcare Science managers. The scale of this funding has been reduced considerably in recent years;
- Funding for education and training at more senior levels is provided on a limited *ad hoc* basis by employers. However many staff fund their own development.
- Currently no provision is made for posts to deliver the necessary training within Trust Departments.

5.19 'The UK Way Forward' has set out defined education and training programmes that align with the Healthcare Science Career Framework. The principal requirement for programmes will be that they enable participants to meet the requirements of health service employers and regulator(s). Learning outcomes and indicative curricula in respect of all Healthcare Science specialisms have been developed by groups that include members of the relevant professions. That process is largely complete for BSc and MSc curricula. Learning Outcomes and indicative curricula then undergo scrutiny by an Education and Training Working Group (ETWG) that reports to the Healthcare Science Board of Medical Education England (MEE*). An essential feature of the delivery of programmes is a robust relationship between the education provider

and healthcare provider where work-based placement, including its assessment, would take place. Training manuals to for the work-based training are being written.

* MEE has a remit that covers a number of professions, e.g. Medicine, Dentistry and Pharmacy, in addition to Healthcare Scientists.

5.20 The ETWG will be replaced, during 2011, by an Education and Training Board (ETB). An important consideration is the relationship between the ETB and all countries of the UK. Currently all 4 are represented on the ETWG, including Professor Hannigan as co-Chair. In the future, subject to the arrangements for (statutory) regulation of HCS, a *modus operandi* will need to be agreed between MEE. Any regulator and all 4 countries.

5.21 The Higher Education Funding Council for England allocated additional student places to universities throughout England, for (BSc) programmes to start as early as September 2010 and a small number of institutions achieved accreditation by a DH team and independent visitors. A larger number of programmes is expected to be available for 2011 entry.

5.22 A key component of each Healthcare Science programme is close integration between academic education and work-place based training. The organisation of these elements is evident in the broad framework for BSc programmes set out in Appendix D. This essential integration creates significantly greater time requirements for existing HCS staff to devote to training than with the current undergraduate placement year arrangement for ‘sandwich courses’. Currently it is considered unlikely that the existing courses would meet MSC requirements. Completion of the BSc, with assessment of both education and training, enables individuals to be employed as Healthcare Science Practitioners.

5.23 At postgraduate level, employed trainees undertake MSc education and integrated training (Appendix D). On completion, they are employed as Healthcare Scientists. In England and Wales, supernumerary trainees will be

recruited through a national selection scheme (beginning in Spring 2011) to enter specialisms in line with workforce plans. Accredited MSc programmes, incorporating education and training, will be commissioned by Strategic Health Authorities (SHAs), or their equivalent.

5.24 A key consideration in the offering of education programmes will be the need to have sufficient students so that each one is cost-effective for the particular university. This presents a real challenge in the case of smaller professions. For many, it is likely that only a single programme will be offered in England. Given the commensurately smaller numbers of members of those professions in the other UK countries, a programme in England will nave to serve all 4 countries. Nonetheless each country will need to make arrangements to avoid a gradual migration of the best prospective employees to England.

5.25 Innovative and flexible solutions will be required for programmes that can be accessed UK-wide, with training delivered locally though well-integrated with educational components. Trainee Clinical Scientists have been supported to access programmes throughout the UK or Dublin however, in recent years, support has diminished significantly and there is no structured mechanism through which funding can be requested or allocated. Further, the essential linkage between trainee numbers and opportunities to apply for Healthcare Scientists positions within Trusts is not clear.

5.26 Northern Ireland is recognised across the UK for its leadership in developing programmes for some Healthcare Science specialisms. It would be appropriate for some new programmes, or at least components thereof, to be delivered from the province. However arrangements need to be in place for all specialisms.

5.27 In general, Education and Training programmes that meet the needs of the MSC career framework for Healthcare Scientists will have the following features:

- To create a flexible, sustainable, quality workforce, there will be generic elements common to all programmes. For generic modules, there will be a

focus on the patient as the centre of all safe and effective healthcare delivery, on the scientist as an essential member of a healthcare team, on professionalism and on research and innovation as essential for the sustainability of services;

- Each accredited programme will include training rotations in a number of cognate disciplines, thereby ensuring opportunities for flexible working;
- Progression through programmes will be compatible with increasing specialisation on the career framework
- Precise content, mode of delivery etc will be at the discretion of the education provider so long as programmes enable students to achieve defined learning outcomes. This diversity in curricula will ensure that scientific or research strengths and innovative approaches of individual university staff will be accessed by students of healthcare science.
- The UK Way Forward career framework indicated the possibility of achieving education and training requirements through 'Equivalence'. More work is anticipated on the possible interpretations of 'equivalence' to enable clear, transparent advice to students. Thus students with prior accredited academic or experiential learning may be exempted from components of the various programmes.
- Education and Training may be accessed either by full-time students or health service employees on a part-time basis.

5.28 To enable senior Healthcare Scientists to exploit their potential as researchers, as managers of effective service innovations, and to ensure they can contribute to the currency of educational programmes, a Clinical Academic Careers Pathway is in development. This will be analogous to the pathways already in existence and being implemented in Medicine (Walport scheme[9]) and in Nursing, Midwifery and Allied Health Professions (Finch scheme[10]).

[9] Modernising Medical Careers http://www.nihrtcc.nhs.uk/intetacatrain/index_html/copy_of_Medically_and_Dentally-qualified_Academic_Staff_Report.pdf

[10] Developing the best research professionals. http://www.ukcrc.org/publications/reports/

6.0 Financial Considerations

6.1 The benefits indicated by this plan carry some financial implication however, in large part, the actions should be possible within the framework of current annual budgets,

6.2 The resources for education and training for Healthcare Science specialisms should be allocated in a planned manner in line with service (employer) requirements, e.g. for education and training of the numbers of staff indicated by workforce plans. For example, funding of trainee Healthcare Scientists should be accompanied by a commitment to their supernumerary status, moving to a position as a full employee at the time that training is due to be completed.

6.3 From the size of the Healthcare Scientist workforce – 2.7% of all in healthcare – a very conservative allocation from within the annual budget for education and training within DHSSPS and other HSC organisations would ensure parity with other cognate professional groups. This equity is highly appropriate given the essential reliance of diagnoses on the work of the healthcare scientist in diagnosis and treatment.

6.4 The additional commitment to workplace-based training of Healthcare Science students, and of employed trainees, will demand additional time commitment by existing senior staff. This requirement has been recognised by DHSSPS and is resourced in the case of other professions, e.g. Nursing and AHPs. The number of Healthcare Scientist training posts would be substantially less than for others and could be phased in over coming years.

7.0 Northern Ireland Healthcare Science Development Plan

Output 1: Healthcare Scientists as members of a profession that is recognised, valued for the contribution that it makes and included in policies and strategies relevant to Northern Ireland's health services.

Formerly, DHSSPS supported a series of advisory groups, e.g. LABSAC, CISAC. Re-establishment of a broader group, chaired by the Chief Scientific Advisor, with a clear remit and reporting point within the Department, e.g. alongside the newly re-constituted Central Medical Advisory Group (CMAC), is advised. The group would maintain dialogue among members of the workforce, employers and policy-makers and be tasked with ensuring development of the HCS profession, including leadership opportunities, while also meeting the needs of service employers, commissioners and patients. Feedback from MSC implementation elsewhere will help to guide the work of the Advisory Group.

Action: Establish a Healthcare Scientist Advisory Group to monitor and guide developments and support the Chief Scientific Advisor in making inputs to policy.

Responsibility: DHSSPS

Timescale: Spring 2011

Output 2: A Workforce Plan to support the delivery and development of services

The job titles etc comprising the Healthcare Science workforce lead to difficulties for employers / Human Resources that can be minimized with a single Healthcare Scientist designation. Detailed and accurate information on the workforce has now been compiled and will enable workforce plans to better inform policies and processes, including the planning and allocation of resources.

Actions: Develop new Healthcare Science Workforce Plan to 2015

Responsibility: DHSSPS Workforce Planning Unit

Timescale: Spring 2011

Output 3: An appropriately supported Education and Training scheme for Healthcare Scientists working in all disciplines.

Actions: Working with providers of education (HE and FE) and providers of training (HSC Trusts and other employers) to ensure that programmes can be accessed locally or elsewhere in the UK to meet workforce plans.

Responsibility: Healthcare Science Advisory Group and the Education and Training Unit of DHSSPS Human Resources that currently contracts and manages programmes offered by the NI universities.

Timescale: Immediate, i.e. beginning with the next round of meetings with universities.

Output 4 A NI Engagement Plan to maintain dialogue with current members of the workforce, trades unions, employers, professional bodies and education providers.

The dissemination of accurate information about MSC and its local implementation is essential and has been maintained by the Working Group through formal and informal interactions Events and initiatives might also be organised to highlight the roles of Healthcare Scientists whether to policy-makers, politicians, patients or to the public as well as members of the profession itself.

Actions: Plan meetings with key individuals and consider major (annual?) events

Develop written materials

Maintain interactions with cognate groups in England, Scotland and Wales

Responsibility: Healthcare Science Advisory Group

Timescale: Spring 2011 and ongoing

Appendix A Workforce by division, specialism and grade profile – regional distribution as at 31 March 2010

		BHSCT			SEHSCT			WHSCT			SHSCT			NHSCT			NIBTS		
		1-4	5/6	7/8/9	1-4	5/6	7/8/9	1-4	5/6	7/8/9	1-4	5/6	7/8/9	1-4	5/6	7/8/9	1-4	5/6	7/8/9
Life Sciences	Blood Sciences	21	60	118	4	20	17	31	29	22	22	22	19	10	30	35	18	13	29
	Cellular Sciences	39	38	58				4	14	8	8	9	12	1	9	16			
	Infection Sciences	21	26	46	6	10	8	6	14	7	5	12	5	8	18	15			1
Physiological Sciences	Cardiovascular & Respiratory Physiology	8	74	37	4	12	8	5	22	6	4	20	10	7	8	9			
	Neurosensory Sciences	15	26	14	2	7	1	8	9	2	8	10	6	10	13	1			
Physical Sciences & Engineering	Medical Physics	1	36	40															
	Clinical Engineering	2	22	20	1	6	0	1	4	6		3	4		6				
	Total	107	282	333	17	55	34	55	92	51	47	76	56	36	84	76	18	13	30

Workforce by Division, specialism and age profile – regional distribution as at 31 March 2010

		BHSCT <30 <40 <50 >50	SEHSCT <30 <40 <50 >50	WHSCT <30 <40 <50 >50	SHSCT <30 <40 <50 >50	NHSCT <30 <40 <50 >50	NIBTS <30 <40 <50 >50
Life Sciences	Blood Sciences	32 62 42 63	10 12 8 11	22 22 17 21	21 15 8 19	25 16 14 20	15 14 10 21
	Cellular Sciences	38 39 32 26		2 10 9 5	3 10 12 4	6 8 7 5	
	Infection Sciences	17 30 16 30	5 7 6 6	8 5 9 5	10 2 5 5	5 11 15 10	1
Physiol Sciences	Cardiovascular & Respiratory Physiology	43 36 25 15	11 2 5 6	13 13 4 3	12 7 11 4	7 7 4 6	
	Neurosensory Sciences	16 13 13 13	2 1 4 3	5 5 4 5	5 7 9 3	6 8 10	
Physical Sciences & Eng	Medical Physics	15 26 17 19					
	Clinical Engineering	3 13 15 13	3 4	0 4 1 6	2 1 3 1	4 2	
	Total	164 219 160 179	28 22 26 30	50 59 44 45	53 42 48 36	49 50 54 43	15 14 11 21

Workforce by Division, Specialism and gender – regional distribution as at 31 March 2010

		BHSCT		SEHSCT		WHSCT		SHSCT		NHSCT		NIBTS		Total	
		M	F	M	F	M	F	M	F	M	F	M	F	M	F
Life Sciences	Blood Sciences	80	119	18	23	22	60	25	38	25	50	26	34	196	324
	Cellular Sciences	50	85			11	15	9	20	11	15			81	135
	Infection Sciences	45	48	8	16	9	18	7	15	17	24		1	86	122
Physiological Sciences	Cardiovascular & Respiratory Physiology	41	78	3	21	9	24	7	27	4	20			64	170
	Neurosensory Sciences	15	40	2	8	0	19	2	22	2	22			21	111
Physical Sciences & Engineering	Medical Physics	41	36											41	36
	Clinical Engineering	37	7	6	1	11	0	6	1	6				66	9
	Total	309	413	37	69	62	136	56	123	65	131	26	35	555	907

Appendix B Current education courses and progression currently in / for Northern Ireland

For Assistant grades

A Foundation degree in Applied and Medical Sciences, is validated by the University of Ulster, is at North West Regional College, Southern Regional College and Belfast Metropolitan College.

For Biomedical Scientists

Three Education and Training routes are available:

- BSc Hons Biomedical Science with Diploma in Professional Practice in Pathology (DPP) from University of Ulster (IBMS accredited and HPC approved). This degree programme includes a 48 week placement in an approved NHS/HSC laboratory during which the IBMS Registration Training Portfolio is completed. A successful student will be awarded a Certificate of Competence. The placement includes rotations through the different disciplines and the graduates are equipped for employment in any discipline of Biomedical Science. Graduates from this integrated programme can register with the HPC and obtain employment as Biomedical Scientists directly on graduation.
- BSc Hons Biomedical Sciences with/without Diploma in Industrial Studies from Ulster (IBMS accredited) or BSc Hons Biomedical Sciences from Queens University Belfast (IBMS accredited) followed by a period, usually around a year, in post as a Trainee Biomedical Scientist during which the trainee completes the IBMS Registration Training Portfolio, leading to the award of a Certificate of Competence and registration with the HPC.
- On completion of a relevant BSc Hons degree, e.g. Biology or Microbiology; the degree is assessed by the IBMS; with the normal requirement for completion of additional relevant modules such as provided in the Graduate Certificate from Ulster (IBMS accredited) along with a period as a Trainee Biomedical Scientist during which the IBMS Registration Training Portfolio is completed.

Following completion of the Registration Portfolio all Biomedical Scientists undertake development of specialist knowledge and competencies in their chosen field. Normally this involves 2 years completing the IBMS Specialist Portfolio. After a successful end-point assessment by an external assessor the Biomedical Scientist will be awarded a Specialist Diploma in a specific discipline: Cellular Pathology, Cytopathology, Clinical Biochemistry, Clinical Immunology, Haematology & Transfusion Science or Medical Microbiology. After the completion of the Specialist Portfolio many Biomedical Scientists undertake MSc, e.g. MSc in Biomedical Science available at Ulster (IBMS accredited with pathways in Medical Microbiology, Cellular Pathology, Clinical Chemistry or Haematology & Transfusion).

During their employment Biomedical Scientists must undertake Continuing Professional Development (CPD) in order to maintain their HPC registration.

For Clinical Scientists.
A very wide range of undergraduate and higher degree programmes is available. Graduates who choose to enter health service employment progress towards statutory registration with HPC through the routes outlined above for obtaining the ACS Certificate of Attainment. This can be achieved by two routes:

- Route 1 requires successful completion of a 4 year accredited clinical scientist training scheme that comprises two years undertaking an accredited MSc alongside work place based training and two years of higher specialist training;
- In Route 2 application for the ACS Certificate of Attainment is made by those who have not completed a formal training programme but who have spent a minimum of 3 years under supervision working in their branch of clinical science plus another 3 years in some other activity, which may include PhD, Biomedical Scientist etc as long as it is relevant to the subject, to make a total of 6 years. This period of six years postgraduate training does not have to be continuous. This route applies to international as well as UK-based applicants but the requirements are the same.

Example: Medical Physicists – one specialism within Clinical Sciences

Currently, the Regional Medical Physics service is an accredited training centre for both clinical scientists and technologists. Appropriate undergraduate programmes are delivered, e.g. BSc Hons Physics / MSci Physics at QUB. However there is no education programme specifically in Medical Physics. The appropriate training scheme that leads to ACS Certificate of Attainment is that of the Institute of Physics and Engineering in Medicine (IPEM)

Route 1 requires successful completion of a 4 year accredited clinical scientist training scheme. For the case of clinical scientists undertaking training in Medical Physics & Clinical Engineering disciplines, the training scheme used is that of the Institute of Physics and Engineering in Medicine (IPEM). The four year training programme is comprised of two components

Part 1: Two years undertaking an accredited MSc alongside work place based training in a number of Medical Physics specialisms.

Part 2: Two years undertaking higher specialist training concentrating on a Medical Physics speciality.

On completion of the training scheme, the award of ACS Certificate of Attainment allows application for entry onto the HPC register of Clinical Scientists.

Route 2 In this case, application for the ACS Certificate of Attainment is applicable to those who have not completed a formal training programme such as that offered by the IPEM but who have spent a minimum of 3 years under supervision working in their branch of clinical science plus another 3 years in some other activity, which may include PhD, MTO, BMS etc as long as it is relevant to the subject, to make a total of 6 years. This period of six years postgraduate training does not have to be continuous. This route will apply to International as well as UK-based applicants but the requirements are the same.

For Physiological Scientists

The principal disciplines for which Education and Training are currently provided locally are Cardiology and Respiratory Physiology

The generic term for these full-time education courses at BSc (Hons) level is Clinical Physiology. Standard costs (student fees / subsistence) are met by the students themselves. Bursaries have been provided by the DHPSSNI for the students' full year in placement (year 3 of the 4 year course). In addition students undertake 90 weeks of clinical placement organised in intercalated blocks during years 1, 2 and 4.

This has been a cost effective model which has successfully matched the workforce requirements for Northern Ireland. However there have been problems in offering programmes for the smaller professional disciplines such as audiology and neurophysiology. At present Audiology is not being offered as a degree programme in NI and further recruitment to Neurophysiology has also ceased. Further, particular strain has been placed upon clinical Cardiology and Respiratory Physiology departments that offer training principally because of the extensive 2 years of clinical placement stipulated by the professional bodies under the auspices of the RCCP.

For Biomedical Engineers

A four-year BSc (Hons) Biomedical Engineering programme is offered by University of Ulster. Year 3 comprises a compulsory Industrial, academic or clinical placement. It is accredited by the Institution of Engineering and Technology (IET) to Incorporated Engineer level (IEng). The programme also offers a Foundation degree for students who do not meet the entry requirements for the honours programme. To-date few graduates have obtained employment in the NI health service.

Appendix C

Application for membership of the VRCT can currently be achieved by three routes:

- BSc Hons Route: Trainee clinical technologists undertake an accredited course comprising academic modules running alongside competency based clinical practice in an accredited training centre.
- Education Only Route: The trainee clinical technologist enters the profession with an appropriate qualification and undertakes competency based training. This is assessed by an external moderator. Successful completion of the complete training plan is recognised by the award of the IPEM Diploma in Clinical Technology and eligibility for entry onto the VRCT.
- Relevant Training and Experience Route.
  In this case the trainee clinical technologist can operate as a junior/assistant technologist but without the educational and practical training requirements to be eligible for statutory registration. The trainee enters the profession with an appropriate qualification, has undertaken a period of structured practical training and/or can demonstrate competency to a basic level, in the area related to their proposed discipline. Appointment to a Clinical Technologist post is followed by a period of training, which may include the completion of the honours degree or Graduate/Postgraduate Diploma and Part 2 competencies Successful completion of identified training modules, clinical assessment by an External Moderator, a clinical portfolio and viva is recognised by the award of the IPEM Diploma in Clinical Technology, and in this case also confers eligibility for entry onto the Voluntary Register of Clinical Technologists.

Appendix D Broad Framework of BSc (top) and MSc (below) Healthcare Science courses

Year						
Year 3 Application to Practice	Professional Practice [10]	Scientific Basis of Health Care Science – Specialist Option [60]		Practice Based Project [30]	Specialist Work Based Training **25 weeks** [20]	*46 wks
	Generic Curriculum	Discipline Specific Curriculum				
Year 2 Techniques & Methods	Professional Practice [10]	Research Methods [10]	Scientific Basis of Health Care Science [60]	Principles of Scientific Measurement [30]	Specialist Work Based Training **15 weeks** [10]	*40 wks
	Generic Curriculum		Division Specific Curriculum		Discipline	
Year 1 Scientific Basics	Professional Practice [10]	Scientific Basis of Healthcare Science - Integrated Module across Body Systems will usually include informatics, maths and statistics [60]	Scientific Basis of Health Care Science [50]		Division Specific Work Based Training **10 weeks**	*36 wks
	Generic Curriculum		Division Specific Curriculum			

Extended Academic Year *estimated duration

[XX] = number of credits

Year			
Year 3 Specialist Practice	**Healthcare Science** Specialist Learning with integrated Professional Practice **[30]**		**Research Project** Students would usually begin a work-base based research project in Year 2 and complete the project in Year 3 **[30]**
	Specialism		
Year 2 Specialist Practice	**Research Methods** **[10]**	**Healthcare Science Specialist Learning** with integrated Professional Practice **[20]**	**Research Project** Students would usually begin a work-base based research project in Year 2 and complete the project in Year 3. **[30]**
	Generic	**Specialism**	
Year 1 Core Modules	**Healthcare Science** Integrating science and Professional Practice **[20]**	**Healthcare Science** Integrating underpinning knowledge required for each rotational element with Professional Practice **[40]**	
	Generic	**Divisional**	

Generic Modules: Common to all divisions of Healthcare Science

Division Specific Modules: Life Science; Medical Physics and Clinical Engineering; Cardiovascular, Respiratory and Sleep Sciences; Neurosensory Sciences

Specialist Modules: Specific to a specialism

Appendix E – Membership of MSC NI Working Group

Chair: Professor Bernie Hannigan, Chief Scientific Advisor to DHSSPS

Healthcare Scientists
Dr Alastair Crockard, Clinical Scientist, BHSCT (initially)

Dr Colin Graham - Clinical Scientist, BHSCT (replaced Dr Crockard)

Catherine Ferguson – NIBTS

Dr Canice McGivern – Medical Physicist, BHSCT

Gordon McNair – Biomedical Scientist, NHSCT

Wilson McNair – Cardiac Clinical Physiologist, BHSCT

David Thompson – Maxillofacial Technology, BHSCT

HSC Trust HR
Mervyn Barkley – BHSCT

Jacinta Melaugh – NHSCT

Helen Walker – SHSCT

Myra Weir – SET

Shirley Young – WHSCT

Education
Dr Tom Gardiner – Biomedical Sciences, Queen's University Belfast

Dr Danny Lavery – North West Regional College

Dr Ian Logan – Clinical Physiology, University of Ulster

Dr Jacqueline O'Connor – Biomedical Sciences, University of Ulster

Trades Union
David Moorehead – Unite

John Graham – Unite

Sally Haggan – Unite

Kevin McAdam – Unite

HR Directorate, DHSSPS
Joyce Cairns – Workforce Planning Unit

John Nesbitt – Education and Training Unit

DHSSPS Secretariat

Gail Anderson – Workforce Planning Unit

Appendix F

ACS – Association of Clinical Scientists

BHSCT – Belfast Health & Social Care Trust

BSO – The Business Services Organisation

CFWI – Centre for Workforce Intelligence

DH – The Department of Health

DHSSPS – Department of Health, Social Services and Public Safety

ETB – Education and Training Board

ETWG – Education and Training Working Group

HCS – Healthcare Scientists

HCSP – Healthcare Science Practitioners

HEI – Higher Education Institutes

HPC – Health Professions Council

HCS – Healthcare Scientist(s)

HSCB – The Health and Social Care Board

IBMS – Institute of Biomedical Science

IMRT – Intensity Modulated Radiotherapy

IPEM – Institute of Physics and Engineering in Medicine

LABSAC – Laboratory Services Advisory Committee

MEE – Medical Education England

MSC – Modernising Scientific Careers

NHSCT – Northern Health & Social Care Trust

NIAS – Northern Ireland Ambulance Service

NIBTS – The Northern Ireland Blood Transfusion Service

PCC – The Patient and Client Council

PHA – The Public Health Agency

RCCP – Registration Council for Clinical Physiologists

RTA – Road Traffic Accident

SEHSCT – South Eastern Health & Social Care Trust

SHSCT – Southern Health & Social Care Trust

SOPs – Standards of Proficiency

STEM – Science, technology, engineering and mathematics

VRCT – Voluntary Register of Clinical Technologists

WHSCT – Western Health & Social Care Trust

WPU – Workforce Planning Unit