



**FACULTY OF  
PATHOLOGY**

ROYAL COLLEGE OF  
PHYSICIANS OF IRELAND

Post CSCST Training in

# CLINICAL MICROBIOLOGY

## Haematopoietic Stem Cell Transplant & National Transplant Coordination



**This curriculum of training in Haematopoietic Stem Cell Transplant and National Transplant Coordination, was developed in 2017 and undergoes an annual review by Dr Breida Boyle, Subject Matter Expert, Dr Ann O’Shaughnessy, Head of Education, Innovation & Research and by the Clinical Microbiology Training Committee. The curriculum is approved by the Faculty of Pathology.**

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## Introduction

This post CSCST 1 year clinical fellowship programme will provide advanced training in Clinical Microbiology with special emphasis on Haematopoietic Stem Cell Transplant and National Transplant Coordination. Haematopoietic stem cell transplant recipients represent a high-risk population for infection. The curriculum is designed to develop the skills required to engage with the advanced diagnostic and management approach for infections occurring in HSCT patients.

Haematopoietic Stem Cell Transplantation (HSCT) is the intravenous infusion of haematopoietic stem and progenitor cells designed to establish marrow and immune function in patients with a variety of acquired and inherited malignant and non-malignant disorders. These include haematological malignancies (e.g. leukaemia, lymphoma, and myeloma), non-malignant acquired bone marrow disorders (e.g. aplastic anaemia), and genetic diseases associated with abnormal haematopoiesis and function (thalassaemia, sickle cell anaemia, and severe combined immunodeficiency). HSCT is also used in the support of patients undergoing high-dose chemotherapy for the treatment of certain solid tumours for whom haematological toxicity would otherwise limit drug administration (germ cell tumours, soft tissue).

The HSCT service in St James Hospital was founded in 1984 and has since performed more than 1000 stem cell and bone marrow transplant. The service oversees transplants in about 160 patients each year. The HSCT Unit included the National Adult Allogeneic Transplant Programme and an Autologous Stem Cell Transplant Program. The service is currently the third largest SCT unit in Ireland and the UK. It is affiliated to the European Blood and Marrow Transplantation (EBMT) Registry, and it reports all outcomes to the registry and takes part in EBMT research projects. This post CSCST 1 year clinical fellowship programme training programme facilitates the development of expertise in the area of Clinical Microbiology HSCT and in National Transplant Coordination.

## Entry Requirements

Applicants for the Post CSCST Fellowship in Haematopoietic Stem Cell Transplant and National Transplant Coordination will have successfully completed the RCPI Higher Specialist Training programme in Clinical Microbiology within two years of the start date of the Post CSCST Fellowship programme.

Prior experience in Haematopoietic Stem Cell Transplant and National Transplant Coordination during Clinical Microbiology training would be an advantage.

## Recruitment and Selection

Post CSCST Fellowship training in Haematopoietic Stem Cell Transplant and National Transplant Coordination will build on broad basic and early core specialist training in Clinical Microbiology. This is in line with training models internationally. Selection of candidates for Post CSCST Fellowship training in Haematopoietic Stem Cell Transplant and National Transplant Coordination will be via a competitive recruitment process coordinated by the relevant Training Body. Recruitment will follow similar timeline where possible to HST recruitment and post will commence in July of each year (unless otherwise specified).

## Duration and Organisation of Training

The Post CSCST Fellowship in Haematopoietic Stem Cell Transplant and National Transplant Coordination is a one year training programme designed to dovetail with the Irish Higher Specialist Training programme in Clinical Microbiology. The curriculum is competency-based, however it is anticipated that the candidate will complete training within one year.

The curriculum takes into account the major areas of competence required by the subspecialist in Haematopoietic Stem Cell Transplant and National Transplant Coordination and will be supervised by the Faculty of Pathology of the Royal College of Physicians in Ireland. Doctors who have successfully completed the RCPI Higher Specialist Training programme in Clinical Microbiology and are within two years of completion will be deemed eligible to apply for the Post CSCST Fellowship in Haematopoietic Stem Cell Transplant and National Transplant Coordination. Completion of this

program will ensure the knowledge and competencies in all areas of the curriculum, meeting international standards for best practice and allowing candidates to practice as a subspecialist in Haematopoietic Stem Cell Transplant and National Transplant Coordination.

## **Training Programme**

The training programme offered will provide opportunities to fulfil all the requirements of the curriculum of training for Haematopoietic Stem Cell Transplant and National Transplant Coordination in approved training hospitals. Each post within the programme will have a named trainer/educational supervisor and the programme will be under the direction of the National Specialty Director for Clinical Microbiology

## **Trainee Numbers**

It is expected that the Post CSCST Fellowship in Haematopoietic Stem Cell Transplant and National Transplant Coordination will be awarded to one candidate per year.

## **ePortfolio**

The trainee will be required to keep their ePortfolio up to date and maintained throughout their Fellowship training. The ePortfolio will be countersigned as appropriate by the Trainer to confirm the satisfactory fulfilment of the required training experience and the acquisition of the competencies set out in the Curriculum. This will remain the property of the Trainee and must be produced at the end of year Evaluation meeting. At the end of year Evaluation, the ePortfolio will be examined. The results of any assessments and reports by the named trainer/educational supervisor, together with other material capable of confirming the trainee's achievements, will be reviewed.

## **Programme Management**

- Coordination of the training programme will lie with the Medical Training Department.
- The training year will usually run from July to July in line with HST programmes
- Annual evaluations will usually take place between April and June each year
- Each trainee will be registered to the ePortfolio and will be expected to fulfil all requirements relating to the management of yearly training records
- Opportunities for audit and research may be available
- Each trainee will be issued with a training agreement on appointment to the training programme and will be required to adhere to all policies and procedures relating to Post CSCST Fellowships.

## Specialty Section

### Basic Scientific Principles

**Objective:** To be expert on the diagnosis and interpretation of diagnostic methods and interpretation in infectious complications of transplantation medicine (Haemopoietic Stem Cells and Transplant Coordination)

#### KNOWLEDGE

- Diagnosis of transplantation medicine infectious complications
- Interpretation of diagnosis methods

#### SKILLS

- Assessment and evaluation of patients with haematological malignancy and Haemopoietic transplants related infections

#### ASSESSMENT & LEARNING METHODS

- QI microsystems Course attendance
- Prepare and present a lecture / update of the current data
  - to hospital physicians
  - to allied health professionals
- Feedback from people attending presentations

## Lifestyle

**Objective:** To be familiar with the data and knowledge gaps regarding potential causes and/or complications of transplant related infection illness.

To be aware of the clinical trials describing the prevention of infections in the post-transplant era on morbidity and mortality.

### KNOWLEDGE

- Familiarity with the data and knowledge gaps regarding potential causes and/or complications of transplant related infection illness
- Aware of the clinical trials describing the prevention of infections in the post-transplant era on morbidity and mortality

### SKILLS

- Advise on health promotion
- Write a review, application /app development, grant application and/or ethics application regarding prevention of post transplantation related infections

### ASSESSMENT & LEARNING METHODS

- Perform Gap analysis of tools for the prevention of infections in the post-transplant era
- Development of App in relation to prevention of infections in the post-transplant era for patients

## Epidemiology and Public Health

**Objective:** To be familiar with epidemiology and public health aspects affecting transplantation success rate and identify mechanism to mitigate against negative consequences

### KNOWLEDGE

- National outbreaks and epidemics and effect on transplant programme patients.
- Current interventions to mitigate the adverse consequences of the infections pre and post-transplant era for patients.

### SKILLS

- Analysis and interpretation of epidemiological data
- Multidisciplinary team working
- Awareness of public health policies

### ASSESSMENT & LEARNING METHODS

- Multidisciplinary team meetings
- Attend interactions between a HPSC, outbreak meetings
- Develop early warning system specifically for transplant patients possible in conjunction with NCCP
- Research meetings

## Special Groups – Patients with specific needs

**Objective:** To become competent in working clinically with adults pre and post-transplant with specific needs

### KNOWLEDGE

- Pretransplant specific issues in special needs groups, e.g. patients colonized with MDROs, BBV or recurrent *Clostridium difficile*, antimicrobial allergies etc.

### SKILLS

- Understand and provide evidence-based interventions to prevent infectious complications in these groups and barriers to implementation of these interventions
- Provide interventions to address treatment of infections in these groups

### ASSESSMENT & LEARNING METHODS

- QIP Development : algorithms for the prevention of infections in these groups
- QIP Development : algorithms for the management of infections in these groups
- Presentations on this topic to stakeholders and auditing of outcomes post implementation

## Laboratory/Specific Area

**Objective:** To be able to apply an evidence-based approach to the management of patients with infections (fungal, bacterial, parasitic or viral), including Multi-drug resistant isolates (MDRO`S).

### KNOWLEDGE

- Evidence-based approach to the management of fungal risk in patients undergoing hematology chemotherapy and/or transplantation
- Evidence-based approach to the management of patients with bacterial infections, including Multi-drug resistant isolates (MDRO`S)
- Evidence-based approach to the screening for and management of parasitic infections in the Hematology/transplant group of patients
- Evidence-based approach to the management and prevention of viral infection in the Hematology/transplant cohort of patients in liaison with consultant virologist

### SKILLS

- Manage fungal infection using EORTC guidelines
- Recognise and understand the role of laboratory in management of infections.
- Advise on methods to reduce risk e.g. antimicrobial stewardship and environmental measures and role of surveillance and risk reductions measures
- Review and develop SOPs to ensure timely recognition and screening for parasites
- Review and develop SOPs to ensure prevention of parasitic infections
- Provide medical management of parasitic infections
- Appropriate referral to specialists
- Screening, assessment and management of viral disease in haematology/transplant cohort patients in conjunction with consultant virologist
- Early intervention in viral disease to prevent progression in conjunction with consultant virologist
- Provide medical management of people with viral disease in haematology/transplant patients in conjunction with consultant virologist

### ASSESSMENT & LEARNING METHODS

- MDT meetings
- Attend courses:
  - NEQAS Mycology course
  - EFISG , ESCMID
- Attend laboratory / ASTX rounds
- Attend laboratory SRG meetings
- Haematology MDTs
- Attend interactions between transplant patient and a haematologist
- Meetings with consultant virologist /consultant microbiologist
- Research presentations
- Attainment of qualification

## Haematology Oncology Day Ward/Phoresis Unit

**Objective:** To understand the importance of design and process control in the prevention of Infection in Haematology/Oncology Day ward facilities

### KNOWLEDGE

- Knowledge of National and International evidence base for prevention of Infection in Hematology/Oncology Day Ward Facilities

### SKILLS

- Ability to assess suitability of physical environment and work flow practices and to make recommendations in line with best practices for the prevention of infection in this setting

### ASSESSMENT & LEARNING METHODS

- Coordinate an audit of the Haematology Oncology Day ward facilities
- Presentation with recommendations to stakeholders an audit of the Haematology/Oncology Day ward facilities

## Other co-morbidities

**Objective:** To be able to apply an evidence-based approach to the management of, and prevention of infection related treatments with specific comorbidities e.g. obesity, cardiac, renal etc.

### KNOWLEDGE

- Evidence-based approach to the management of, and prevention of infection related treatments with specific comorbidities e.g. obesity, cardiac, renal etc.

### SKILLS

- Provide antimicrobial advice management of people with comorbidities obesity etc.

### ASSESSMENT & LEARNING METHODS

- Participation HODW Wards rounds
- Participation Radiology/Haem/Micro MDTs

## Clinical Assessment

**Objective:** To be competent in the assessment of patients with infections in the pre to post transplant period

### KNOWLEDGE

- How to assess patients with infections in the pre to post transplant period

### SKILLS

- Carry out a physical examination with special focus on infection related challenges
- Appropriate screening for infection related illnesses
- Identification of, diagnostic recommendations and appropriate treatment of transplant era infections

### ASSESSMENT & LEARNING METHODS

- Participation at ward /HODW Wards
- Participation Radiology/Haem/Micro MDTs

## Management and Treatment Options

**Objective:** to be expert in the ability to manage and treat patients with transplant related infections

### KNOWLEDGE

- The associations between antimicrobial choice and infection management of patients with transplant related infections
- The prescription of antimicrobials for treatment, prevention and prophylaxis of infection in transplant patient cohort
- Awareness of new emerging therapies e.g. FMT role in transplant patients
- The associations between colonization with MDRO and subsequent development and treatment of infection
- The associations between behavior modification with prevention of infection post-transplant

### SKILLS

- Provide information to patients on the indications, contra-indications, risks, alternatives and benefits of antimicrobials
- Assess newer antimicrobials for use in transplant patients
- Develop an application algorithm in transplant patients
- Choose appropriately for agent dosing and titration and therapeutic monitoring
- Carry out SWOT analysis of laboratory input to transplant programme and set SMART goals for attainment
- Set up rapid molecular screening for MDRO in transplant cohort of patients
- Promote policies and procedures that reduce and prevent infection
- Advocate for the prevention of infection, develop contingencies and identify potential future challenges/threats
- Advocate for the prevention of infection in transplant unit

### ASSESSMENT & LEARNING METHODS

- MDT meetings
- Undertake Anti-Microbial Stewardship audits in the transplant population
- Observe Transplant
- Inpatient management
- Develop FMT evidence base recommendations in recurrent *Clostridium difficile* in the transplant group of patients
- Laboratory based project
- Attend session with psychologist to review behaviour modification in prevention of transplant infections
- Develop guidelines for foreign travel in the post-transplant period
- Committee attendance
- Prevention of Health Care Associated Infection Committee Attendance
- Review of policies and procedures in relation to Infection Prevention and management in transplant group of patients
- Presentation and feedback of SWOT analysis of laboratory input to transplant programme and set SMART goals for attainment

## Documentation of Minimum Requirements for Training

- These are the minimum number of cases you are asked to document as part of your training. It is recommended you seek opportunities to attain a higher level of exposure as part of your self-directed learning and development of expertise.
- You should expect the demands of your post to exceed the minimum required number of cases documented for training.
- If you are having difficulty meeting a particular requirement, please contact your specialty coordinator.

Curriculum Requirement	Required/Desirable	Minimum Requirement	Reporting Period	Form Number
<b>Section 1 - Training Plan</b>				
<b>Personal Goals Plan</b> (Copy of agreed Training Plan for your current training year signed by both Trainee & Trainer)	Required	1	Training Programme	Form 052
<b>Personal Goals Review Form</b>	Required	1	Training Programme	Form 137
<b>Weekly Timetable</b> (Sample Weekly Timetable for Post/Clinical Attachment)	Required	1	Training Programme	Form 045
<b>Section 2 - Training Activities</b>				
<b>Outpatient Clinics</b>				Form 001
Haematology Oncology Day Ward	Required	10	Training Programme	Form 001
Late effects clinic	Required	10	Training Programme	Form 001
<b>Ward Rounds</b>	Required	40	Training Programme	Form 002
<b>On call /dealing with queries of Transplantation medicine Clinical Microbiology</b>	Desirable	50	Training Programme	Form 003
<b>Additional/Special Experience Gained- Clinical Microsystems QI training ( depending on availability)</b>	Desirable	1	Training Programme	Form 005
Attachment with National Transplant Co-ordinator	Desirable	1	Training Programme	Form 006
<b>Section 3 - Educational Activities</b>				
<b>Mandatory Courses /Activities</b>				Form 006
Haematology Programme 4 day course in SJH	Required	1	Training Programme	Form 006
Mycology NEQAS Course Health Economics Course	Required	2	Training Programme	Form 006
Patient Survey	Required	1	Training Programme	Form 006
Patient booklet /App	Required	1	Training Programme	Form 006
<b>Non – Mandatory Courses</b>				
Viral Infections in Immunocompromised host ESCMID Course	Desirable	1	Training Programme	Form 007
<b>In-house activities</b>				Form 011

Curriculum Requirement	Required/Desirable	Minimum Requirement	Reporting Period	Form Number
Journal Club	Required	10	Training Programme	Form 011
MDT Meetings	Required	30	Training Programme	Form 011
One to one meetings with transplant coordinator /UV technician /Plasmaphoresis coordinator	Required	10	Training Programme	Form 011
<b>Examinations</b>	Desirable	1	Training Programme	Form 012
<b>Formal Teaching Activity (1 per month)</b>				
Lecture	Required	4	Training Programme	Form 013
Tutorial	Required	4	Training Programme	Form 013
<b>Research</b>	Desirable	1	Training Programme	Form 014
<b>Audit activities/QIPs</b> HODW /Transplantation and ward processes audits and Quality Improvement programmes	Required	9	Training Programme	Form 015
<b>Clinical Audit Report form</b>	Required	3	Training Programme	Form 135
<b>Publications</b>	Desirable	1	Training Programme	Form 016
<b>Presentations</b>	Required	5	Training Programme	Form 017
<b>National/International meetings</b>	Desirable	1	Training Programme	Form 010
<b>Additional Qualifications</b>	Desirable	1	Training Programme	Form 065
<b>Committee Attendance</b>	Required	3	Training Programme	Form 063
<b>Section 4 - Assessments</b>				
<b>CBD</b>	Required	1	Training Programme	Form 020
<b>Quarterly Assessments</b>	Required	4	Training Programme	Form 092
<b>End-of-Post/End-of-Year Assessments</b>	Required	1	Training Programme	Form 092