

STP to HSST

The Clinical Scientist Journey

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Points to cover:

- Current challenges in Pathology and looking to the future
- The role of a Clinical Scientist
- Clinical Scientists in Microbiology – roles and responsibilities
- Routes into profession
- NHS Scientist Training Programme (STP)
 - What is the STP?
 - STP specialisms
 - Applications and Interviews
 - Structure of the programme and training requirements
 - First-hand STP experience
- Higher Specialist Scientist Training (HSST)
 - What is the HSST?
 - Application and Interviews
 - Structure of the programme
 - Curriculum and training requirements
 - First-hand HSST experience
- Challenges for STP and HSST
- Final points



My personal journey

Undergraduate
degree -
MBiochem

Laboratory
experience -
HCSAP

Trainee Clinical
Scientist – STP
(MSc)

Senior Clinical
Scientist – HSST
(*PGDip,*
FRCPATH Part 1)

Principal
Clinical
Scientist – HSST
(*DClinSci,*
FRCPATH Part 2)



Background and current challenges

– where are we now?

- NHS Pathology Networks
- Financial pressures and the risk of “silo-budgeting”
- Privatisation
- COVID-19



People

Multidisciplinary collaboration

Workforce investment



Processes

Laboratory Information

Management Systems

Automation

Transport

Streamlining and efficiencies



Technologies

Syndromic testing

Sequencing

Point-Of-Care Testing



Investing in People



EXPANDING COLLABORATIVE PROJECTS TO DESIGN AND DEVELOP INTERVENTIONS WITH ACADEMIC, CLINICAL, DIGITAL AND INDUSTRY PARTNERS.



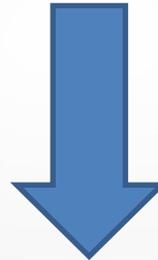
DIVERSIFY AND STRENGTHEN THE CURRENT WORKFORCE BY INVESTING IN TRAINING, QUALIFICATIONS AND WELL-BEING.



ENGAGE 'RESEARCH-ACTIVE' WORKFORCE



INVEST IN LEADERSHIP DEVELOPMENT



DRIVING FOR EXCELLENCE IN LABORATORY AND CLINICAL OUTPUTS



DIRECT RESEARCH TOWARDS THE QUESTIONS THAT NEED ANSWERING



IMPROVING PATIENT OUTCOMES AND PROTECTING PATIENT SAFETY



MOTIVATED AND ENGAGED WORKFORCE



The role of a clinical scientist

- DISCIPLINE-SPECIFIC!
- Bridge the gap between science and medicine
- Provide a clinical interpretation of laboratory results
- Research, develop and introduce novel testing strategies to improve patient experience
- Contribute to laboratory outputs including quality, CDP etc.
- Contribute to the Discipline's Clinical outputs
- Provide clinical advice

STP → HSST

We

care

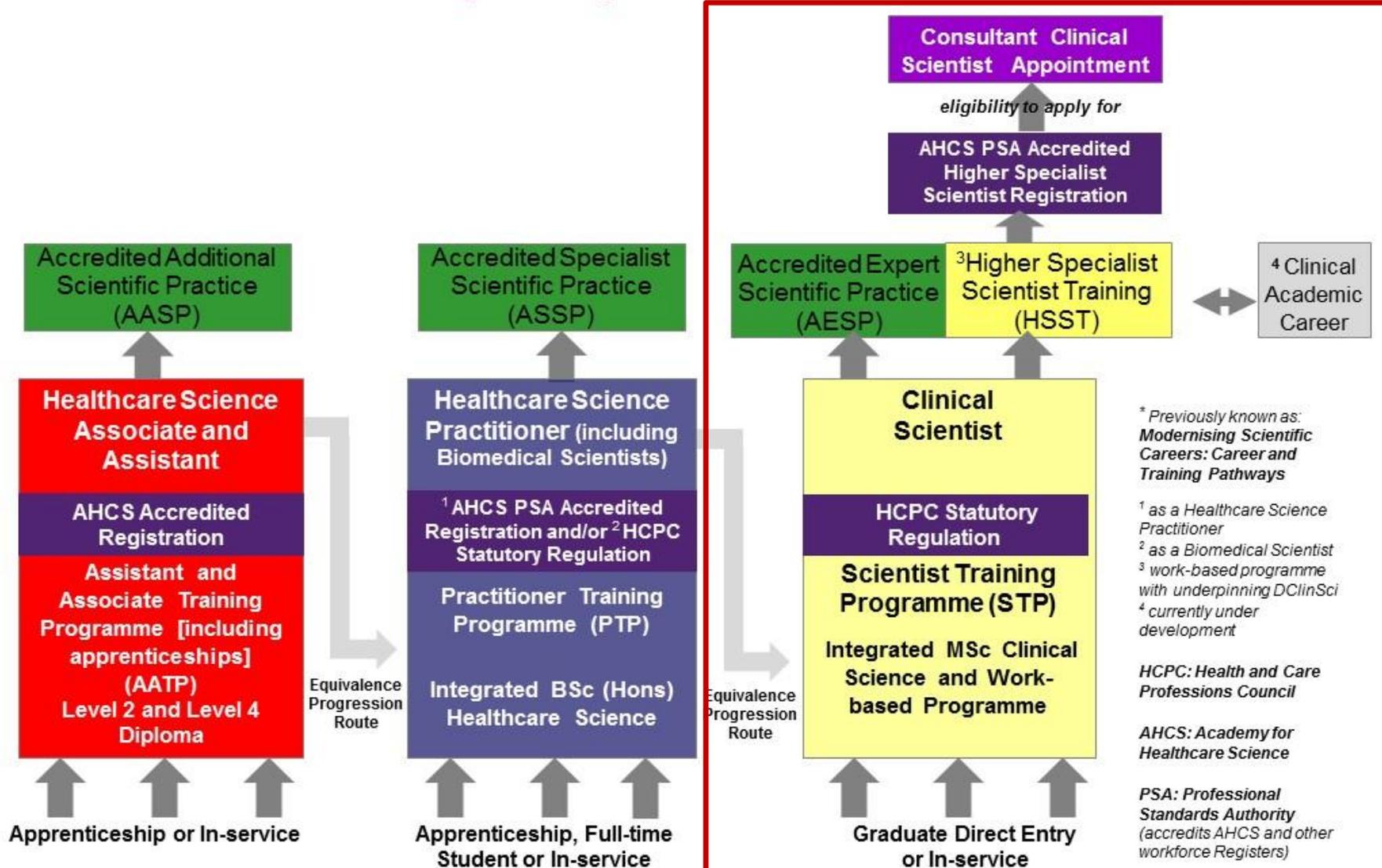
Clinical Scientists in Microbiology: why are they needed?

1. The role forms a vital part of the expanding Microbiology workforce
2. More robust and resilient workforce – ability to provide laboratory or (increasingly) clinical cover
3. Support the significant methodology and process changes seen over the last 5-10 years
4. Fill gap created in medical workforce by the training switch from Medical Microbiology to Infectious Disease Consultants
5. Work at the clinical/laboratory interface - ability to both appreciate what improvements are required and identify which will work in practice
6. Provide an additional layer of technical information to clinical discussions
7. Drive wider improvements in workforce through provision of CPD and dissemination of learning
8. Contribute to the wider clinical output of the department - represent the department at MDTs



Clinical Scientist journey

* Career and Training Pathways for the UK Healthcare Science Workforce



Direct-Entry vs. In-Service

- 2 ways to get onto STP and HSST
- **Direct entry** applicants apply themselves and are allocated places based on location preference and interview score – STP salary, training budget and HSST training budget funded by NSHCS
- **In-service** if you are employed already and your employer sponsors you to do the STP/HSST



What is the STP?

- NHS Scientist Training Programme
- 3 year training programme within the NHS
- Trainees are employed by an NHS Trust for the duration of the programme but on a **supernumerary** basis (direct entry only)
- Funded by the **National School of Healthcare Science**
- Band 6, fully-funded MSc (Clinical Science)
- HCPC-registered clinical scientist

STP specialisms

Life Science

- Andrology
- Clinical Biochemistry
- Clinical Bioinformatics (Genomics)
- Clinical Immunology
- **Clinical Microbiology**
- Cancer Genomics
- Embryology
- Genomics
- Genomic Counselling
- Haematology and Transfusion Science
- Histocompatibility and Immunogenetics
- Histopathology

Physical Science

- Clinical Engineering
- Clinical Informatics
- Clinical Scientific Computing
- Medical Physics
 - Radiation Safety and Diagnostic Radiology
 - Radiotherapy Physics
 - Nuclear Medicine
 - Imaging with Non-Ionising Radiation
- Pharmaceutical Sciences
- Reconstructive Science

Physiological Science

- Audiology
- Cardiac Science
- Critical Care Science
- Gastrointestinal Physiology
- Neurophysiology
- Ophthalmic and Vision Sciences
- Respiratory and Sleep Science
- Urodynamic Science
- Vascular Science

STP application requirements

An ideal candidate...

'1st or 2.1 undergrad degree
2.2 are considered if they have an MSc
Research experience is useful'

Motivated individual
Willing to learn
Enthusiastic

<https://nshcs.hee.nhs.uk/programmes/stp/applicants/entry-requirements/>



STP application process

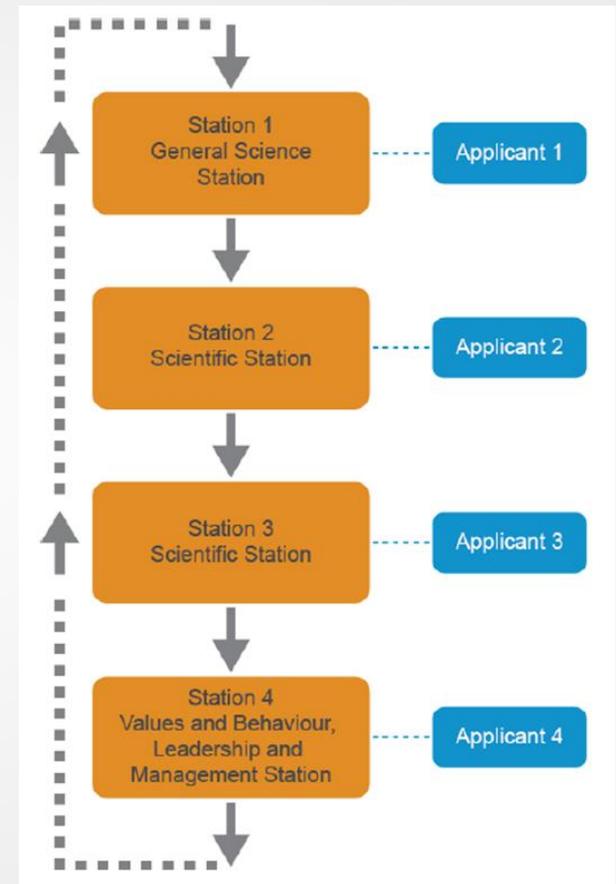
- Online application form including essay questions drawing out:
 - Knowledge, commitment and motivation to training
 - Values and behaviours in the NHS
 - Commitment to healthcare science and technology
 - Experience in team working and leadership
- Online aptitude test (now situational judgement test)
- LONG-LISTING
- SHORT-LISTING
- Invitation to interview – multi-panel, speed dating style (online now)
- Interviewees will be asked to rank the locations available
- Choice of location is determined by interview score and rank
- Decision made and reference check (end of June)
- Begin programme each September
- **Please visit website below for most up-to-date guidance**

<https://nshcs.hee.nhs.uk/programmes/stp/applicants/whats-new-in-stp-recruitment-2022/>



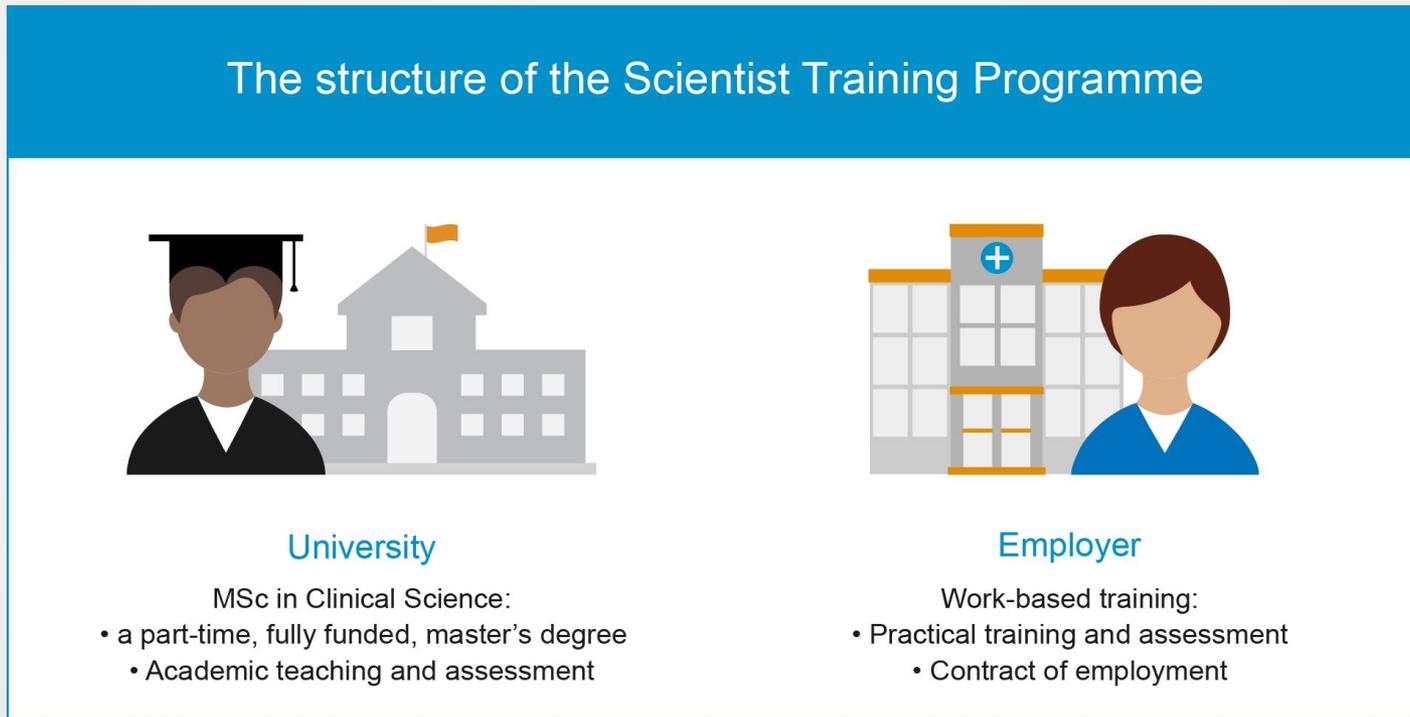
STP interviews

- 4 desks
- 2 people at each desk
- 10 minutes at each desk (station)
- 1 station on NHS values
- 1 station on general science
- 2 stations on specialist science
- Now online but similar questions: **40 minutes**, consists of **four** questions about specialist science and **two** questions about leadership, values and behaviours. **Scored 1-5** on each element and added up at the end.



Structure of the STP

Three year programme:



Structure of the STP

Year	Workplace	University
1	<ul style="list-style-type: none"> • Work-based induction • Mandatory training • Core modules • Rotational work-based placements 	<ul style="list-style-type: none"> • Introductory MSc modules • Examinations
2	<ul style="list-style-type: none"> • Specialty-focused training • Specialty competencies 	<ul style="list-style-type: none"> • Specialty modules • Start research project • Examinations
3	<ul style="list-style-type: none"> • Specialty competencies 	<ul style="list-style-type: none"> • Complete specialty modules • Write-up MSc project
	Exit assessment: IACC	



Example first year timetable for Microbiology

Monday	Tuesday	Wednesday	Thursday	Friday
Clinical day incl. <i>ward rounds</i> , participation in clinical meetings, duty desk phone calls	Attend university for MSc (virtual or in-person)	Study day university work and portfolio	Laboratory rotation e.g. urines bench	Laboratory rotation e.g. urines bench

Microbiology

Sept – Dec: Bacteriology

January – March: Virology

April – June: Molecular

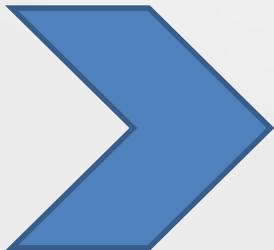
July – Sept: Public Health placement

**Flexible
timetable!**



STP exit requirements

- Completion of **work-based portfolio** encompassing competencies and assessments
- Completion of **part-time MSc**
- Passing IACC **exit assessment**



Apply for HCPC registration to practice as a clinical scientist within the NHS (band 7)



My personal STP experience

- Implementation of the **BioFire FilmArray** for molecular detection of aetiological agents of **meningitis and encephalitis**
- Implementation of the **Liaison MDX** for rapid molecular detection of **Influenza A/B and RSV**
- Implementation of the **BD MAX** for molecular detection of ***Clostridium difficile* toxin gene**
- **Clinical audit**: Are we providing effective clinical management for people with **Staphylococcus aureus bacteraemia** including MRSA?
- **Research project**: Design and development of an RNA assay for detection and characterisation of **human cytomegalovirus** infection or reactivation in renal transplant recipients
- International conference attendance including:
 - ECCMID, Madrid
 - Hologic User Group, Amsterdam
 - Liofilchem Antimicrobial Susceptibility Testing Workshop, Italy
- Clinical and laboratory **placements**:
 - Tuberculosis community nursing team
 - Genitourinary medicine clinic
 - Public Health England Reference Laboratory (UKHSA)
 - St John's Institute of Dermatology, St Thomas'
 - London School of Hygiene and Tropical Medicine



HCPC registration → HSST

What is the HSST?

- NHS Higher Specialist Scientist Training
- 5 year training programme within the NHS
- Doctorate in Clinical Science (DClinSci)
- Scientists are employed by an NHS Trust for the duration of the programme
- £13k annual training budget funded by the [National School of Healthcare Science](#) but employed by individual NHS Trust
- Programme bespoke to individual and Trust based on requirements, experiences – develop appropriate job plan
 - Mastery of scientific content
 - Mastery of clinical skills, values and behaviours
 - Contribution to innovation
- [Consultant Clinical Scientist](#)

HSST application process

- Very similar to STP
- Online application form
- **SHORT-LISTING**
- Invitation to interview – multi-panel, speed dating style
(online now)
- Direct interviewees will be asked to rank the locations available
- Choice of location is determined by interview score and rank
- Decision made and reference check (end of June)
- Begin programme each September
- **Please visit website below for most up-to-date guidance**

<https://nshcs.hee.nhs.uk/programmes/hsst/applicants/hsst-2022-guidance-for-applicants-and-employers/>



Structure of the HSST

Year	Work-place	University (DClinSci)
1	<ul style="list-style-type: none"> Local training plan Work-based competencies 	PGDip Leadership & Management in Healthcare Science
2	<ul style="list-style-type: none"> Local training plan Work-based competencies FRCPath Part 1 	PGDip Leadership & Management in Healthcare Science
3	<ul style="list-style-type: none"> Local training plan Work-based competencies 	Research project
4	<ul style="list-style-type: none"> Local training plan Work-based competencies 	Research project
5	<ul style="list-style-type: none"> Local training plan Work-based competencies FRCPath Part 2 	Research project

HSST curriculum

Developed in conjunction with the Academy of Medical Royal Colleges and individual medical royal colleges, senior scientists, scientific professional bodies, employers and patients.

During the 5-year training programme, a trainee is required to contribute to:

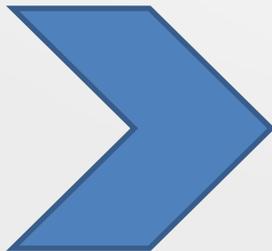
- Innovation or improvement through service delivery
- Patient safety
- Care
- Public communication/outreach
- Quality management

High-level skills in:

- Leadership
- Management
- Teaching
- Values, attitudes and behaviours

HSST exit requirements

- Completion of **work-based portfolio** encompassing competencies and assessments
- Completion of **part-time DClinSci** including Postgraduate Diploma in Leadership and Management and doctoral research project
- Passing FRCPATH **Parts 1 AND 2**



Apply for inclusion on Consultant Clinical Science register

My personal HSST experience

- Currently in Year 2
- COVID-19!
 - Opportunities to develop leadership skills and take on managerial responsibilities
 - Rapid verification of multiple testing platforms for Sars-CoV-2
- FRCPath Part 1
- Repatriation of:
 - Syphilis RPR and TPHA
 - QuantiFERON Inteferon gamma release assays for diagnosis of latent/active TB infection
 - Molecular detection of *Trichomonas vaginalis*
 - Molecular detection of *Mycoplasma genitalium* macrolide resistance
 - *In process*: Molecular detection of viral aetiologies of meningitis and encephalitis and vesicular rash
- Clinical training to respond to Micro referrals, duty desk etc.
- Represent Microbiology at:
 - TB multidisciplinary team meeting
 - NICU multidisciplinary team meeting



Challenges for STP and HSST

Training Centres:

- No “say” on allocated trainees for **Direct-entry** places
- Big **commitment** to meet training requirements even though supernumerary
- Requires **Clinical “buy in”**

Trainees:

- Applicants must be prepared to **re-locate**, may not wish to stay post-training
- STP is very **competitive**: typically 10 applicants for every place
- Trainees must be strong **independent learners**
- Strong ability to **balance** and prioritise a wide variety of tasks
- Strong self-autonomy



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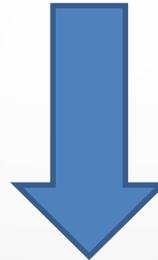
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Final messages



- Useful resources: NSHCS website
- Key dates for this year:
- <https://nshcs.hee.nhs.uk/news/expressions-of-interest-now-open-for-stp-hsst-and-etp-2023-intake/>
- Feel free to email me on felicity.ryan@nhs.net for any questions regarding any the STP/HSST programme.

