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This report is for the period October 2011 to October 2012.

Introduction

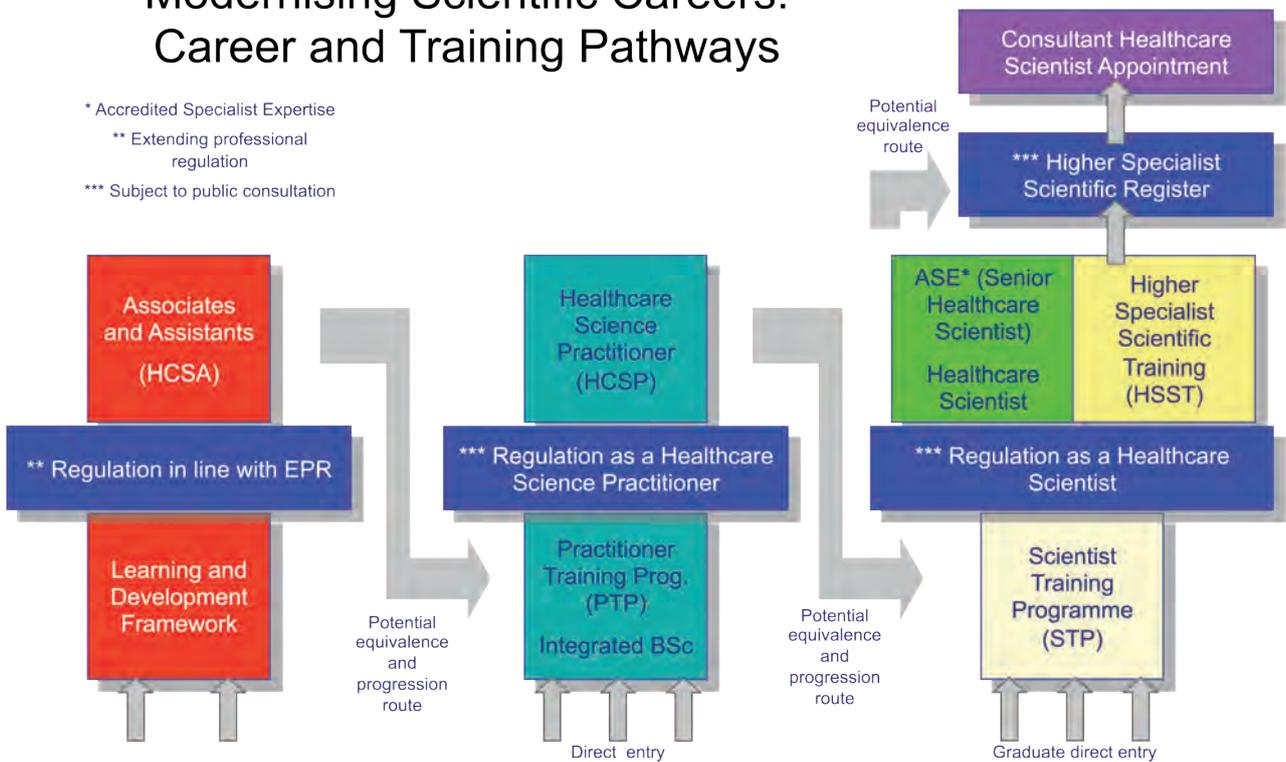
As part of the Modernising Scientific Careers (MSC) programme, the National School of Healthcare Science (the School) was established in October 2011 to support the implementation and delivery of the new healthcare science education and training programmes and to comply with the structures within 'Liberating the NHS: Developing Healthcare Workforce - Policy 16977 (January 2012)' acting on behalf of the Chief Scientific Officer (CSO) for England. It also provides some elements of support for the three other UK health departments.

The aim of the new educational programmes is to train staff that will be able to work at the highest level in healthcare, understanding and advising on the most recent advances in technology and innovations in patient care, and to have the flexibility and adaptability to work across patient pathways enabling efficient and high quality care.

The following diagram illustrates the educational and career pathway under MSC throughout the period of this report. This MSC career pathway model is currently under review.

Modernising Scientific Careers: Career and Training Pathways

- * Accredited Specialist Expertise
- ** Extending professional regulation
- *** Subject to public consultation



“The aim of the new educational programmes is to train staff that will be able to work at the highest level in healthcare...”



The School is an integral part of NHS West Midlands Multi Professional Workforce Deanery and is hosted by Health Education England (HEE) West Midlands. The School safeguards the delivery of quality education and training for healthcare science nationally and will liaise with all relevant organisations to ensure a smooth transition, continued accountability and governance within the new national educational architecture.

Over the last year we have established partnerships with Professional Bodies, Royal Colleges, Universities, national and regional education and commissioning leads and NHS establishments delivering the new blended educational programmes. It has been a challenge but one that everyone has wanted to engage in and contribute to, this is part of the success of the School and what will ultimately be the success of the training programmes.

There have been many achievements of the School in the last 12 months from national recruitment of the best candidates to quality assessment of training environments.

“It is seeing the level of attainment and commitment to healthcare from the trainees that is the proof of the value of these new training programmes...”

Perhaps the most important has been the development and implementation of a national assessment strategy outlining regular standardised assessment of trainees and training departments across the country and supported by an online assessment recording tool.

One of the significant partnership roles of the School in the last year was to support the Academy for Healthcare Science (AHCS) in its application to the Healthcare Professions Council (HCPC) to become an education provider for the Scientist Training Programme (STP). This was successful resulting in all successful trainees now being eligible to register with the HCPC as clinical scientists.

The genetics pilot programme funded by the Department of Health (DH) Genetics White Paper initiative to support Modernising Scientific Careers established a blueprint for training that informed the successful roll out of MSC across healthcare science. These programmes have now been successfully completed and it is seeing the level of attainment and commitment to healthcare from the trainees that is the proof of the value of these new training programmes.

The School contributed to the DH national initiative ‘Building on Our Inheritance: Genomic Technology in Healthcare (2012)’ and will play an important role in the future in delivering education to all healthcare staff in genomic medicine. The challenges for 2013/14 will be to implement nationally quality assured training programmes for the Higher Specialist Scientific Training (HSST) and also the associates and assistant levels.

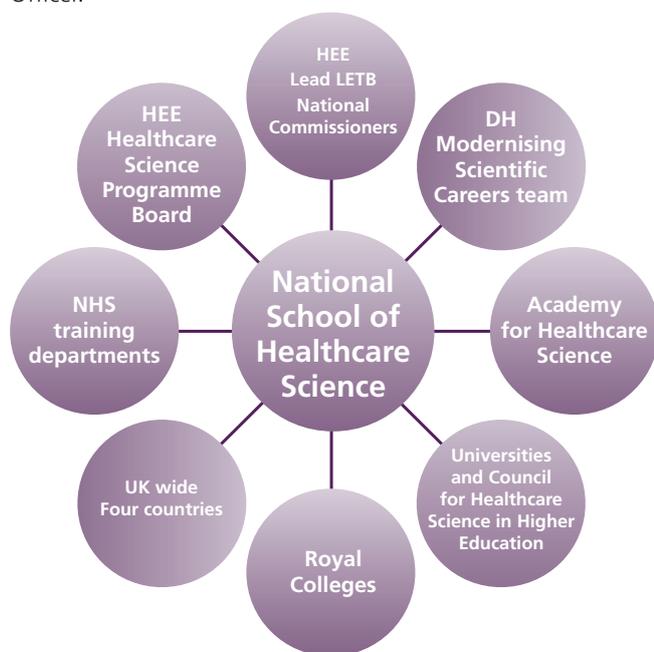
We will continue to support the implementation of programmes whilst at the same time planning evidence based evaluation of the different aspects of the training programme and the impact on employers and the NHS as they exit the programme and contribute to patient care.



E V Davison
Head of School

The School: Structure and Function

The School throughout the period of this report sat within the West Midlands Deanery and the main functional links and partnerships are shown below. The Governance for the School through that period was through the Deanery and the MSC England Implementation Board (EIB) to the Chief Scientific Officer.



Further expansion is planned for March 2013 as the School establishes its quality monitoring and management process, and expands the assessment and education function.

Functions

- Coordinate the implementation of MSC training programmes on behalf of DH
- Work in partnership with stakeholders to ensure excellence in healthcare science training programmes and outcomes
- Engage with health departments for Northern Ireland, Scotland and Wales, providing support in specified areas
- Provide specialist scientific advice on healthcare science work based education and training
- Manage national recruitment for the STP
- Develop training capacity by the provision of annual Train the Trainer programmes
- Advise on curriculum development and review
- Support departments in delivery of training and maintaining consistency in work based training environments, including support for rotational and specialist placements
- Provide an independent portal for trainee advice and support

- Deliver a quality assessment management programme to ensure the quality of training environments
- Liaise with Universities to ensure combined approach to education delivery
- Manage the on-going delivery of the genetics pilot for MSC and integrate learning from the project into future education programme delivery.

National School of Healthcare Science Board

The School is governed by the School board which has responsibility for:

- Assuring the quality of education and training
- Ensuring that the MSC training programmes conform to national training standards
- Approving policies and procedures, ensuring that these reflect the strategies and national policy
- Providing strategic advice on the requirements of future commissioning for healthcare science
- Links with workforce planning and commissioning educational programmes.

The membership of this board consists of a number of key stakeholders with specialist knowledge and experience in education and training. The Chair of the Board is Stephen Welfare, Managing Director, East of England Local Education and Training Board (LETB). A full list of members is available in Appendix 1.

Membership of the group is reviewed regularly and additional key stakeholders invited to ensure appropriate representation and governance for the School is maintained.

Agenda items debated, actioned and approved by the Board in 2011 included:

- Policy for trainees in difficulty
- Quality assessment and management policy
- Strategy for work based assessment and publications database
- Constitution of the themed boards
- Academy for Healthcare Science in relation to education and training
- Trainee progression
- Recruitment of trainees
- Genomics education programme
- Communications strategy
- Governance and commissioning
- Trainee feedback.

Themed Boards

The five themed boards provide expert advice and support for the specialist areas of training across healthcare science:

- Medical Physics and Clinical Engineering
- Blood and Infection Sciences
- Cellular Sciences and Genetics
- Cardiovascular, Respiratory and Sleep (CVRS), Gastrointestinal Physiology (GI) and Urodynamic Sciences
- Neurosensory Sciences.

Themed board membership includes a wide spectrum of key stakeholders relevant to each individual division. A complete list of themed board membership is available in Appendix 1.

The remit of the themed boards are to:

- Provide a forum for all stakeholders to ensure a collaborative and cohesive approach to training
- Support implementation of the programmes
- Review progression of trainees
- Ensure quality and standards of the training are maintained across the specialisms.

The chairs of the themed boards report any advice and recommendations to the main School board.

The themed boards have met twice to date and identified key issues for the School which include:

- Increased communication around academic versus work based time allocation for training
- The School has launched a programme of regional Train the Trainer events to ensure each training placement is fundamental to the successful outcome of the STP. You can read more about our Train the Trainer programmes on page 18
- There were conflicting views on the time that should be spent on rotational elements of the programme. The School has collected evidence on the amount of time spent on different rotational elements

- There were specific concerns that not all in service trainees are being allocated sufficient time to undertake the rotational part of the programme
- Improved communication with Universities and work based education providers
- This work continues throughout the themed boards and all Universities now organise regular meetings with the departments all of which are supported by the School
- Through national and local links to inform healthcare science strategies so as to have clear understanding of how workforce planning informs trainee numbers.

Supporting Universities via the Themed Boards

The School works in partnership with those Universities providing the taught MSc element of the STP.

A total of eight education providers have been procured to deliver the MSc academic master's programmes that supports the STP. This was achieved via an open competitive tender, against a nationally agreed specification that had been mapped against the required accreditation criteria for the STP. All education providers are accredited to deliver their academic master's programme and undergo regular contract and quality assurance reviews throughout the year culminating in an annual formal quality review.

The following map shows Universities accredited to deliver the MSc element of the STP.



In March 2012, the School working in partnership with the national commissioners brought all of the University partners and providers of the work based training together. Workshops were organised on a divisional basis and enabled the initial contact and discussion of how the Universities would work with the NHS education providers.

The School has developed close links with all of the eight Universities providing accredited MSc courses.

Lead Commissioner

NHS West Midlands continued its role as lead education commissioner for MSC during the 2011/12 academic year, with an initial focus on the STP.

Working with the other SHAs in England, the number of trainees needed nationally across all seven themes of the STP was scoped to ensure the supply of appropriate quality education existed to deliver the academic master’s element of their training programme.

A total of 177 national scientist trainees started their academic master’s programme in autumn 2011. By autumn 2012, this had increased to 407 and will increase annually as the programme runs for three years.

Working with scientific and SHA colleagues from other SHAs and the national MSC team, the commissioner completed a successful procurement of seven Universities in 2011 to deliver the themed academic master’s programmes. An additional education provider was procured in 2012 to accommodate the increase in numbers of cardiac trainees required.

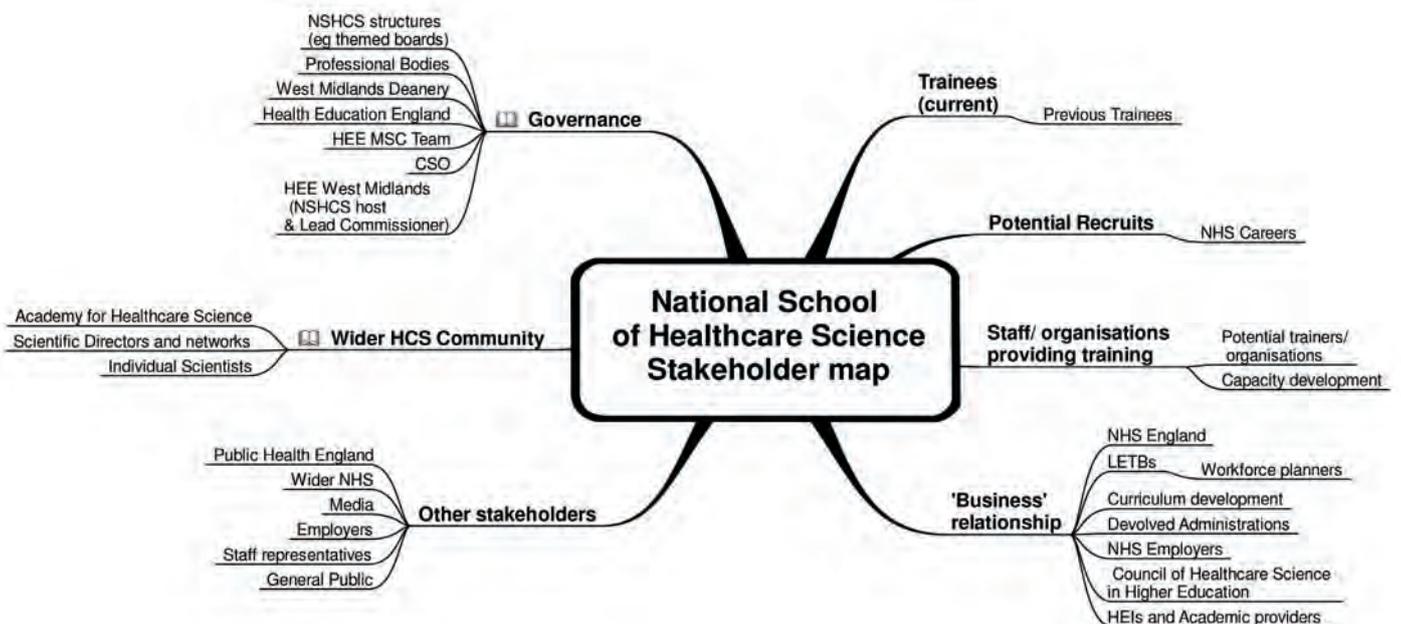
During 2012, NHS West Midlands implemented a tri annual academic contract and quality review process in line with nationally agreed quality assurance principles. The inaugural round of meetings focussed on: academic achievement of the 2011 cohort of trainees; the outcome of their feedback on programme development; curriculum development and delivery plans; a review of the number of trainees that had left the programme and assessed the communication between training centres and Universities.

The outcome of the summer 2012 contract and quality review meetings showed that the 2011 cohort had performed well in the academic component of their programme and that student feedback had positively influenced curriculum content and delivery for cohort two.

Communications

The School is still in relative infancy in terms of the education of healthcare scientists, therefore communication is a crucial part of the School’s work to ensure that dissemination of information reaches the relevant audiences. We have established platforms to ensure all communication is timely and appropriate.

This stakeholder map shows the relationships the School has with its wider partners.



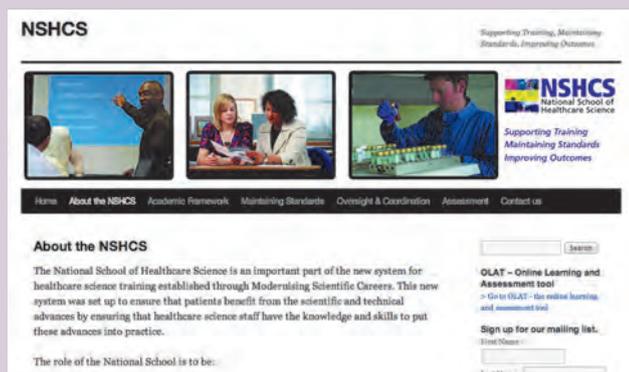
Direct Contact

The School attempts to keep in regular contact with all trainees, trainers and its various stakeholders informing them of updates and latest news regarding the training programme and healthcare science.

Trainees receive an initial welcome from the Head of School outlining what the trainees should expect while they are on the programme. The School's expectations of the trainee including attendance at University and in their local departments are also indicated, in addition to other essential information. This early communication is to encourage the trainee, acknowledging that the training programme is challenging but that it is a great opportunity to take advantage of and enjoy.

Website

A website www.nshcs.org.uk was launched at the National Healthcare Science meeting in London in March 2012.



The website provides an overview of our services and policies. Visitors to the website can also find policies, updates and information for those in training, those providing education and those seeking general information about training programmes. The website gets an average of over 2,000 unique visitors a month mainly from the UK but also from as far as Pakistan and Brunei.

Work is currently underway to further develop the website to ensure we continue to build and increase awareness of the work of the School.

The following graph from Google Analytics shows the number of visitors to the School website during September 2012.



Promotional Post Cards

Promotional post cards designed to increase awareness of the School were distributed to all attendees at the National Healthcare Science meeting in London in March 2012. The post cards were subsequently distributed to all training departments. We continue to use the postcards at all School events and external conferences.

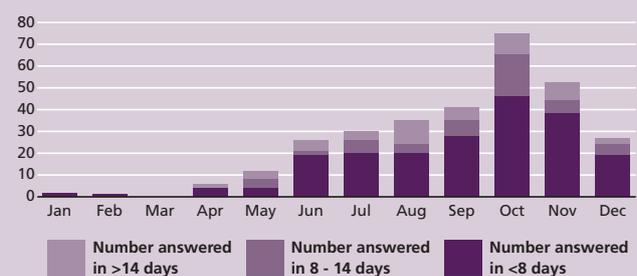


Queries Received in 2012

The School has an open email enquiry where departments, trainees, training officers, Universities and potential trainees can email for information. All enquiries are logged and responded to by the most appropriate member of the School. The programme office has now established a system to log the response rate and this is reviewed monthly at the senior management meeting.

The chart below illustrates the number of queries received in 2012 and the response rates.

Number of days taken to reply to queries in 2012



Events and Conferences

Our professional leads continue to speak at many national workshops, events and conferences. This is an indicator of quality and an opportunity to raise awareness of Modernising Scientific Careers and its positive impact on healthcare science.

In order to support the recruitment process we have also attended careers fairs and have been delighted with the increased awareness of the STP and the demand for information on how to successfully gain a place on the programme. We aim to build on these successes and continue to widen our methods of communication.

The Genetics Pilot Educational Programme

The genetics pilot started in October 2009/10, the principal aim was to model the development of systems and processes required to implement the MSc training and career framework, using genetics as the pilot for the Practitioner Training Programme (PTP) (two years training) and STP (three years training).

The launch of the pilot received coverage in broadsheet newspapers who described the programme as ground breaking.



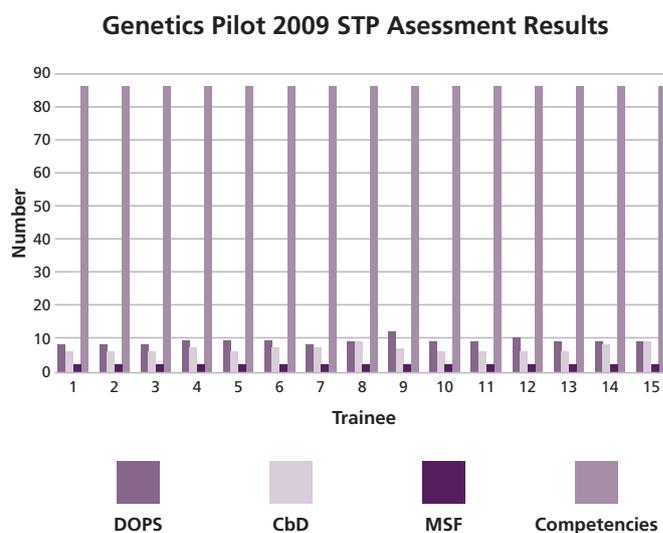
The academic provider for the MSc was the University of Nottingham and an independent external evaluation of the project was commissioned from the University of Warwick. The first cohort of practitioners exited the programme in 2011 and have been employed in various healthcare settings, including working on the CR-UK Stratified medicine programme and the Evaluation of Array Comparative Genomic Hybridisation in pre-natal diagnosis (EACH) study. Two practitioners were subsequently recruited to the STP in 2012.

In the STP the MSc research projects were of a very high standard with topics varying from the development of digital Polymerase Chain Reaction (PCR) for free-fetal DNA analysis and application to non-invasive prenatal diagnosis of an X-linked monogenic disorder to next generation sequencing application for a heterogenic disorder: a pilot study on inherited peripheral neuropathies. The projects were all fit for the new genomics era. The trainees presented their work at the University of Nottingham in September 2012.

The trainees successfully attained their master's degrees all achieving a merit or distinction.

In October 2012 all 15 pilot trainees successfully completed the STP. They had completed the assessment of the work based component of their training and had all met a satisfactory standard in the final Objective Structured Final Assessment (OSFA) held in August 2012. This type of final assessment will now be rolled out to all of the other scientific disciplines.

The following graph depicts the genetics pilot trainees assessment results.



As the first trainees to experience the new training programme and exit successfully, they have contributed to many national training events and have shared their experiences with new trainees from all disciplines. Their training in communication skills is very apparent. They also contribute significantly to national committees; Rebecca Franses is a member of the National Healthcare Science Programme Board and Philip Twiss is a trainee representative on the national HSST oversight board.



The final external evaluation report from the University of Warwick has commented on the contribution of this educational pilot to MSC.

“The extraordinary contribution of the genetics pilot is the manner it has introduced the concept of MSC so effectively into the genetics profession and beyond. From advertisement to induction, from assimilation to assessment, trainees, trainers and board members alike have had a real sense that they are on a national programme with an excitement, a momentum and a unified purpose.”

It is clear that the genetics pilot work contributed a huge amount to the development of training delivery for healthcare science with many lessons learnt and subsequent changes made to the programme, but the underpinning structure and ethos has been firmly established. MSC is indebted to the work of the genetics Professional Bodies, trainers and trainees in delivering a successful pilot programme.

Lessons learnt during the genetics pilot.



The following quotes are from employers and trainees:



*Catherine Delmege
Training Officer and Principal
Clinical Scientist
Bristol Genetics Laboratory*

“Output of this training pilot is highly motivated, enthused and proactive scientists with a strong sense of what they can offer a rapidly evolving genetics service and the changing role of diagnostic testing in the NHS.”



*Hayley Bennett
STP Trainee
Birmingham Women’s Hospital*

“My experience of the training programme was a brilliant one. I really enjoyed learning so many different techniques and found that the Practitioner Training Programme gave me an excellent skill and knowledge base to move onto the Scientist Training Programme.”



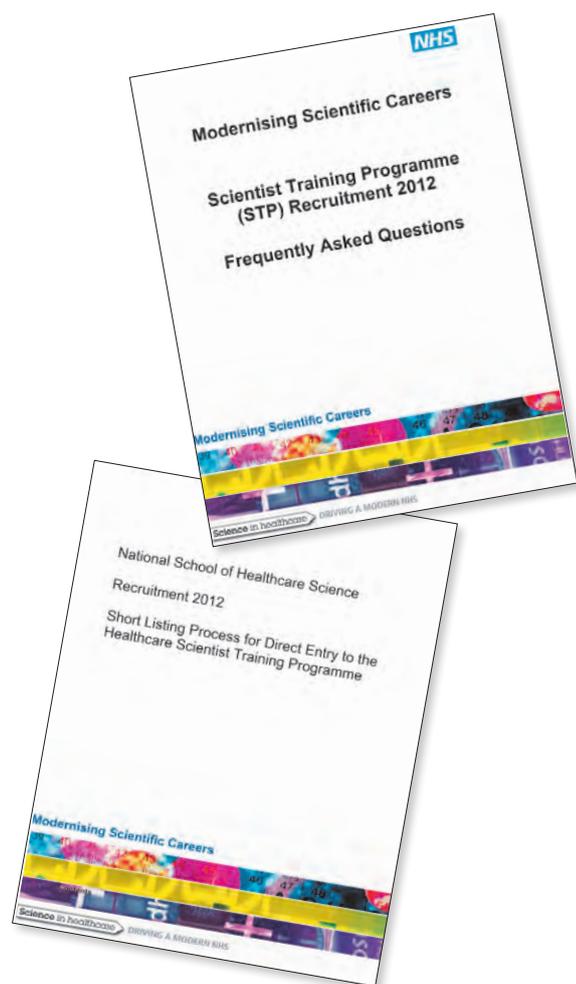
*Polly Talley
Principal Clinical Scientist
Sheffield Children’s NHS
Foundation Trust*

“I thought you might be interested to know that we now have two STP trainees working in specific services covering both cytogenetic and molecular genetic analysis, interpretation and reporting. I have been extremely impressed with how both of them have picked up their new cross discipline roles with such ease. This is a credit, not only to them, but also to the success of the MSC scheme. They have truly excelled as trainees that really can be placed anywhere within the service and have the background and expertise to hit the ground running!”

National Recruitment to the Scientist Training Programme 2012

The national recruitment process for the STP was carried out by the School in partnership with the NHS Institute for Innovation and Improvement and the MSC team at the Department of Health. The process was overseen by a steering committee which included representation from NHS Employers and Unite.

To support applicants and employers, a series of key documents and resources were produced and made available on the School website:

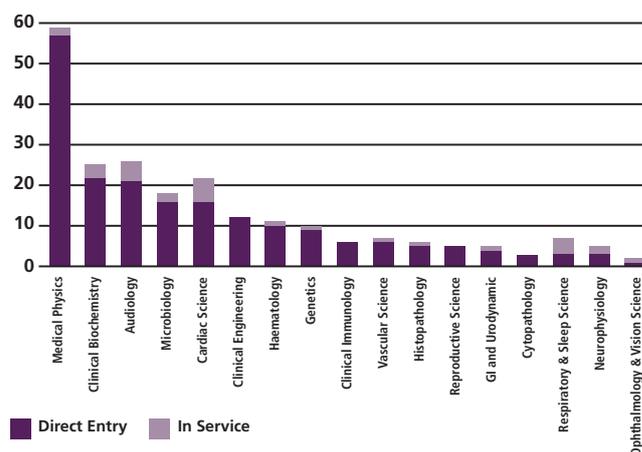


- Frequently Asked Questions
- Job Description and Person Specification
- In service Guidance Document
- Short Listing Process for Direct Entry to the Healthcare Scientist Training Programme
- MSC recruitment process guidance for the 2012 intake
- Healthcare Scientist Training Programme Recruitment Process
- Summary for 2012 For Direct Entry candidates
- Healthcare Scientist Training Programme (STP) Recruitment Process Summary for 2012 For In Service Applicants Only.

Posts Available

There were 231 STP posts available across all specialisms, comprising 201 direct entry and 30 in service candidates. The latter are NHS employees sponsored by their employer and their SHA to undertake the STP to fulfil a workforce need.

Number of Trainees per Specialism



Candidate Selection

A bespoke online application tool was designed and implemented for the STP recruitment process, for both direct entry and in service candidates. The application process included:

- Numerical and logical reasoning aptitude tests scored using an automated online system
- Long listing questions designed to determine that candidates were appropriately qualified and were suitable for this training programme
- Four sections exploring scientific and leadership skills and motivation for applying to the programme
- Shortlisting by national panels of senior scientists, followed by interviews.

"I think the application process worked well. The questions in the application covered relevant areas, they were challenging, but that is necessary in applying for a job like the STP. Again, I found the online tests appropriate but I found that I ran out of time in them."

Anna Chilcott, STP Trainee, Medical Physics

Interviews

The interview process is based on established methodology which has been evaluated and recognised as a proven method for selection of the best candidates.

- Each candidate progresses through four interview stations, each station had two interviewers
- The questions used at each station were designed with input from the relevant Professional Bodies and senior scientists, covering leadership and motivation skills, general scientific skills and understanding, and two stations devoted to knowledge and understanding of the specialism
- All interviewers also scored the candidate for their communication skills.

Average scores from the panels were used to rank applicants and a threshold set to select the required number of highest scoring applicants to fill the places available.

“The interview is unlike any interview I have attended, it can easily be likened to speed dating with a medical physics theme. But for me the interview worked, you got four chances to prove yourself and present your knowledge...”

Ellis Marshall, STP Trainee, Medical Physics

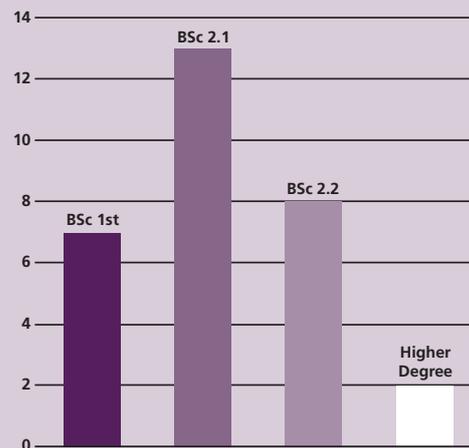
The 2012 recruitment process from application through to appointment.



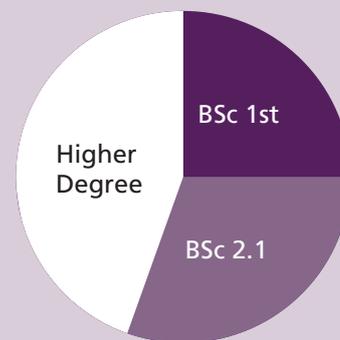
Qualifications of Successful STP Candidates

The MSC programme is committed to attracting the best candidates. The majority of direct entry candidates had either a 1st class degree or a higher degree. The academic qualifications for in service candidates are similar.

In Service Qualifications

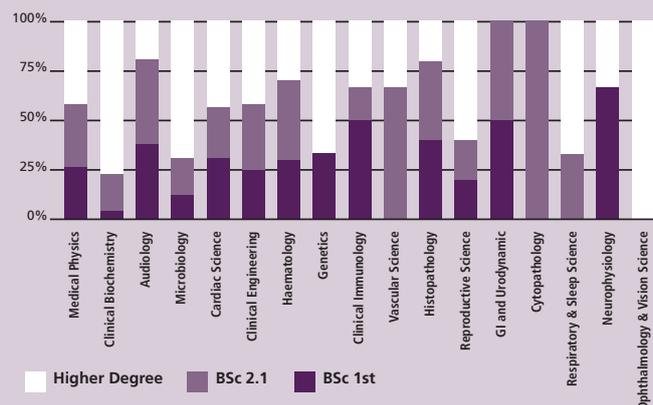


Direct Entry Qualifications



Scientist trainees in genetics, neurophysiology and ophthalmology and vision science all have a 1st class or higher degree, although the numbers are extremely small in these groups. The largest numbers of trainees with these qualifications are found in medical physics and clinical biochemistry.

Direct Entry Qualifications by Specialism



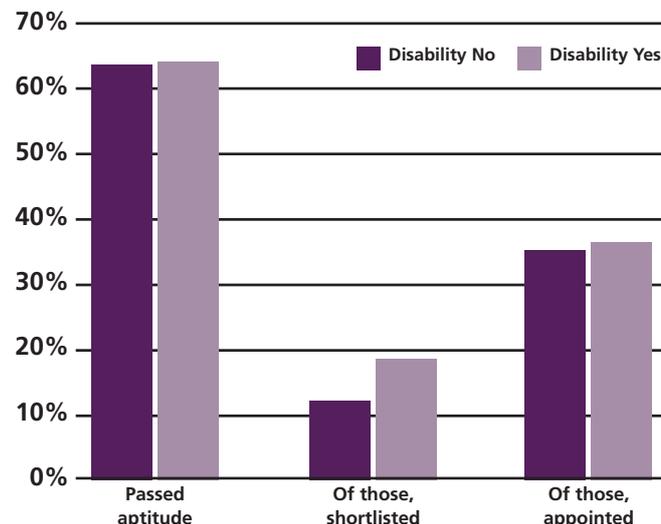
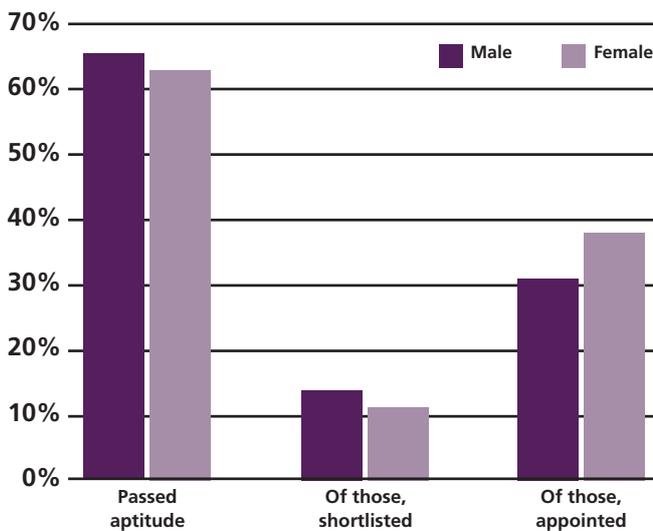
Review of Diversity Monitoring

A dataset containing information on all the applicants was analysed to assess the outcome of the 2012 STP recruitment process. The aims were to:

- Establish a baseline for future recruitment processes
- Determine whether any systematic bias could have been present
- Learn lessons to improve future recruitment cycles.

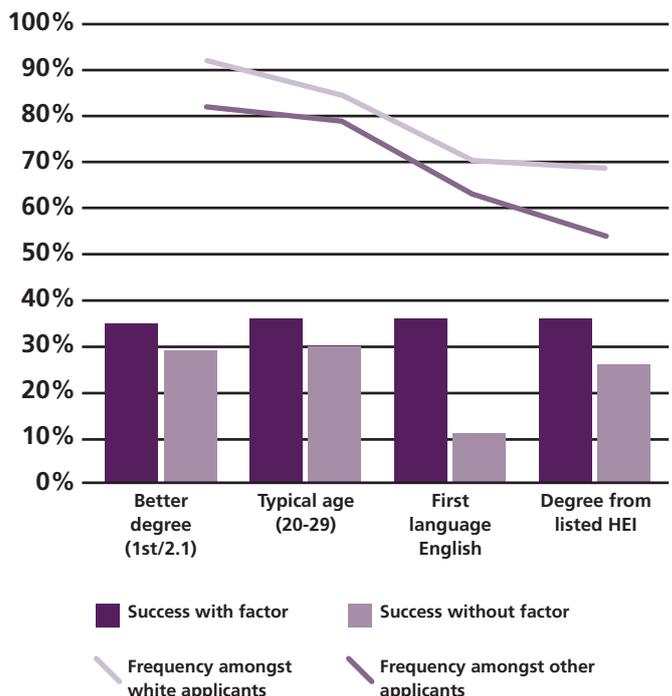
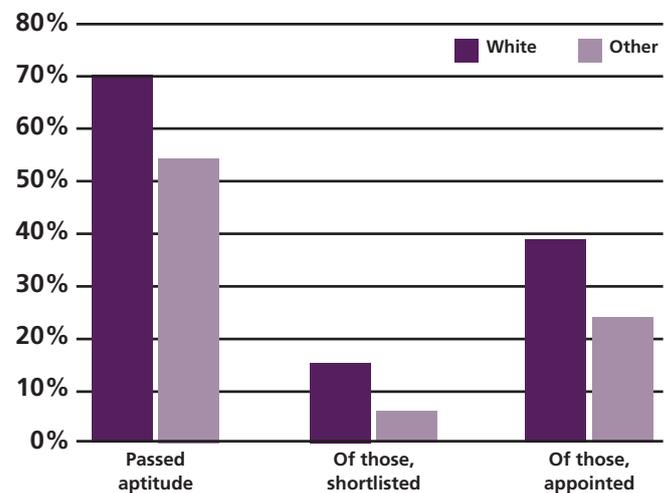
Standardised equality and diversity data was collected for all applicants, although not all applicants chose to provide the information. The data collected were: gender, disability, age (in bands), sexual orientation, and ethnic origin.

Approx 64% of applicants were female, and 63% of posts were filled by female applicants. There is no evidence of any significant gender bias at any stage. After passing the aptitude tests men were slightly more likely to be shortlisted (14% vs 11%), and after shortlisting women were slightly more likely to be appointed at interview (38% vs 31%).



Similar results were seen for age and sexual orientation. However, there were clear differentials in success rates amongst different ethnic groups, requiring further investigation. The small numbers in many groups make analysis difficult, and success rates appear broadly similar for most black and minority ethnic groups, so the data was grouped into white and other applicants for further analysis.

Approx 32% of applicants were from a black and minority ethnic background, but only 9% of posts were filled by candidates from this group. Markedly different success rates were seen for the aptitude tests (70% vs 54%) and then for shortlisting (15% vs 6%). Moderately different success rates were also seen for applicants reaching the interview stage (38% vs 24%).



To further investigate the differences seen at interview, the full data set was analysed to identify any objective factors which were predictive of overall success at the interview stage. Four factors were identified: having a better class of degree (1st/2.1); being of typical age for a postgraduate training programme (up to 29); having English as a first language; and having a degree from a UK University in the drop-down list provided for applicants. The overall effect on success at the interview stage for each of these factors ranged from moderate to marked, and the analysis also showed that each of these factors was correlated with ethnicity.

The School board has studied this data and made the following recommendations:

- a) Future recruitment cycles should be analysed in the same manner, to assess trends
- b) It is essential that the shortlisting process continues to be anonymised
- c) Advice should be given to shortlisting panels to ensure that all information provided by the applicants is assessed objectively against the person specification
- d) Applicants should be encouraged to complete all fields to provide the fullest information about the diversity of the applicant population. They should be reassured that this information will form no part of the selection process
- e) A detailed analysis of ethnicity should be implemented for future cohorts, to assess any effects in isolation from confounding factors
- f) Advice should be given to interview panels to ensure that communication skills are assessed objectively against the person specification.

Working with the Trainees - Trainee Survey

The School constantly works to ensure the trainees have a good learning experience and seek their opinions regularly. Below are the results of a survey conducted in 2011 regarding their experiences on the programme.

What The Trainees Are Telling Us

The School initiated an online survey after the first rotational period of training to provide baseline information about the new education and training programme for healthcare scientists.

Questions were limited to five main areas and trainees were given two weeks to respond:

- Relationship with University
- Experience of clinical rotation
- Relationship with training officer
- Balance between academic and work based training
- Experience of Online Learning and Assessment Tool (OLAT).

Trainees were also asked to give their overall impression of the STP.

The results were analysed across the whole programme and by specialism and include specific comments by trainees.

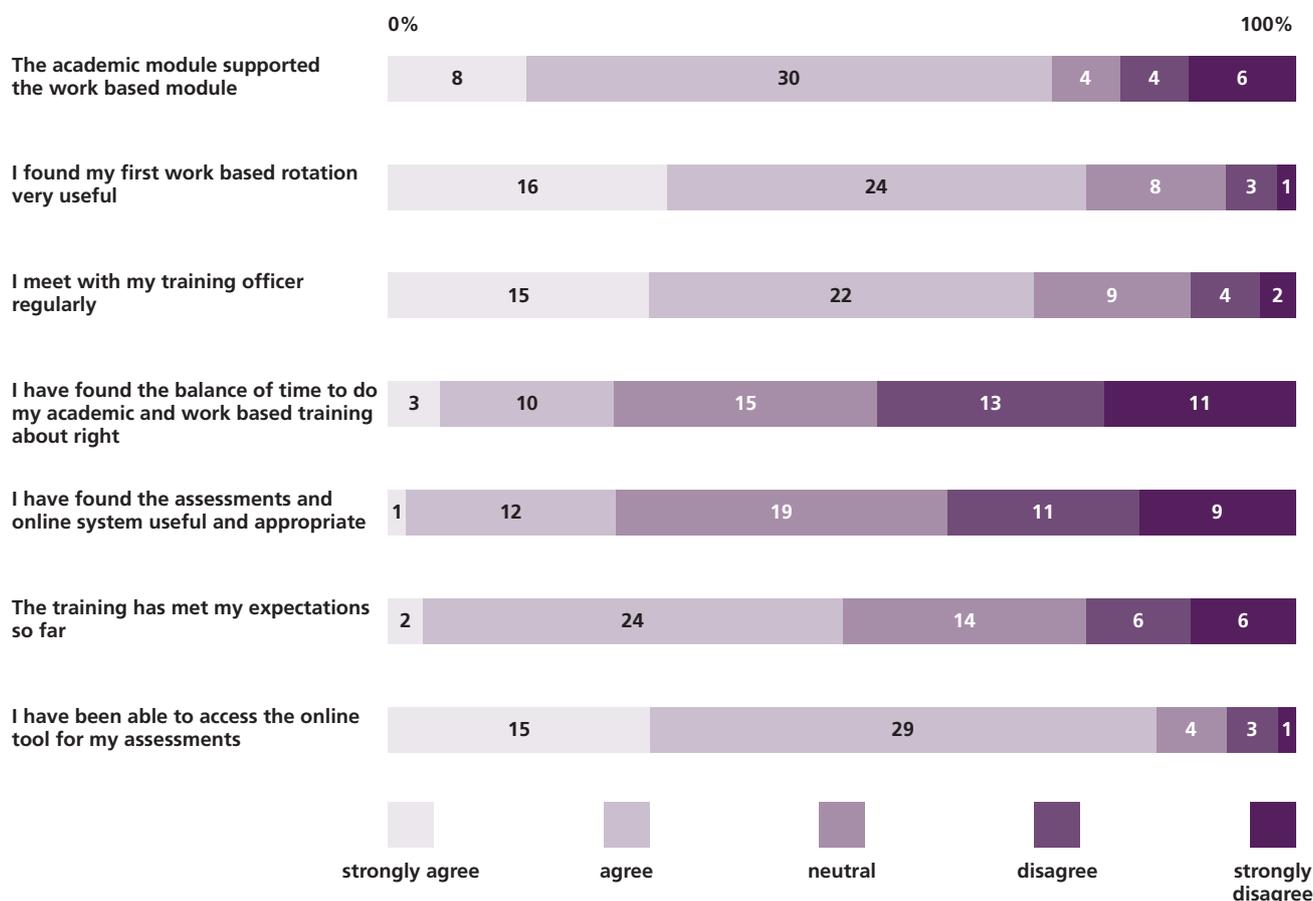
The results have been fed back to trainees and training officers at the Chief Scientific Officer's event on 30th April and 1st May 2012 and at various local meetings and are posted on the School website.

129 out of 169 trainees responded giving >75% response rate. Actual numbers of respondents are shown in figures on each bar graph segment.

The format was designed to be easily reproducible so that the exercise could easily be repeated later in the year and results would be directly comparable to see if there has been any improvement based on actions taken by the School.

Results:

The following chart shows a summary of the responses.



Most trainees appear to be satisfied overall with their first rotations but there were significant concerns from about 10% of trainees.

“I am excited to be on the STP programme and am looking forward to a great career in healthcare science.”

Good comments were received about rotations, academic structure and networking, although this aspect was more difficult where courses were delivered mainly as distance learning.

“Meeting and getting to know other trainees from across the country was very useful.”

The main challenges arose when learning guides were not ready or inaccurate; access to the OLAT was difficult, general workload e.g. the number of competencies in rotations and lack of awareness of MSC by NHS staff.

“My training officer doesn’t seem to be aware of the requirements of the training.”

However this was not uniform.

“I have had regular meetings with my training officer to structure my time and discuss the clinical and practical aspects of the work that I might otherwise not cover.”

The balance of academic and work based elements was a challenge across all specialties:

65% of Blood Sciences
40% of Cellular Sciences
64% of Neurosensory Sciences
43% of CVRS (only 15% agreed!)
28% of Medical Physics

An average 17% of trainees don’t feel they have regular contact with their training officer and the training of supervisors in the departments used for rotations needs to be addressed.

There were also initial problems with the access through NHS IT systems to the OLAT system.

The results have been analysed by specialism and this can be seen on the School website www.nshcs.org.uk

What Happens Now?

The School’s themed boards have considered the results of the survey and an action plan of work has been developed:

- Feedback results of survey to trainees and training officers
- Run training sessions for new trainees and training officers
- Improve communication with departments, especially with smaller specialties ensuring more information is made available on the School website including videos, rotations and examples of material suitable as evidence for assessments
- Work with Universities where trainees are unhappy with master’s courses - ensure two-way communication with Universities at themed boards
- Improve balance of academic work and rotations - work with Universities to standardise course versus work based elements
- Review learning guides to ensure appropriate workload - ensure standard number of assessments and competencies
- Improve performance of the OLAT including connectivity which was replaced in summer 2012 to run on an NHS compatible N3 IT system.

Supporting Departments and Staff Providing Training

Training the Trainers

The quality of each training placement is fundamental to the successful outcome of the STP. It is therefore important that trainers who will be responsible for trainees are aware of the underpinning philosophy of MSC, educational styles, assessment methods and tools.

“It is the expertise of my trainers and their understanding of the workload of the scheme that I believe has really made a difference to my training experience. I think the real draw of the programme for any candidate, in addition to the reward of being part of the patient care pathway, is the ability to train and learn in a specialist scientific area and obtain both an academic qualification and registration as a clinical scientist in the process.”

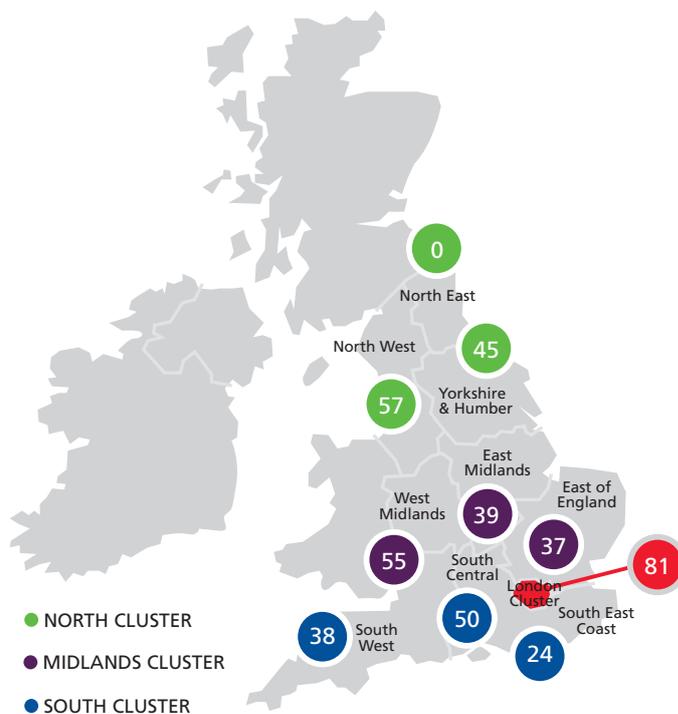
Laura Ions, STP Trainee, Genetics

In order to meet this objective, the School has put in place arrangements to train workplace trainers. The strategy ensures trainers work to national standards and that they provide the best possible training support for trainees and other colleagues involved in rotation.

In 2011 we worked with MSC SHA Leads to establish training needs across the country. As a result over 400 people received training on 30 dates across England. An external company, Life Associates Consulting, was commissioned to deliver the training on behalf of the School. Sessions were delivered in London, South Central, North West, South East Coast, West Midlands, Yorkshire and Humber, East Midlands, South West and East of England.

The following map illustrates the number of people trained and the locations where the training took place.

Number of trainers trained in 2011/12



Outcomes from the training delivered were:

1. To meet the train the trainer cohort and benefit from peer support from others undertaking the training
2. To be provided with a forum in which questions related to the training programme can be asked and answered
3. To be able to cascade the training received to other trainers within the departments delivering the training.

Content Covered

Introduction to MSC and the STP including:

- Overview of MSC
- Description of the training manuals (STP).

Introduction to the practical application of the STP assessment tools and online e-portfolio including:

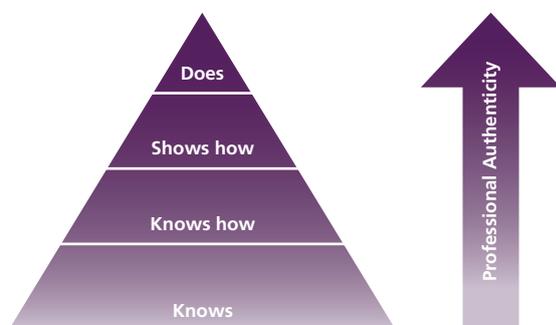
- Theory of assessment
- Practical application of assessment tools
- Online Learning and Assessment Tool.

Maintaining Consistency and Standards

Assessment Strategy

The modernised STPs have been designed from the outset to incorporate a structured approach to assessment, based on modern educational theory and underpinned by evidence across a wide range of healthcare professions. During 2012 the School has expanded the STP across all the healthcare science specialisms.

Working closely with the DH MSC team the School has developed a national assessment strategy which has been approved by the England Implementation Board, the Healthcare Science Programme Board (HCSPB) and the School Board.



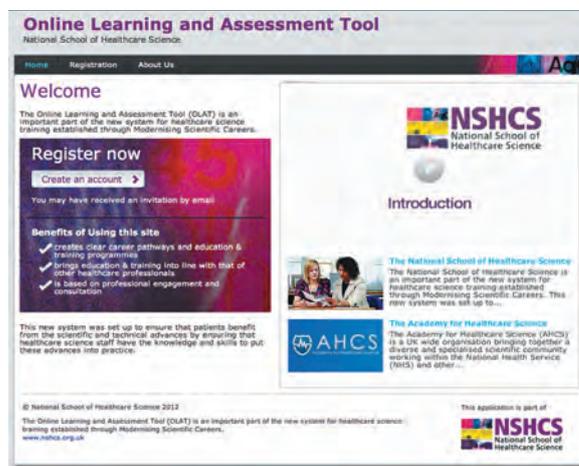
The close integration of academic instruction and work based training, using a common curriculum, helps to ensure that assessments of knowledge are complementary to assessments of skills and competencies. As the trainee progresses through the programme there is greater emphasis on performance, demonstrating both understanding and application in the clinical setting.

For the STP, assessment of knowledge primarily takes place in the University providing the MSc course, using traditional assessment methods which include multiple choice and written examinations. The assessment of skills primarily takes place in the work place, using assessment methods which include the direct observation of practical skills, case based discussions, reflective practice and competencies. Much of the assessment process is designed to promote learning, and each assessment can be considered to lie on a spectrum of increasing significance, ranging from simple 'low stakes' assessments, contributing relatively little to the final outcome, to complex 'high stakes' assessments which are more significant. During 2012 the School issued guidance on the number and types of assessment which trainees should complete at different stages during the programme.



The Online Learning and Assessment Tool

The OLAT, designed and developed by staff in the School working in partnership with the DH National Assessment lead DM Prof Lesley Southgate, is a key tool for all participants in the work based training process. For the trainee it provides an e-portfolio in which they record their progress, both in terms of competencies achieved and assessments performed. For the training officer it facilitates ready communication with trainees (who will often be working at other sites during their training) and provides a means of monitoring progress for their trainees. For the School and the professional leads it enables an overview of progress across a whole cohort, as well as identifying individual trainees who may be in need of assistance.

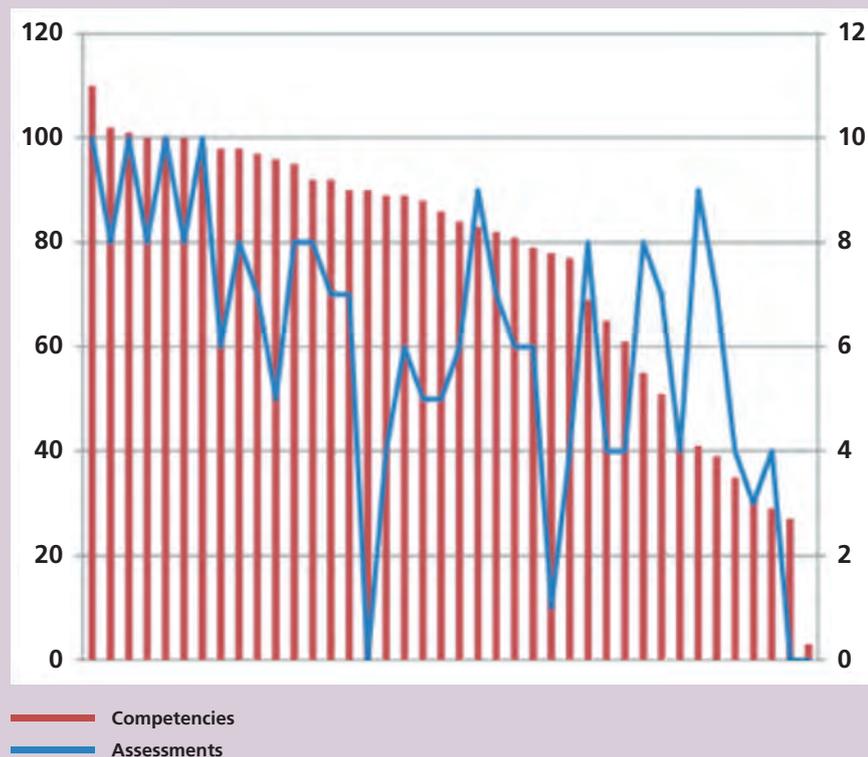


During 2012 the School oversaw the procurement and installation of a new OLAT, designed to provide an improved user interface and capable of being expanded to deal with anticipated future programmes. The new tool is readily accessible via web browsers and from within NHS networks, and provides online assistance, including video tools and documentation, as well as access to a helpline.

There are currently 500 trainees and more than 1,000 assessors registered to use the system. Further developments will include the incorporation of additional STP specialisms, and the provision of additional user types, to allow for regional coordinator roles.

Monitoring the Progress of Trainees

The primary responsibility for monitoring progress lies with the trainees themselves. However, all participants in the training process have roles and responsibilities which are linked and recorded through the OLAT. These range from assessors designated for the assessment of a single competency, to training officers in large consortia reviewing the progress of multiple trainees in several specialisms.



A key role for the themed boards is the regular review of progress for trainees in particular cohorts. Data presented to themed board members includes anonymised overviews of progress for both competencies and assessments, as well as more detailed reports on individual trainees who may be in difficulties or require more help.

During 2012 the School implemented an OSFA for the first time, for the genetics scientist trainees who had started the pilot project in 2009. There were 15 trainees who were assessed at nine stations covering a wide range of topics, and in varied settings which included conventional viva formats, clinical scenarios, telephone scenarios, and practical interpretation of results and clinical data. The OSFAs were observed by School staff not directly involved in the genetics pilot programme, and the lessons learnt will be implemented for the OSFAs across all specialisms. This is a major piece of work that will be carried out by a partnership of the Professional Bodies and the themed boards.

Providing Co-ordination and Advice Across Healthcare Science

Working with the Department of Health

The modernised STPs have been designed from the outset to incorporate a structured approach to assessment, based on modern educational theory and underpinned by evidence across a wide range of healthcare professions. During 2012 the School has expanded the STP across all the healthcare science specialisms.

Academy for Healthcare Science

In September 2012 the AHCS applied to become an education provider with the HCPC for all of the STPs. The School worked very closely with the AHCS in the preparation of the application and the inspection from HCPC. The successful application resulted in the AHCS being appointed an education provider giving all the scientists that successfully exit the training programme a route to become registered as a clinical scientist with HCPC.

The School continues to provide support to the AHCS in the development of an equivalence programme for all scientists in the workforce.

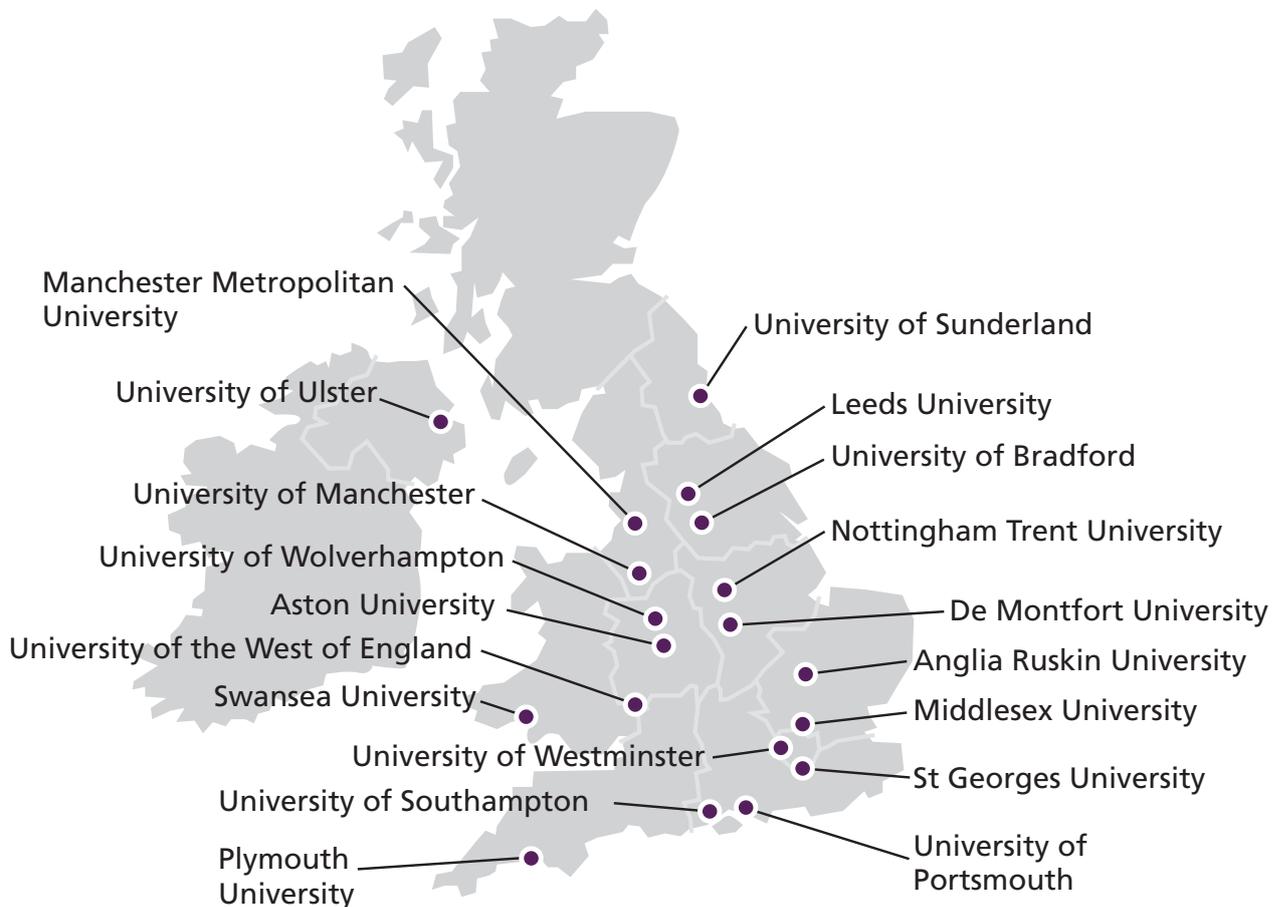
Development of Training Programmes

The Practitioner Training Programme

During 2012, working in partnership with the DH MSC team, there has been considerable scoping work to determine how the PTP is progressing nationally and to identify and address the key issues affecting successful implementation.

Currently there are 19 Universities offering 56 programmes for PTP.

PTP Higher Education Institutes (HEIs)



The key areas that the School will be working with the DH on over the next year are:

- Marketing and promotion
- Funding
- Placement provision.

The School and DH MSC team met with Higher Education Institutes (HEIs) representatives in November to establish the requirements for the use of the OLAT for the assessment of the work based element of the PTP. There was overwhelming support for the introduction of the tool but further clarity is required regarding the governance of the information held on the system. This will be progressed through the Council for Healthcare Science in Higher Education.

Suggestions included the School providing information and national guidance to placement providers on NHS training – what is expected and how to provide a quality placement experience; the School hosting a national list of placement providers; the School working with the Council for Healthcare Science in Higher Education, PTP Special Interest Group and NHS providers as a ‘platform’ to enable models for training lower recruitment number specialisms to be explored on a national level.

MSC Career Pathway 2-4 Current Status

An apprenticeship framework at four levels is being developed, with the first three levels in final draft. These first three levels provide a flexible modular structure for development and qualifications at apprenticeship, advanced apprenticeship and higher apprenticeship level 4. The final stage will provide apprenticeship level 5 with integrated foundation degree.

The next steps include the establishment of working groups to take forward the draft implementation plan. It will address qualification approval with awarding bodies and professional bodies, delivery models with further education/private/higher education providers and pilot programmes and related developments. This will ensure compliance with national apprenticeships and MSC quality criteria. Work to finalise the structure for the foundation degree level will continue. Implementation will require flexibility and innovation in delivery, with collaborative arrangements, a range of delivery methods and the required 50/50 knowledge/competence development and assessment to comply with national apprenticeship requirements.

Accredited Scientific Practice

Accredited expertise at both practitioner and scientist levels was proposed in the Department of Health policy paper ‘Modernising Scientific Careers the UK Way Forward’ to ensure the appropriate underpinning of knowledge for developing new roles. The different levels being developed are:

- Accredited Additional Scientific Practice (AASP)
- Bachelors level
- Accredited Specialist Scientific Practice (ASSP)
- Masters level
- Accredited Expert Scientific Practice (AESP)
- Doctoral level.

A system will be introduced that is flexible enough to cope with the variety of specialist working that is carried out across healthcare science. For AESP a modular approach could be implemented for scientists to be credited by completing modules prepared for HSST, but without having to complete the whole HSST programme. The School will record the evidence for the competencies on OLAT in the form of an e-portfolio and award a certificate of completion ASP in a specialist area Certificate of Completion of Accredited Scientific Practice Competencies (CCASPC).

The Academy for Healthcare Science will hold a register of members achieving these qualifications.

Professions Under Development: STP and PTP

This MSC workstream recognises the need for education and training programmes for current and emerging healthcare science specialisms that did not immediately sit appropriately within the MSC career framework. The level, structure and content of each programme have been agreed during working group meetings with NHS professionals including representatives of Professional Bodies. The current position for 2013/14 is shown below. Currently being developed and delivered are

- Critical Care Science
- Clinical Pharmaceutical Science
- Clinical Bioinformatics
- Reconstructive Science
- Clinical Photography
- Clinical Perfusion
- Anatomical Pathology.

Higher Specialist Scientific Training Programme

The HSST is a five-year training programme. During training, trainees and their trainers will use the HSST curriculum to advance their learning, practice and performance and monitor progress by reference to the competences defined within it. The curriculum will allow trainees to take control of their own learning and to measure achievement against clear learning objectives. It will help the learner and educational supervisor maintain a regularly reviewed and updated education plan to ensure that all of the outcomes of the curriculum are met. Finally, the curriculum will facilitate regular assessment of trainees' progress by their trainers and confirmation near the end of training that those completing the HSST programme are fit for consultant clinical scientist practice.

“It is expected that trainees will learn in a multi-professional environment...”

It is expected that trainees will learn in a multi-professional environment with the opportunity to learn and work with students on other programmes in health and other professions, for example those following MBA, leadership, management and finance programmes.

It is important to note that the delivery of the curriculum in all its aspects will be dependent on achieving a funding and commissioning model for HSST programmes.

Healthcare Science – the Future

Predicting the future is notoriously unreliable, but there are several imminent developments which appear likely. Genetic profiling and genomics will have a major impact on all areas of healthcare and in particular on healthcare science. During 2013/14 the National Genetics Education and Development Centre will co-locate within the School and will play a key role in the genomics education programme.

Improved communications and development of microscopic sensors will facilitate enhanced point of care testing, with increased use of portable and home monitoring. Specific developments in the use of radiation will include low dose CT scanning, and particle beam radiotherapy. In all of these areas, and many others, the role of the healthcare scientist will be increasingly central to healthcare delivery.

One of the challenges for the School will be to ensure that educational programmes are reviewed and upgraded at appropriate rates, to match the increasingly rapid progress in scientific developments.



Appendix 1

National School of Healthcare Science Board		
Name	Role	Organisation
Sue Hill	Chief Scientific Officer/SRO MSC Programme	NHS England
Elizabeth Hughes	Postgraduate Medical Dean	NHS West Midlands
Stephen Welfare	Managing Director	East of England LETB
Val Davison	Head of National School of Healthcare Science/Scientific Director	National School of Healthcare Science
Barbara Lloyd	Professional Lead for Life Sciences	National School of Healthcare Science
Bernie Hannigan	Director of Research and Development and Chief Scientific Advisor to DHSSPS	Health and Social Care Board
Chris Gibson	Professional Lead for Physical Sciences and Deputy Head of National School of Healthcare Science	National School of Healthcare Science
Chilufya Dawo	Communications Manager/Business Support	National School of Healthcare Science
Christine Morrell	Scientific Officer (Pathology and Genetics)	Welsh Government
Colin Pavelin	Head of Genetics and Cell Transplantation Health Science and Bioethics Division	Department of Health
David Brettle	Head of Medical Physics and Engineering	St James's University Hospital
David Stirling	Healthcare Science Office	Scottish Government
Duncan Nichol	Chair of Academy for Healthcare Science	Academy for Healthcare Science
Gary Dakin	Strategic Lead	NHS London
Gary Owen	Union Representation	Unite the Union
Graham Wilson	Associate Professional Lead for Life Sciences	National School of Healthcare Science
Kerry Tinkler	Clinical Director	Academy for Healthcare Science
Jacky Hayden	Dean of Postgraduate Medical Studies	North Western Deanery
Jagjit Sethi	Professional Lead for Neurosensory	National School of Healthcare Science
Janet Monkman	CEO of Academy for Healthcare Science	Academy for Healthcare Science
Janice Stevens	Managing Director	West Midlands LETB
Jennie Bell	Deputy Head of Molecular Laboratory	Birmingham Women's Hospital NHS Foundation Trust
Keith Ison	Head of Medical Physics	Guy's and St Thomas' NHS Foundation Trust
Louise Lindsay	Business Manager	National School of Healthcare Science
Max Foster	Director of NHS Engagement	Department of Health
Nicky Fleming	Professional Lead for PTP	National School of Healthcare Science
Owen Crawley	Chief Scientific Advisor (Health)	Welsh Government
Peter Farndon	Director	National Genetics Education and Development Centre
Shelley Heard	Medical Advisor to the Chief Scientific Officer (England)	Department of Health
Sue Webb	Director of Workforce Development	NHS South of England
Theresa Fail	Professional Lead for CVRS	National School of Healthcare Science
Tim Gilpin	Director of Workforce and Education	NHS North of England
Virginia Wykes	Director of Education, Training and Regulation	Academy for Healthcare Science
Vivienne Parry	Lay Representative	N/A
Wendy Purcell	Vice-Chancellor and Chief Executive	Representatives from main HEI Vice Chancellors
Helen Langton	Pro-Vice Chancellor and Executive Dean/PTP Special Interest Group Chair	Council of Healthcare Science in Higher Education
Suzanne Cholerton	STP Special Interest Group Chair	Council of Healthcare Science in Higher Education

Blood and Infection Sciences Themed Board

Name	Role	Organisation
Barbara Lloyd	Professional Lead for Life Sciences	National School of Healthcare Science
Graham Wilson	Associate Professional Lead for Life Sciences	National School of Healthcare Science
Val Davison	Head of National School of Healthcare Science/Scientific Director	National School of Healthcare Science
Frances Boa	ACB Education and Training Lead	ACB
David Vallance	Consultant Clinical Biochemist	ACB
Amanda Robson	Principal Clinical Scientist, Transplantation Laboratory	NHS North
Phil Padfield	Senior Lecturer	Manchester University
Berne Ferry	Consultant Clinical Scientist, Immunology Department	NHS South Central
Melanie Watson	Learning and Development Lead and PoCT Co-ordinator	NHS South West
Claire Seedhouse	Skillington Lecturer	Nottingham University
Chris Penfold	Course Director, Molecular Medical Sciences	Nottingham University
Kate Templeton	Education Committee and Consultant Clinical Scientist	Association of Clinical Microbiologists/NHS North
Kate Rolfe (Deputy to Kate Templeton)	Workforce Advisory Committee	Association of Clinical Microbiologists/NHS North
Claire Jenkins	Member of ACB	Association of Clinical Microbiologists/NHS North
Rob Shorten (Deputy to Claire Jenkins)	Clinical Scientist and member of ACB	Association of Clinical Microbiologists/NHS North
Katharine Hayden	Consultant Clinical Scientist	NHS North
Dan Smith	IBMS Council member	BBTS/IBMS
Mary Macdonald	Trust Professional Lead/Head Biomedical Scientist Microbiology	IBMS
Lucinda Hall	Professor of Molecular Microbiology	Barts and the London University
Armine Sefton (Deputy to Lucinda Hall)	Professor of Clinical Microbiology	Barts and the London University
David Stirling	Chair of the Science Sub-Committee	British Society of Haematology
Sheila O'Connor	Haematological Malignancy Diagnostic Service	NHS North
Jennie Bell	Deputy Head of Molecular Laboratory	Birmingham Women's Hospital NHS Foundation Trust
Mike Hallworth	Professional Group Chair for Blood Sciences	Academy for Healthcare Science
Kirsty Dodgson	Professional Group Chair for Infection Control	Academy for Healthcare Science
Tracy Thurgood	Head of Learning Delivery	NHS South
Anneke Seller	Consultant Clinical Scientist/Director of Genetics Laboratories	NHS South
Tiffany Daniels	Trainee	Central Manchester University Hospitals NHS Foundation Trust
Nicky Fleming	PTP Professional Lead	National School of Healthcare Science

Physical Sciences Themed Board

Name	Role	Organisation
Chris Gibson	Professional Lead for Physical Sciences/Deputy Head of National School of Healthcare Science	National School of Healthcare Science
Val Davison	Head of National School of Healthcare Science/Scientific Director	National School of Healthcare Science
Stuart Green	Director of Medical Physics	NHS Midlands & East
Cornelius Lewis	Head of Department of Medical Engineering & Physics	NHS London
Anthony Fisher	Director of Merseyside Training Consortium for Medical Physics & Clinical Engineering Head of Medical Physics & Clinical Engineering	Liverpool University
David Brettle	Head of Medical Physics & Clinical Engineering	St James's University Hospital
Alison Mackie	Consultant Medical Physicist and Clinical Director of Medical Physics	Newcastle University
Richard Lerski	Chair, Membership Committee	IPEM
Duncan Wood	Consultant Clinical Scientist	IPEM (Institute of Physics and Engineering in Medicine)
Mark Tooley	Consultant Clinical Scientist	Royal United Hospital Bath NHS Trust
Slavik Tabakov	Reader in Medical Physics and Director of MSC programme in Medical Engineering and Physics	Kings College
Azzam Taktak	Consultant Clinical Scientist	IPEM
Philip Mayles	Professional Group Chair for Medical Physics	Academy for Healthcare Science
David Gandy	Professional Group Chair for Clinical Engineering	Academy for Healthcare Science
Alan Thompson	Senior Clinical Technologist	Newcastle upon Tyne Hospitals NHS Foundation Trust
Jilly Croasdale	Chair of the BNMS Radiopharmaceutical Scientists Group	British Nuclear Medicine Society
Paul Maltby	Chairman BNMS Radiopharmacy Group	UK Radiopharmacy Group
Jason Watson	Consultant MPT Healthcare Scientist	NHS East Midlands/Maxillofacial Prosthetics
Matthew Gardner	Trainee	University Hospitals Birmingham
Nicky Fleming	PTP Professional Lead	National School of Healthcare Science

Cellular Sciences Themed Board

Name	Role	Organisation
Dr Barbara Lloyd	Professional Lead (Chair of the Cellular and Genetics Board)	National School of Healthcare Science
Dr Val Davison	Head of National School of Healthcare Science/Scientific Director	National School of Healthcare Science
Jane Moorhead	Clinical Scientist Advanced Diagnostics Histopathology	NHS South
Behdad Shambayati	Consultant Clinical Cytologist	NHS South
Allan Wilson	Lead Biomedical Scientist in Cellular Pathology and Advanced Practitioner in Cervical Cytology	NHS Scotland
Rachel Cutting	Principal Embryologist/Quality Manager	NHS North
David Eccleston	Senior Chief Biomedical Scientist/Manager in Cellular Pathology, Immunology, Mortuary and Bereavement Services	NHS North
Jennie Bell	Deputy Head of Molecular Laboratory	NHS Midlands & East
Nick Kirk	Pathology Manager	IBMS
Gordon McNair (Deputy to Nick Kirk)	Head BMS/Service Manager	IBMS
Andrew Usher	Professional Group Chair for Cellular Sciences	Academy for Healthcare Science
Andrew Green	Senior Research Fellow	Nottingham University
Lorraine Gaunt	Director of Regional Genetics Laboratories (CMFT)	NHS North
David Baty	Professional Group Chair for Genetics	Academy for Healthcare Science
Gerry van Schalkwyk	Consultant Histopathologist, Assistant Clinical Director and Foundation Programme Director	Royal College of Pathology
Nicola Monks	Senior Embryologist	NHS South West
Victoria Brown	Trainee	Sheffield Teaching Hospitals NHS Trust
Nicky Fleming	PTP Professional Lead	National School of Healthcare Science

CVRS Themed Board

Name	Role	Organisation
Theresa Fail	Professional Lead (Chair of the CVRS Board)	National School of Healthcare Science
Val Davison	Head of National School of Healthcare Science/Scientific Director	National School of Healthcare Science
Su Baxter	Head of Cardiology	Institute of Physiological Science
Teresa Robinson	Consultant Clinical Scientist and Head of Vascular Studies	Institute of Physiological Science
Joanna Shakespeare	Clinical Service Manager	Institute of Physiological Science
John Hutchinson	Lead Cardiac Physiologist	NHS Midlands & East
Beverley Gray	Head Physiologist	NHS South
Elisa Wraitham	Chief Clinical Physiologist/GI Physiology Manager	Association of Gastrointestinal Physiologists (AGIP)
Tracey Flemming	Senior Respiratory Physiologist	NHS London
Crispian Oates	Medical Physicist	Newcastle University
Chris Eggett	Senior Cardiac Physiologist	HEI
Helen Rimington	Professional Group Chair for Cardiac, vascular, respiratory, sleep, GI and Urodynamics	Academy for Healthcare Science
Ian Kay	Associate Head of School (MMU)	Manchester Metropolitan University
Andrew Hall	Treasurer and Co-Chairperson of the BSS Sleep Medicine Centre Accreditation Committee	British Sleep Society
Dave Edwards	SCCT Chair	Society of Critical Care Technologies
Victoria Waites	STP Trainee	Papworth Hospital NHS Foundation Trust
Sophie Coles	STP Trainee	Queen Alexandra Hospital
Jane Allen	Vice President	British Society of Echocardiography
Sophie Blackman	Physiologist Subgroup Representative	Heart Rhythm UK
Michael Lang	Deputy Head Respiratory and Sleep Physiology	ARTP Sleep
Martin Stout	Advanced Specialist Cardiac Physiologist	NHS North
Nicky Fleming	PTP Professional Lead	National School of Healthcare Science

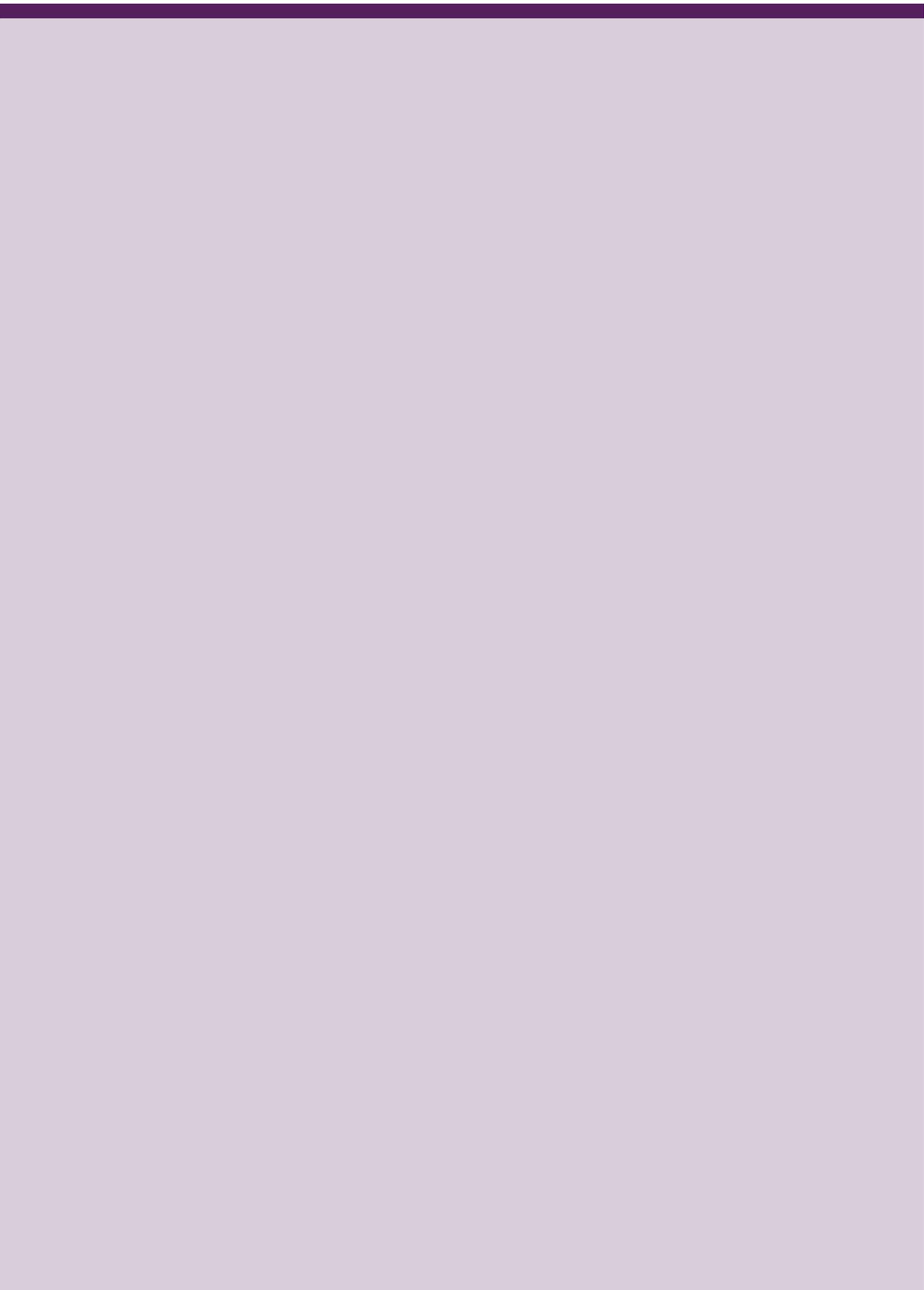
Neurosensory Sciences Themed Board

Name	Role	Organisation
Jagjit Sethi	Professional Lead and Chair of the Neurosensory Board	National School of Healthcare Science
Val Davison	Head of National School of Healthcare Science/Scientific Director	National School of Healthcare Science
Wendy Stevens	Chair of Education, Training and CPD Committee	British Academy of Audiology
Rachel Hutchings	Service Manager	Nottingham University Hospitals NHS Trust
Amy McLauchlan	Director of Clinical Education for Audiology	Manchester University
Amanda Casey	Director of Audiology Programmes	Aston University
Martin O'Driscoll	Consultant Clinical Scientist and Head of Audiology	Central Manchester University Hospitals Foundation Trust
Aimee Helliwell	Trainee	Central Manchester University Hospitals Foundation Trust
Kelly Bill	Clinical Service Manager in Neurophysiology	Worcestershire Acute Hospitals NHS Trust
Dorothy Thompson	Co-Director, Service Provision and Clinical Audit	Great Ormond Street Hospital
Laura Lea-Thomas	Clinical Physiologist	Great Ormond Street Hospital
Matthew Thomas	Head of Ophthalmic Imaging	Ophthalmic Imaging Association
Nick Thyer	Senior Lecturer in Audiology	University of Leeds
Ruth Thomsen	Professional Group Chair for Neurosensory	Academy for Healthcare Science
Nicky Fleming	PTP Professional Lead	National School of Healthcare Science

Appendix 2

Acronym Buster

- AHCS** – Academy for Healthcare Science
- CBD** – Case Based Discussion
- CVRS** – Cardiovascular, Respiratory and Sleep
- DH** – Department of Health
- DOPS** – Direct Observation of Practical Skills
- EACH** - Evaluation of Array Comparative Genomic Hybridisation
- EIB** – England Implementation Board
- HCPC** – Healthcare Professions Council
- HCS** – Healthcare Science
- HCSPB** - Healthcare Science Programme Board
- HEE** – Health Education England
- HEI** – Higher Education Institute (University)
- HSST** – Higher Specialist Scientific Training
- LETB** – Local Education and Training Board
- MSC** – Modernising Scientific Careers
- MSF** – Multisource Feedback
- NHS** – National Health Service
- NSHCS** – National School of Healthcare Science
- OLAT** – Online Learning and Assessment Tool
- OSFA** – Objective Structured Final Assessment
- PCR** - Polymerase Chain Reaction
- PTP** – Practitioner Training Programme
- SHA** – Strategic Health Authority
- STP** – Scientist Training Programme





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