

Baseline Review of Education and Training provision for Healthcare Science in Scotland 2022

October 2022

Contents

1.	Background	4
2.	Purpose of the paper	5
2.1	<i>Approach</i>	5
2.2	<i>Survey responses</i>	6
3.	Introduction & Background	8
3.1	<i>Overview of Healthcare Science</i>	8
3.2	<i>Modernising Scientific Careers Framework (MSC)</i>	8
3.3	<i>The National Workforce Strategy for Health and Social Care in Scotland</i>	10
3.4	<i>HCS Workforce data</i>	11
3.5	<i>The future workforce</i>	11
4.	Aims 1 & 2: Overview of education and training.....	12
4.1	<i>Placements and Internships</i>	12
4.1.1	Placements	12
4.1.2	Internships	13
4.2	<i>Qualifications required to enter the HCS profession</i>	14
4.2.1	Qualifications.....	14
4.2.2	Apprenticeships.....	14
4.3	<i>Registration and Specialist Training</i>	15
4.3.1	Laboratory Sciences.....	15
4.3.2	Anatomical Pathology	16
4.3.3	Decontamination Science.....	16
4.3.4	Clinical Technology	17
4.3.5	Medical Illustration	17
4.3.6	Reconstructive Science.....	17
4.3.7	Audiology; Cardiac; Neurophysiology; Respiratory and Sleep Physiology	18
4.3.8	Gastrointestinal Physiology and Vascular Science	18
4.3.9	Ophthalmic and Vision Science	18
4.3.10	Clinical Perfusion	19
4.4	<i>Clinical Scientist/Consultant Scientist</i>	20
4.4.1	Clinical Scientist Training	20
4.4.2	Consultant Scientist – Doctoral level training	21
5.0	Aim 3: Opportunities to continue education.....	22
5.1	<i>MSC Alignment</i>	22
5.2	<i>Continual Professional Development</i>	23
6.0	Aim 4: Current education provision	24
6.1	<i>Opportunities in the current education provision</i>	24
7.0	Aim 5: Emerging Roles	25
7.1	<i>Life Sciences</i>	25
7.2	<i>Physical Sciences</i>	26

7.3 Physiological Sciences	26
8 Conclusion	27
9.0 Appendices	28
9.1 Appendix 1 - Abbreviations	28
9.2 Appendix 2 - Stakeholder List	29
References	30

1. Background

Healthcare Science (HCS) is the fourth largest professional group within the NHS. The 50 different disciplines that make up the professional group work across the entire patient pathways and are responsible for 80% of all the diagnostic tests. Healthcare Scientists are at the forefront of innovation, research and development and play a significant role in developing and influencing the delivery of patient care pathways, including the use of robotics; 3D printing; genomics or new technology.

The pandemic has significantly raised the profile of the HCS workforce in particular the role of the laboratory services (Microbiology and Virology) and clinical engineering. Many specialisms have successfully adapted and changed their service delivery models delivering more services closer to the patient.

As NHS Scotland moves towards recovery following the pandemic and patient care evolves through the improved use of new technologies and the enhanced use of digital solutions such as NearMe, it is essential that this momentum of change and innovation continues if we are to support the aim and vision of the NHS Recovery plan (1) and the COVID Recovery Strategy (2). Pivotal to this is ensuring any redesign of services and patient pathways are supported by an appropriately trained workforce and a sustainable workforce pipeline. The National Workforce Strategy for Health and Social Care in Scotland (3) reinforces this vision.

The Healthcare Science Education survey which has been undertaken and the results contained within this document set out to better understand the HCS education and training landscape. Thematic analysis of the survey results identified 6 key themes which are listed below and will inform the National Workforce Strategy for Health and Social Care in Scotland (3) commitment to undertake a HCS Education scoping review.

Themes

1. Improved visibility HCS professions
2. Access routes across all HCS specialities
3. Education Programmes available for HCS specialities
4. National Education Infrastructure for HCS
5. Solutions for the challenges in the current education provision
6. Emerging roles across our HCS specialities

2. Purpose of the paper

The National Workforce Strategy for Health and Social Care in Scotland (3) commits to undertaking a scoping review of HCS education. The current educational landscape for the HCS workforce in Scotland is complex. To better understand this landscape, an initial baseline survey has been carried out which focuses on the 5 aims outlined below.

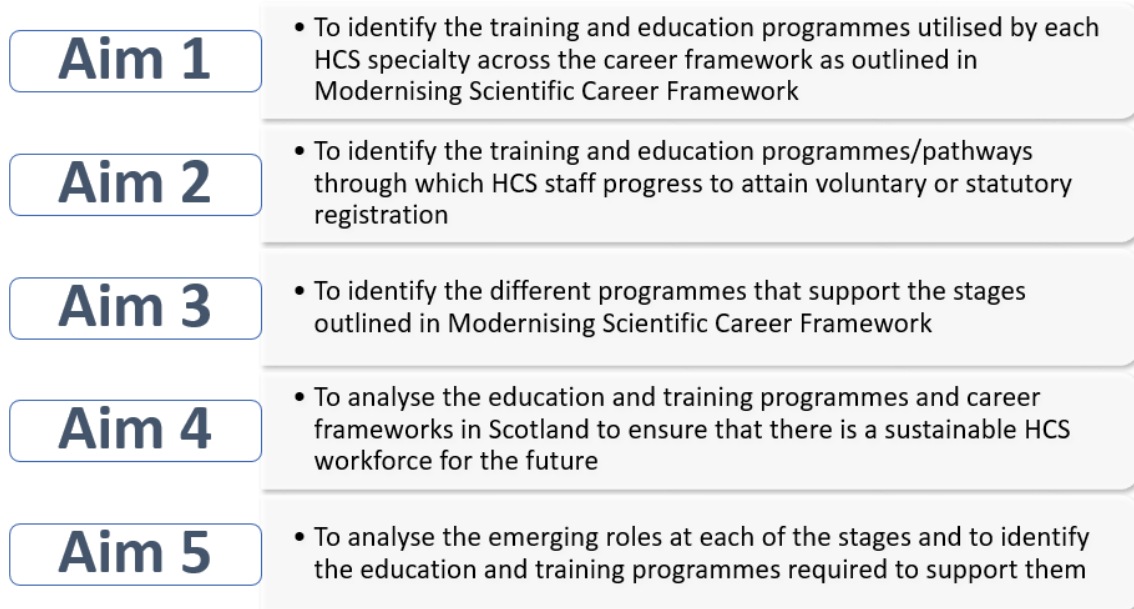


Figure 1: 5 aims the initial baseline survey focused on

2.1 Approach

In October 2020, a draft project plan and stakeholder map was presented to the National HCS Leads to ensure that the proposed content of the survey was appropriate and key stakeholders identified. The Survey was structured into 3 component parts each examining part of the educational pathway - undergraduate, postgraduate and doctoral level study to reflect the HCS career pathway (Figure 2).

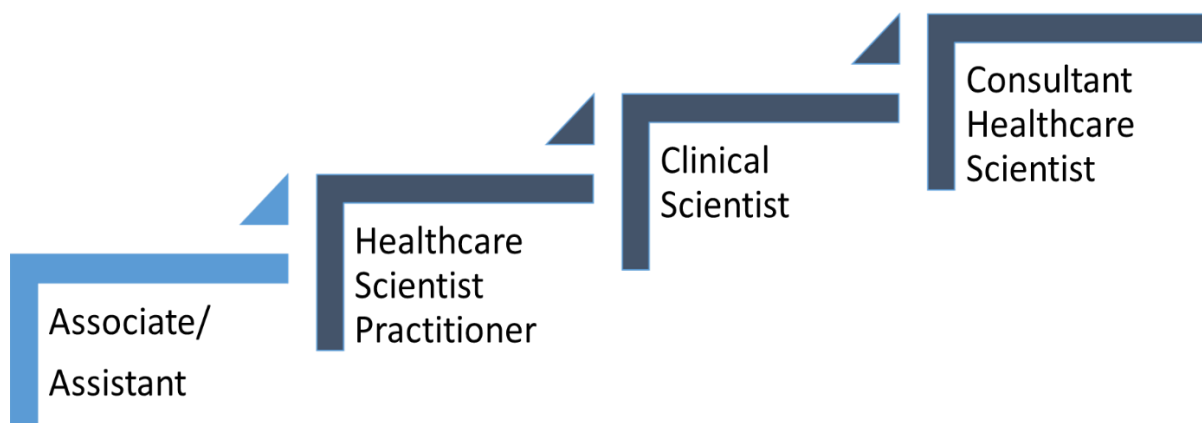


Figure 2: Overview of the HCS education career framework

Feedback on the survey structure and questions was provided by a core group of stakeholders prior to circulation to the full stakeholder list. Following several requests for an extension to the deadline, the initial completion date of March 31st 2022 was extended to April 15th 2022.

2.2 Survey responses

Overall there was a good response to all 3 surveys, with returns received from Health Boards, Networks /Consortiums and Heads of Service – Figure 3

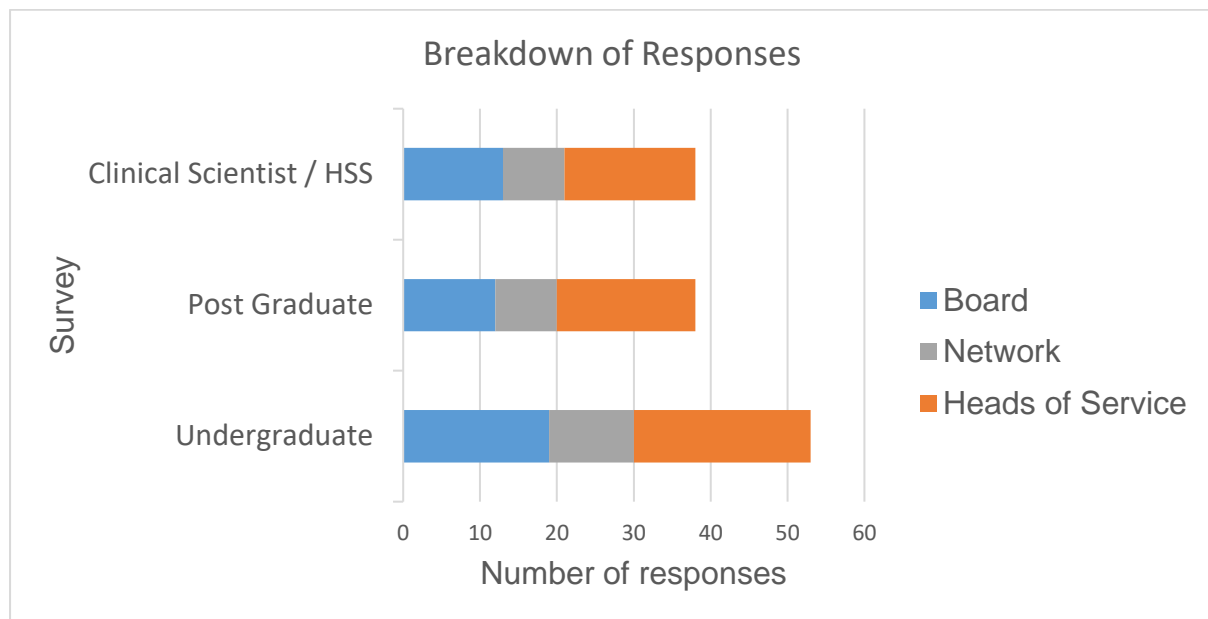


Figure 3: Breakdown of Responses¹

Figure 4 demonstrates the returns received for each survey for each HCS stream. There have been no returns from the Bioinformatics/data science stream of HCS, this may be due to the minimal number of professionals working within this field in Scotland.

¹ Consortiums represent specific disciplines within a specific stream and are responsible for overseeing recruitment of clinical scientists within these disciplines. Consortiums are noted in the stakeholder list – appendix two

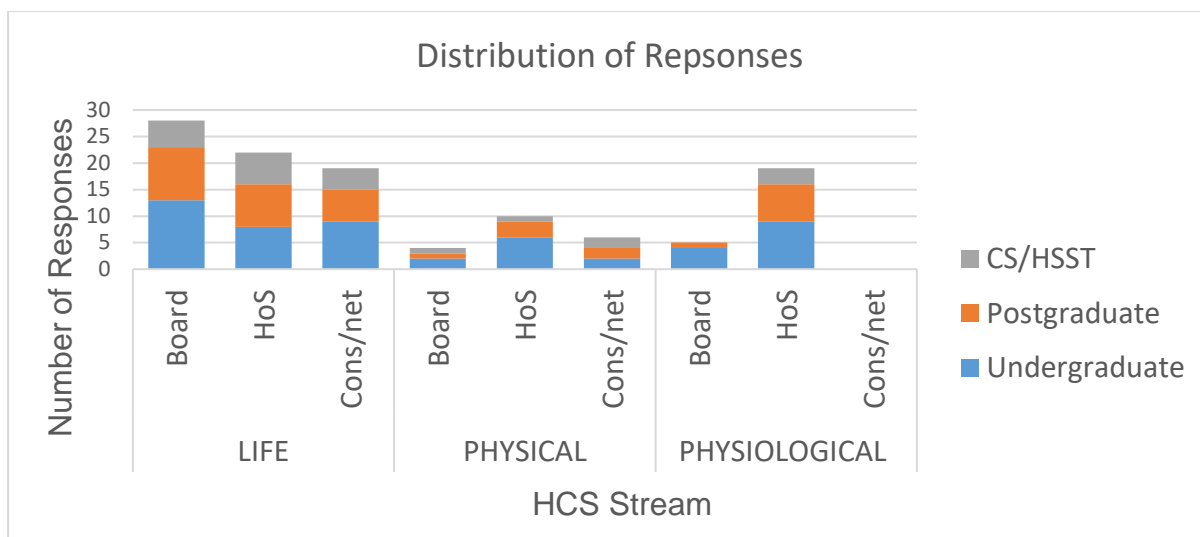


Figure 4: Distribution of responses²

In order to capture responses from all HCS specialities, follow up consultation sessions took place with Maxillofacial Prosthetics, Gastrointestinal Physiology and Clinical Perfusion. Further discussions took place with the chair of the Clinical Engineering National Network regarding the Clinical Engineering workforce and Ophthalmic and Vision Science.

All specialisms within Life Sciences are represented across the 3 surveys which included responses from Public Health Scotland and Scottish National Blood Transfusion Service (SNBTS) Manufacturing and Testing.

² No Consortiums are in place for physiology

3. Introduction & Background

3.1 Overview of Healthcare Science

HCS in Scotland is the fourth largest professional group comprising over 50 different specialisms with almost 7000 professionals. This workforce is distributed across 4 main professional groupings: Life Sciences; Physiological Sciences; Data Science and Physical Sciences and Biomedical Engineering (Figure 5). Collectively the HCS profession contributes to over 80% (5) of all clinical decisions within the acute; secondary and tertiary care environments working across the 14 territorial boards and 3 specialist boards (Public Health Scotland; National Services Scotland; NHS Golden Jubilee).

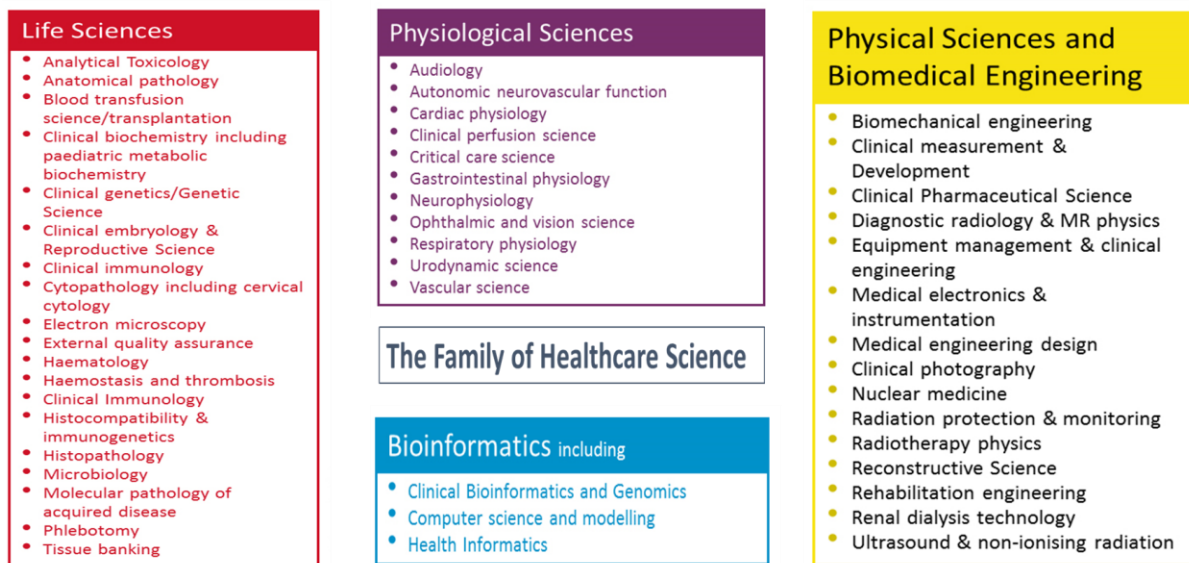


Figure 5: Overview of Healthcare Science specialisms

3.2 Modernising Scientific Careers Framework (MSC)

The UK MSC Framework (4) (Figure 6) aimed to provide a flexible, sustainable and standardised education and training pathway across all HCS specialisms. It proposed several benefits including better and faster diagnosis for patients due to a workforce aligned with the clinical team; support for the development of new roles and underpinning education and training; and a flexible and modular career pathway that would encourage, attract and enable effective workforce planning to be undertaken.

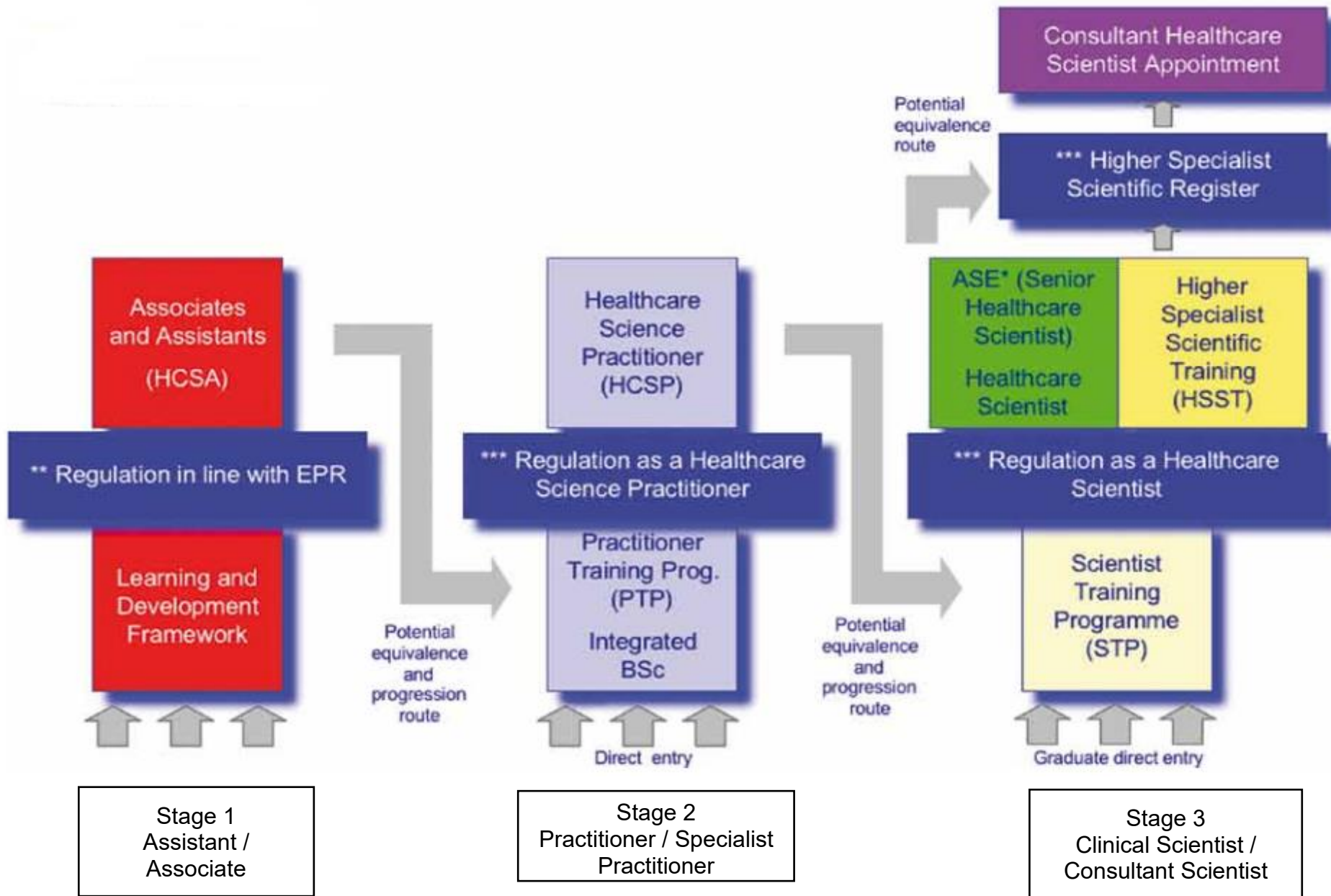


Figure 6: The MSC UK model for Career and Training Pathways in Healthcare Science

3.3 The National Workforce Strategy for Health and Social Care in Scotland

The strategy introduces the concept of the workforce journey - The “5 Pillars of the Workforce Journey” (Figure 7) and the need to understand this within the various professional groups to ensure that we have the appropriate workforce to support the overall aim and vision for our services.

The National Workforce Strategy for Health and Social Care in Scotland (3) strengthens the aspiration for a NHS workforce who not only have the correct knowledge and skills but also the appropriate support, terms and conditions and environment to ensure that they are able to progress their career as they so choose.

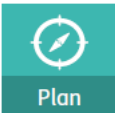




	<p>Improving the quality of workforce data will ensure that professional groups fully understand what path the employee has taken throughout their career</p>
	<p>Investing in education and training routes to attract the workforce of the future</p>
	<p>Training our employees in order that they have the correct skills to deliver and develop service</p>
	<p>Improve terms; conditions; and environment for the employee to ensure that they want to work and innovate into the future</p>
	<p>Improve culture and wellbeing to ensure that we have inclusive and supported workforce that are able to further their career should they so choose.</p>

Figure 7: The 5 pillars of the workforce journey

Understanding this workforce journey is vital to ensuring that our current workforce is competent to undertake their duties and provides insight into how we raise the visibility of the workforce to ensure that there is a continuous pipeline for the future.

3.4 HCS Workforce data

Data for the HCS workforce is not routinely or consistently collected in Scotland constraining effective workforce planning and the development and commissioning of education and training programmes.

Work has progressed within the Laboratory Sciences (6) to gather workforce data with an aim to understand the workforce and its gaps. The initial data gathering exercise carried out by the Diagnostics in Scotland Steering Group (DiSSG) workforce subgroup in 2019 demonstrated a number of initial inaccuracies regarding workforce information. The exercise, now in its third data collection year, has enabled the development of a robust overview of the laboratory specialties and has supported some of the regional and national work that has progressed for advanced/extended practice roles and the development of the education and training programmes that underpin them. This methodology has recently been adopted by the Physiology specialties.

The data captured within the Laboratory Science and Physiology specialities will support the work that will be undertaken in response to the Healthcare Science commitments within the National Workforce Strategy (3).

3.5 The future workforce

The “attract” pillar focuses on our future workforce and as such, attracting young people into and promoting the various HCS professions can be difficult due to the size and complexity of entry requirements for each of the specialisms. Raising the profile of HCS specialities to schoolchildren is of key importance particularly when subject choice can often determine entry requirements to the professions.

Education leading to qualifications that allow entry into the HCS workforce is not centrally coordinated however, the work underway in relation to improving workforce data will enable a clearer understanding of workforce future needs, enabling development of supporting education and training.

4. Aims 1 & 2: Overview of education and training

To identify the training and education programmes utilised by each HCS specialty across the career framework as outlined in Modernising Scientific Career Framework

To identify the training and education programmes/pathways through which HCS staff progress to attain voluntary or statutory registration

4.1 Placements and Internships

Survey 1 posed several questions covering the following topics:

- Placements and/or internships offered to young people
- Apprenticeships and the education provided utilised
- Qualifications required for recruitment into associate /assistant roles

4.1.1 Placements

Figure 8 provides an overview of the provision of placements across the HCS specialisms. The survey highlighted locally arranged placements arranged on an ad-hoc basis across the various specialisms

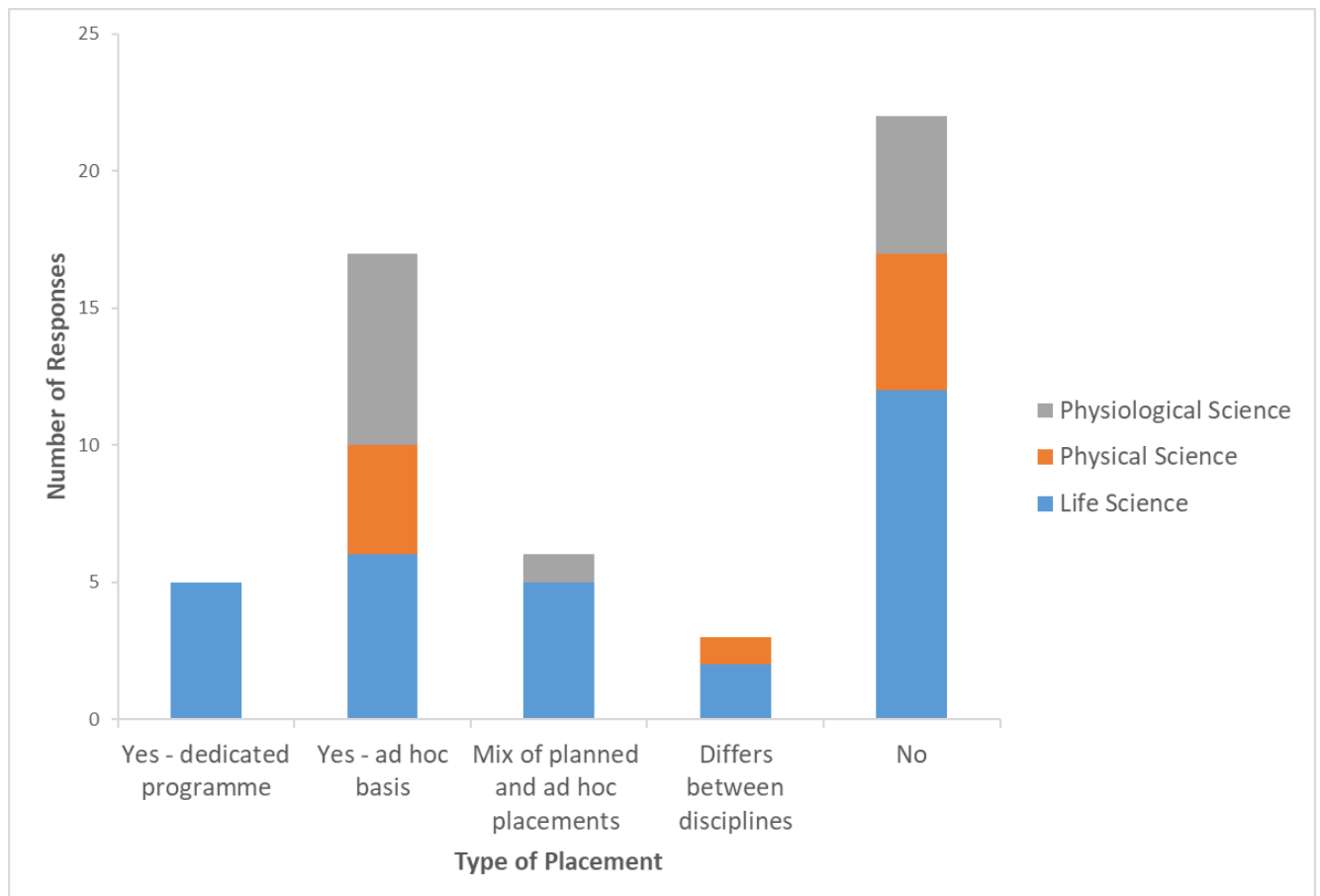


Figure 8: Overview of placements provided within HCS

Although many HCS specialisms are willing to offer work experience placements to young people, there is a requirement for improvements to access that would build on the current programme of placement support for university students.

4.1.2 Internships

The survey highlighted there are similar findings in the offer of internships (Figure 9). Although there is a broad spread of opportunities offered to undertake work required for registration purposes, there are no generic dedicated internship programmes offered.

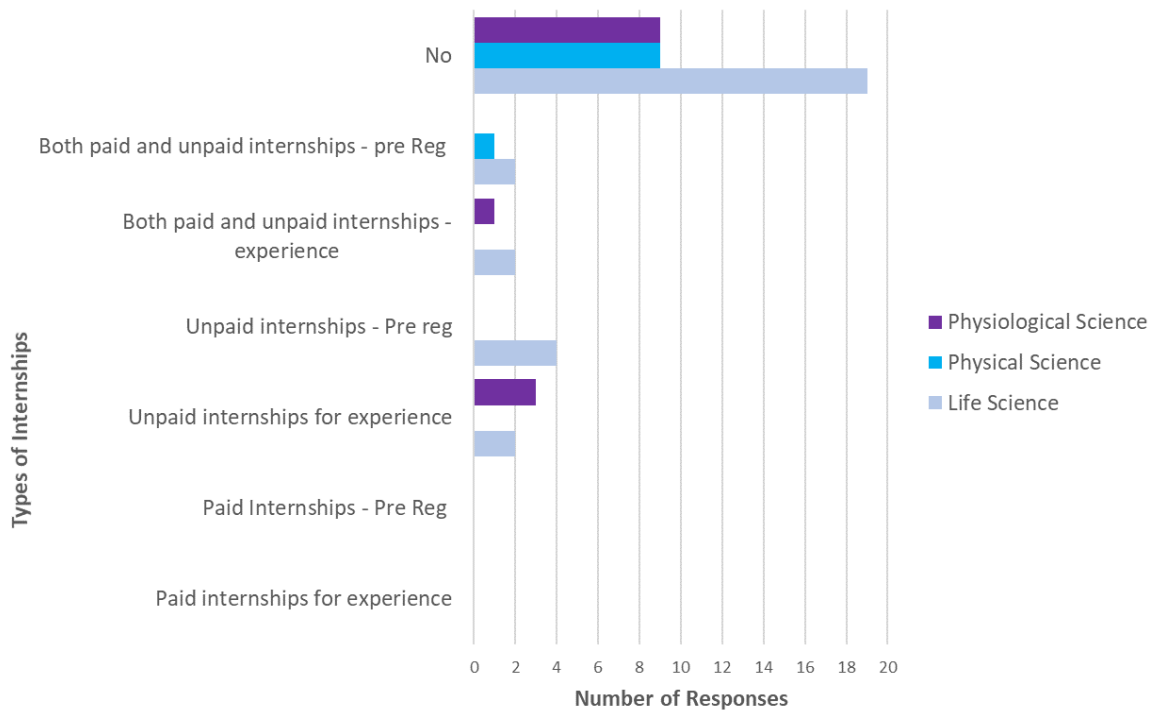


Figure 9: Overview of internships provided within HCS

4.2 Qualifications required to enter the HCS profession

Survey 1 posed several questions covering the access routes into the professions:

- Qualifications required to enter the profession
- Apprenticeship programmes

4.2.1 Qualifications

Assistant/Associate staff entering the professions will do so with either a Higher National Certificate (HNC) or Higher National Diploma (HND) qualification, although a range of qualifications are accepted including professional and vocational qualifications.

There is no consistency in relation to the level of qualifications required for Band 2 or Band 3, as roles differ between specialisms and health boards. There is a consensus across all specialisms that Band 4 roles require, as a minimum, an HND level qualification.

Many HCS specialisms, such as Medical illustration; Reconstructive Science; Vascular and Gastrointestinal physiology, do not employ support workers and recruit directly into a Band 5 role following completion of the academic programme for registration.

There are locally developed early career programmes such as those for Clinical Technology and some Boards utilise the level 3 apprenticeship (Laboratory Associated Technical Activities) to support school leavers into the profession.

4.2.2 Apprenticeships

The survey showed a general lack of knowledge and awareness in relation to the availability of apprenticeships within HCS although many of the specialisms noted interest in exploring Graduate Apprenticeships.

Concerns raised were in relation to hosting apprenticeship programmes in particular,

- Equality of employment in relation to pay and scope of practice.
- Infrastructure and resource requirements

4.3 Registration and Specialist Training

Survey 2 posed questions covering the education programmes undertaken for registration and specialist training

- The minimum qualifications required for registration and the routes through which these are achieved.
- The further education/training that is required to achieve specialist level following registration

Registration for HCS Specialities is a complex landscape. Biomedical Scientists and Clinical Scientists are statutory registered and regulated by the Health and Care Professions Council.

All other HCS practitioners may be voluntarily registered under accredited registers overseen by the Professions Standards Authority (PSA). The majority of these registers are held by the Academy for Healthcare Science (AHCS) however, some are held by the professional bodies. Registration details are outlined in each of the specialty sections.

4.3.1 Laboratory Sciences

In order to achieve Health and Care Professions Council (HCPC) Registration, Biomedical Scientists must undertake an Institute of Biomedical Science (IBMS) accredited Biomedical Science honours degree programme and complete the Certificate of Competence Registration Portfolio.

These Biomedical Science degrees, are delivered as full time programmes in 5 universities across Scotland:

- Glasgow Caledonian University
- University West of Scotland
- Strathclyde University
- Abertay University
- Robert Gordons university

Each programme offers a placement to complete the Registration portfolio enabling the student to be eligible for HCPC registration on graduation. Placement allocation is dependent on availability and performance of the student.

Students not successful in obtaining a placement during the university programme will undertake the registration portfolio in house to gain HCPC registration, a process taking approximately 12 months. Costs (£137 for the portfolio) and resources are borne by the employing Health Board.

Those who enter the profession with an unaccredited degree are required to have their degree transcript assessed by the IBMS. This cost (£309) is borne by the staff member or by the Health Board and results in a list of academic modules to be completed before the registration portfolio can be undertaken. Students are required to undertake the modules in a university offering an IBMS accredited degree. Top up

costs will be borne by the staff member or the department and can range from £600 - £1000 per module. The number of modules required by an individual is dependent on the undergraduate degree and previous education undertaken.

Following HCPC registration there is a consensus that the Biomedical Scientist will complete the IBMS Specialist Diploma relevant for the specialism. This provides specialist knowledge and, although not mandatory, most departments consider the completion of the Specialist Diploma as the benchmark for sole/out of hours working. However, this is not standardised across Scotland and some Health Boards choose to recruit into the specialist level without this Diploma.

Registrants within Blood Transfusion Manufacturing opt for the British Blood Transfusion Society (BBTS) Specialist Certificate in Transfusion Science Practice, which offers a qualification aligned to a practitioner's scope of practice. The University of Manchester delivers this qualification.

4.3.2 Anatomical Pathology

Many technologists will enter the profession with national 5/higher/advanced higher qualifications and undertake the Royal Society for Public Health (RSPH) Level 3 and Level 4 Diploma in Healthcare Science (Anatomical Pathology Technology).

The University of North Tees provides both of these qualifications, and they are delivered through blended learning with observational and written exams.

Completion of the Level 4 Diploma allows entry into a Foundation Degree and a BSc Healthcare Science (Anatomical Pathology Technology) within England.

4.3.3 Decontamination Science

The majority of decontamination staff within Scotland are employed at Band 3 and require completing the Institute of Decontamination Science (IDSc) Technical Certificate.

This qualification, normally funded by the Health Board, is formally accredited by Scottish Qualification Authority (SQA) at Level 6 (Higher) on the Scottish Qualification Framework and is supported by modules delivered by e-learning via NHS Education for Scotland (NES). On completion, this allows the individual to register as a Decontamination Scientist on the accredited register held with the AHCS.

4.3.4 Clinical Technology

Clinical Technologists are a large staff group employed within various specialisms in Medical Physics: Clinical Engineering; Clinical Measurement; Diagnostic Radiology and Magnetic Resonance Physics; Imaging; Medical Equipment Management; Non Ionising Radiation; Nuclear Physics; Radiotherapy; Rehabilitation Engineering and Renal dialysis.

Clinical Technologists are able to achieve registration with the voluntary accredited Register of Clinical Technologists (RCT) by successfully completing the Clinical Technologist training scheme operated by the Institute of Physics and Engineering in Medicine (IPEM) or by undertaking an equivalence programme.

There are 2 programmes, which provide routes through which staff can attain registration: the 4 year SQA accredited Modern Apprenticeship programme delivered between NHS Greater Glasgow & Clyde and Glasgow and Clyde College and an in house band 5 clinical engineering training programme, which is fully funded by the Board and with staff employed in substantive posts. On attainment of accredited voluntary registration with the RCT, specialist level training through a variety of routes including in-house training and manufacturer training courses will be undertaken.

4.3.5 Medical Illustration

Medical Illustrators/clinical photographers may register with the accredited voluntary register held by the AHCS. To be eligible to register, practitioners require a minimum of a BSc. (hons) Clinical Photography followed by a Postgraduate Certificate (PgCert) Clinical Photography.

2 universities: Staffordshire University and Cardiff University, deliver the PgCert in Clinical Photography by distance learning and is only available to those who are working within a clinical photography/medical illustration department within the UK. The Cardiff university programme is due to close for any further student intake in 2022.

Following registration, there is no supported career framework and most undertake local training specific to their department delivered by the clinical photography management team to gain specialism within their field.

4.3.6 Reconstructive Science

Maxillofacial Prosthetics/Reconstructive Science is a graduate entry profession with entrants employed as Trainee Clinical Scientists after which they follow an equivalence pathway leading to HCPC registration. Due to their scope of practice, Reconstructive Scientists are also required to hold registration with the General Dental Council (GDC).

Kings College London deliver the supporting academic programmes, MSc. Maxillofacial Prosthetic Rehabilitation or MSc. Maxillofacial and Craniofacial Technology.

4.3.7 Audiology; Cardiac; Neurophysiology; Respiratory and Sleep Physiology

Physiologists within these 5 specialisms may be registered with the accredited register held by the AHCS and require, as a minimum, a BSc. (hons) Clinical Physiology.

Glasgow Caledonian University (GCU) delivers the undergraduate programme on a biennial basis for these specialisms. The 4 year programme at GCU requires trainees to be in a substantive training post and funded by their board, typically at Annex 21 Band 5 (Annex 21 Band 6 for Neurophysiology), with fees for year 1 of the programme funded by NES, with the Health Board funding years 2-4.

Queen Margaret University (QMU) offers a MSc. Audiology programme, which provides a route for graduates who hold a relevant physiology degree to specialise in Audiology. On completion of the 2.5-year full time programme students are eligible to register with the accredited register held by the AHCS. The course relies on sufficient numbers and placement availability and does not provide part time opportunities for those in service.

Equivalence Practitioner Training routes are utilised primarily in Cardiac, Respiratory and Sleep Physiology and has often been the approach taken by some Health Boards in those years between university (GCU) intakes. Health Boards utilising this approach will recruit trainees with a relevant undergraduate degree and will follow an in-house training programme to achieve registration.

Each of the specialty areas offer post registration training to achieve specialist practitioner level, this may be attained through a mixture of in house training programmes and professional body led courses, funded by a variety of routes.

4.3.8 Gastrointestinal Physiology and Vascular Science

Both Gastrointestinal and Vascular Physiology have a small workforce and as such, their workforce is predominantly comprised of Clinical Scientists who are registered with HCPC.

4.3.9 Ophthalmic and Vision Science

Ophthalmic and Vision Science is an extremely small specialism within Physiological Sciences. Currently there are no approved practitioner training programmes available and practitioners follow an equivalence programme to attain accredited voluntary registration with the AHCS.

The professional body, the Association of Health Profession in Ophthalmology, deliver programmes similar to the second year of the BSc. Neurosensory sciences/Ophthalmic and Vision Science curricula. A portfolio of evidence based on the standards of proficiency is gathered and assessed. On completion, the AHCS will award the certificate of equivalence providing eligibility to apply for accredited voluntary registration with the AHCS.

Clinical Scientist routes are provided via the Scientist Training programme (STP). The academic component, MSc. Healthcare Science (neurosensory sciences), is delivered by Manchester University.

4.3.10 Clinical Perfusion

Clinical Perfusionists are required to register with the Society of Clinical Perfusion Scientists of Great Britain and Ireland. This is a professional accredited register and although not a statutory register, there is an agreement throughout the UK that all Clinical Perfusionists employed within the NHS setting hold registration.

Trainee Clinical Perfusionists follow an in-house training programme alongside a 2 year academic programme, MSc. in Perfusion Science, that is delivered at the University of Bristol by block release. At graduation, trainees are expected to pass an observation and viva before being awarded the Certificate of Accreditation in Basic Clinical Perfusion Sciences which enables registration.

Following registration, there is a requirement to maintain competence and specialism through a Continual Professional Development (CPD) process, which includes an annual presentation of a prerequisite number of perfusions and a 3 year assessment of underpinning knowledge.

4.4 Clinical Scientist/Consultant Scientist

Survey 3 posed questions covering the following topics:

- The support for both the Clinical Scientist and Doctoral level Scientist training programmes
- The academic programmes utilised
- Challenges experienced in utilising these programmes

4.4.1 Clinical Scientist Training

There are 2 routes to Clinical Scientist registration:

- Scientist Training Programme (STP)
- STP equivalence

NES supports both of these routes and provides each trainee with a National Training Number. NES monitors progress through an Annual Review of Competence Progression (ARCP).

NES commissions the STP trainee Clinical Scientist posts with the recruitment process managed by specialism specific consortiums or heads of service. These posts are advertised on an annual basis based on workforce requirements for the specific service (Expressions of Interest Process)

STP Trainees are appointed into a host board to fulfil a 3 year supernumerary post and are expected to attend an MSc. programme by block release (if 1 has not already been attained). This is delivered at 1 of a number of [universities](#) offering the discipline specific MSc. A portfolio of evidence and viva voce are undertaken prior to registration with the HCPC. NES monitor progress through the programme. On completion, The National School for Healthcare Science (NSHCS) will issue a Certificate of Completion that enables statutory registration with the HCPC.

STP equivalence trainees are appointed into a service within a Health Board, usually into substantive posts, and are expected to undertake an equivalence programme. This requires the trainee to prepare a portfolio of evidence based on the AHCS Good Scientific Practise (7). The trainee is required to pass a viva voce prior to the attainment of the AHCS Certificate of Attainment. This route can take more time than the conventional STP route.

Survey returns received across the various specialisms noted that, although well-structured and managed by NES, there are difficulties in delivering these programmes:

- Challenges providing appropriate clinical rotations due to departmental resources
- Challenges in providing the trainee with sufficient time to complete the programme
- Demand for Clinical Scientists within the services greatly outweighs the available places each year.

- Retention of staff into Clinical Scientist posts following the completion of training. Many specialisms note that if posts are not available upon completion of the STP programme, newly registered Clinical Scientists will take up posts in other Health Boards in Scotland or elsewhere in the UK.

There are many HCS specialisms currently undertaking workforce profiling with a view to implement Clinical Scientist roles within their specialty.

4.4.2 Consultant Scientist – Doctoral level training

From a national perspective, the Higher Specialist Scientific Training (HSST) Programme is not as developed across Scotland as the Clinical Scientist training programmes.

Within Laboratory Medicine; Haematology and Microbiology have both reported through the survey that there is a known national shortage of qualified medical staff within these specialisms. All laboratory medicine specialisms recognise that investing in scientific training at consultant/doctoral level could alleviate the service pressure of the medical staff shortage and enable resilience in workforce planning.

For those scientists wishing to progress to Consultant level roles within Laboratory Medicine the only route available is to undertake the Royal College of Pathology (RCPATH) Part 1 and Part 2 exams within their specialism. Many undertaking this training will do so in conjunction with their medical trainees however, this is not standardised across Scotland. There is no consistency of funding and resource available for those in training at this level. Many rely on Health Board resource and funding or will self-direct and fund.

In 2020, national non-recurring funding was secured for a cohort of 20 scientists to undertake the HSST equivalence programme. This programme required the candidate to submit an extended curriculum vitae that provided a detailed overview of their learning and experience to date, outlined the gaps within their training and a proposal of a detailed training plan to ensure that they would be able to meet the HSST learning outcomes. Those who have benefited from this funding have been able to access a number of academic courses in order to supplement their learning including Doctor of Clinical Science (DClinSci) programmes from University of Manchester; Edward Jenner programme and Rosalind Franklin programme.

All specialisms have noted that progression to Consultant Scientist is challenging:

- There is no formal route for all specialisms to follow.
- No funding is available to support local or professional routes such as those programmes delivered by RCPATH.

Survey feedback suggests that there has been no scoping performed within physiological sciences to support the progression to consultant level roles although there is an appetite for this work to be carried out.

5.0 Aim 3: Opportunities to continue education

To identify the different programmes that support the stages outlined in Modernising Scientific Career Framework

Each of the surveys explored how specialities aligned to the MSC framework by posing questions in relation to the provision of opportunity for progression; including the provision for CPD; opportunities for further education; and the infrastructure required.

5.1 MSC Alignment

The returns received supported the concept of continual progression aligned to the MSC Framework. There was agreement on the need for a flexible approach and provision for career progression with the opportunity to “step-on & step-off” at the various stages. There is an understanding that this is a challenge in the current landscape of routes into the profession.

Robust “Return to Practice” routes are available for those who are statutory registered which eases the transition back into service, however this is not standardised across those professions who are voluntary registered via the accredited registers.

There was a consensus that there should be a robust career pathway for all specialisms with education and training programmes available to school leavers and this should be a priority for HCS.

There is a range of opportunities provided across the various specialisms at all of the various stages of the framework. However, this varies between specialisms and regions.

Many of the specialisms rely on programmes currently delivered via NES (leadership and management/early career programmes) or via their professional bodies. Survey responses suggest that more leadership programmes are required.

All specialisms note that accessing funding for further/continuing education is difficult, many rely on self-funding or support through professional bursaries including via NES or access to government funding (Student Awards Agency Scotland/Skills Development Scotland).

5.2 Continual Professional Development

Continual Professional Development (CPD) is required at all levels across the HCS specialisms to ensure that staff maintain and develop knowledge.

Survey feedback suggests that each of the specialisms allocate time for CPD however, this is not a formal arrangement and is dependent on workload/service demand. There is evidence of a wide range of activities delivered and arranged locally including lunchtime talks, journal clubs, and support to attend conferences, leadership and management courses. These are accessed via local organisation, professional body or NES.

Funding is a concern and was raised by all specialisms, with many stating that there is minimal funding to support such activities and staff tend to either self-fund or explore other routes within the organisation for support. Time for CPD is on an ad-hoc basis with no formal arrangements in place.

Very few specialisms noted CPD opportunities for either associate or assistant practitioners.

6.0 Aim 4: Current education provision

To analyse the education and training programmes and career frameworks in Scotland to ensure that there is a sustainable HCS workforce for the future

Each of the surveys posed the same questions in relation to the gaps, threats and challenges:

- Are you aware of any gaps in education at this stage and if so please provide any details
- Are you aware of any threats/challenges to the current provision of education and training and if so please provide details

6.1 Opportunities in the current education provision

- Potential to explore part time IBMS accredited degrees, which could benefit those in assistant/associate roles to progress to registration.
- Potential to explore part time provision for MSc. Biomedical Science providing opportunity to continue education.
- Explore the provision of an undergraduate programme in the South East of Scotland for Biomedical Science
- Explore the provision of a MSc. Transfusion, Transplantation and Tissue Banking programme
- Public Health Microbiology (PHM) is a relatively new specialism emerging in Scotland and training routes and frameworks are currently under discussion.
- Explore opportunities for Bioinformatics and Data Science. Survey responses reflect there is a need to develop robust structures within this area to support further expansion of the specialism.
- Explore options to provide a quality assured undergraduate Clinical Physiology programme within Scotland
- Explore options to support educational requirements for Decontamination Scientists
- Develop opportunities for progression from Clinical Scientist to Consultant Scientist.
- Explore opportunities to support educational requirements for Medical Illustrators.

7.0 Aim 5: Emerging Roles

To analyse the emerging roles at each of the stages and to identify the education and training programmes required to support them.

Each of the surveys contained questions regarding the potential development of new roles and the education and training programmes that may be required to support them.

Questions posed within the survey:

- What new roles may be developed over the next 5 years within your specialism across the 3 stages of the MSC Career framework
- Please provide details of these roles and outline the education and training programmes that support them.

7.1 Life Sciences

Feedback from the survey suggests that many areas within Laboratory Medicine are exploring the Band 4 Associate Practitioner role, either to increase their numbers at this level or to implement such roles within their services. Whilst professional bodies such as British Society of Histocompatibility and Immunogenetics (BSHI) and IBMS offer vocational awards to support progression to this level, concerns have been raised in relation to the lack of a formal part time route to support progression to registration from the Band 4 role and the difference in scopes of practice across the Health Boards.

Point of Care Testing (POCT) is an expanding specialism, with roles spanning assistant/associate practitioners to registered staff. To support this, IBMS has recently launched the Certificate of Extended Practice in POCT and include POCT within their support worker qualifications.

Within Histopathology and Cytopathology, there is potential to develop the role of Anatomical Pathology Technicians and Associate Practitioners (Band 4) to undertake a more expanded role within the specialism. There is also a desire to expand the Biomedical Scientist role to undertake dissection. Many areas are considering utilising the IBMS qualification (Advanced Specialist Diploma in Specimen Dissection) which is already available to either implement or expand their numbers of Specialist BMS Dissectors.

Although many developing roles are supported by qualifications offered by the professional bodies, there are areas that require to be considered for further development. These include roles related to Quality and Consultant posts.

Due to the increased need for accreditation quality is an area which has expanded within the Life Science specialisms and although there is an IBMS post registration qualification (Certificate of Extended Practice in Quality) to support this, more is required at a pre-registration stage to include specific regulatory compliance in relation to new areas emerging (Tissues Cells and Therapeutics).

The lack of available personnel for Consultant Scientist posts is a critical area within laboratory medicine and 1 actively discussed at many stakeholder groups (DiSSG; Regional Workforce Groups)

7.2 Physical Sciences

Clinical Scientists within the Medical Physics specialisms are embedded in research and development across their various specialties. Feedback within the survey suggests that this area requires development to ensure that Scientists are able to lead and develop their skills in relation to research. It has also been highlighted that significant development is required for areas such as quality management and roles to support accreditation processes.

Roles in Quality Management, auditing and supporting accreditation were noted as areas of development for Clinical Engineering

There is general interest in supporting Consultant Scientist roles in most areas within the Physical Sciences. Currently there is a general lack of education provision to support this and potential roles require scoping along with the education required to underpin them.

7.3 Physiological Sciences

Respiratory/sleep/cardiac departments noted in the survey that due to a change in working practices since the Pandemic they would be keen to develop Assistant and Associate practitioner roles within their areas.

Clinical Scientist and Consultant Scientist roles require to be further developed for these specialisms. Workforce re-profiling and raising the profile of the specialisms is also required.

8 Conclusion

This is the first time the education and training landscape for Healthcare Science in Scotland has been reviewed. The survey feedback has demonstrated that there are areas of good practice and robust educational programmes in place. However, it has also highlighted areas that require further exploration or improvement.

The themes emerging from this survey are listed as:

1. Improved visibility HCS professions
2. Access routes across all HCS specialities
3. Education Programmes available for HCS specialities
4. National Education Infrastructure for HCS
5. Solutions for the challenges in the current education provision
6. Emerging roles across our HCS specialities

The survey has highlighted that further work is required to improve the visibility of the HCS workforce to improve the pipeline of a future workforce.

The issue of funding and lack of resource to support education and training is a recurring theme across all of 3 components of the survey.

The themes emerging will serve as a baseline for the forthcoming HCS education scoping review that will be carried out in line with the commitment within the National Workforce Strategy (3)

Further workforce engagement sessions will be planned to build upon this work to enable the development of the scoping review for HCS. This is an initial baseline information and inform themes of those sessions and we look forward to working collaboratively with the workforce and other key stakeholders to develop the future Healthcare Science workforce for Scotland.

9.0 Appendices

9.1 Appendix 1 - Abbreviations

AHCS	Academy of Healthcare Science
ARCP	Annual Review of Competency Progression
BBTS	British Blood Transfusion Society
BSc	Bachelor of Science
BSHI	British Society of Histocompatibility and Immunogenetics
CPD	Continual Professional Development
DClinSci	Doctor of Clinical Science
GCU	Glasgow Caledonian University
GDC	General Dental Council
HCPC	Health and Care Professions Council
HCS	Healthcare Science
HNC	Higher National Certificate
HND	Higher National Diploma
HSST	Higher Specialist Scientist Training programme
IBMS	Institute of Biomedical Science
IDSc	Institute of Decontamination Science
IPEM	Institute of Physics and Engineering in Medicine
MSC	Modernising Scientific Careers
MSc	Masters in Science
NES	NHS Education for Scotland
NSHCS	National School of Healthcare Science
PgC	Postgraduate Certificate
PHM	Public Health Microbiology
POCT	Point of Care Testing
PSA	Professional Standards Authority
QMU	Queen Margaret University
RCPATH	Royal College of Pathologists
RCT	Register of Clinical Technologists
RSPH	Royal Society of Public Health
SNBTS	Scottish National Blood Transfusion Service
SQA	Scottish Qualifications Authority
STP	Scientist Training Programme
UK	United Kingdom

9.2 Appendix 2 - Stakeholder List

The 3 components of the survey was distributed to the following stakeholders for dissemination through their networks.

Biochemistry Consortium
Clinical Physiology Executive Board and subgroups
Decontamination Science representatives
Genetics Consortium
Haematology & Transfusion Network
Haematology Clinical Scientist Representatives
Histocompatibility and Immunogenetics Clinical Scientist Representatives
IBMS Scottish Training Forum
Maxillofacial Prosthetics Heads of Service
Medical illustration Heads Of Service
Medical Physics and Clinical Engineering Executive Board and subgroups
Microbiology Consortium
Public Health Representatives Reproductive Science representatives
Scottish Clinical Biochemistry Network
Scottish Microbiology and Virology Network
Scottish Pathology Network

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