



**FACULTY OF  
PATHOLOGY**

ROYAL COLLEGE OF  
PHYSICIANS OF IRELAND

INTERNATIONAL CLINICAL FELLOWSHIP TRAINING IN  
**CLINICAL MICROBIOLOGY**



**This curriculum of training in Clinical Microbiology was developed in 2015 and undergoes an annual review by Dr. Ed Smyth, National Specialty Director, Dr. Ann O’Shaughnessy, Head of Education and Professional Development and by the Clinical Microbiology Training Committee. The curriculum is approved by the Faculty of Pathology.**

<b>Version</b>	<b>Date published</b>	<b>Last edited by</b>	<b>Version comments</b>
1.0	20/06/2016	Ciara Buckley	No amends to content of 2015 version formatting amends only

**Table of Contents**

<b>INTRODUCTION .....</b>	<b>4</b>
<b>GENERIC COMPONENTS.....</b>	<b>7</b>
STANDARDS OF CARE.....	8
DEALING WITH & MANAGING ACUTELY ILL PATIENTS IN APPROPRIATE SPECIALTIES.....	11
GOOD PROFESSIONAL PRACTICE .....	13
INFECTION CONTROL .....	15
THERAPEUTICS AND SAFE PRESCRIBING .....	17
SELF-CARE AND MAINTAINING WELL-BEING.....	18
COMMUNICATION IN CLINICAL AND PROFESSIONAL SETTING .....	20
LEADERSHIP.....	22
QUALITY IMPROVEMENT .....	24
SCHOLARSHIP.....	26
MANAGEMENT .....	27
<b>SPECIALTY SECTION .....</b>	<b>29</b>
OUT-OF-HOURS' WORKING .....	30
LABORATORY ASPECTS OF MICROBIOLOGY .....	31
KNOWLEDGE OF HEALTH AND SAFETY .....	33
CLINICAL MICROBIOLOGY .....	34
INFECTION IN THE COMMUNITY .....	35
HEALTH CARE ASSOCIATED INFECTION AND INFECTION PREVENTION AND CONTROL .....	36
IMMUNOCOMPROMISED PATIENTS – TRANSPLANTATION, HAEMATOLOGY & ONCOLOGY.....	38
INFECTION IN CRITICAL CARE AND SEPSIS.....	39
OUTBREAKS OF INFECTION IN HOSPITALS.....	40
INFECTION IN THE RETURNING TRAVELLER .....	41
FOOD-AND WATER-BORNE INFECTION .....	42
NEUROSURGERY .....	43
HEALTH PROTECTION AND EPIDEMIOLOGY.....	45
MYCOLOGY .....	46
COMMUNICATION AND MANAGEMENT ISSUES IN MICROBIOLOGY .....	47
QUALITY IMPROVEMENT .....	49
<b>MINIMUM REQUIREMENTS FOR TRAINING .....</b>	<b>50</b>

## Introduction

The International Clinical Fellowship Programme (ICFP) provides a route for overseas doctors wishing to undergo structured and advanced postgraduate medical training in Ireland. The ICFP enables suitably qualified overseas postgraduate medical trainees to undertake a fixed period of active training in clinical services in Ireland. The programme is normally offered over one or two years of clinical training, after which the overseas doctors will be required to return to their country of origin. In limited certain circumstances, the period of training may extend to three years.

The purpose of the ICFP is to enable overseas trainees to gain access to structured training and in active clinical environments that they cannot get in their own country, with a view to enhancing and improving the individual's medical training and learning and, in the medium to long term, the health services in their own countries.

This Programme will allow participants to access a structured period of training and experience as developed by the Royal College of Physicians of Ireland to specifically meet the clinical needs of participants as defined by their home country's health service.

### Aims

Upon satisfactory completion of the ICFP, the doctor will be **competent** to undertake comprehensive medical practice in their chosen specialty in a **professional** manner, in keeping with the needs of the healthcare system.

**Competencies**, at a level consistent with practice in the specialty, will include the following:

- Patient care that is appropriate, effective and compassionate dealing with health problems and health promotion.
- Medical knowledge in the basic biomedical, behavioural and clinical sciences, medical ethics and medical jurisprudence and application of such knowledge in patient care.
- Interpersonal and communication skills that ensure effective information exchange with individual patients and their families and teamwork with other health professionals, the scientific community and the public.
- Appraisal and utilisation of new scientific knowledge to update and continuously improve clinical practice.
- Capability to be a scholar, contributing to development and research in the field of the chosen specialty.
- Professionalism.
- Ability to understand health care and identify and carry out system-based improvement of care.

### Professionalism

Medical professionalism is a core element of being a good doctor. Good medical practice is based on a relationship of trust between profession and society, in which doctors are expected to meet the highest standards of professional practice and behaviour. It involves partnership between patient and doctor that is based on mutual respect, confidentiality, honesty, responsibility and accountability. In addition to maintaining clinical competence, a doctor should also:

- Show integrity, compassion and concern for others in day-to-day practice
- Develop and maintain a sensitive and understanding attitude with patients
- Exercise good judgement and communicate sound clinical advice to patients
- Search for the best evidence to guide professional practice
- Be committed to continuous improvement and excellence in the provision of health care whether working alone or as part of a team

Prior to commencing their sponsored clinical placements, all participants will also be required to undergo the mandatory screening requirements of the relevant clinical site/service including occupational health assessment and Garda/Police clearance.

## Training Programme Duration & Organisation of Training

The period of clinical training that will be provided under the International Clinical Fellowship Programme (ICFP) is normally 12-24 months, after which the overseas doctors will be required to return to their country of origin. In certain circumstances, the period of training may extend to three years.

- Each ICFP is developed by the Royal College of Physicians of Ireland will be specifically designed so as to meet the training needs of participants to support the health service in their home country.
- All appointees to the ICFP will be assessed by the Royal College of Physicians of Ireland to ensure that they possess the necessary requirements from a training and clinical service perspective.
- Each overseas doctor participating in the ICFP will be enrolled with the Royal College of Physicians of Ireland and will be under the supervision of a consultant doctor who is registered on the Specialist Division of the Register of Medical Practitioners maintained by the Medical Council and who is an approved consultant trainer.
- Appointees to the ICFP will normally be registered on the Supervised Division of the Register of Medical Practitioners maintained by the Medical Council in Ireland.
- Appointees will agree a training plan with their trainers at the beginning of each training year.
- For the duration of their International Medical Graduate (IMG) programme and associated clinical placements, all participants will remain directly employed and directly paid by their sponsoring state at a rate appropriate to their training level in Ireland and benchmarked against the salary scales applicable to NCHD's in Ireland;
- Successful completion of an ICFP will result in the participant being issued with a formal Certificate of completion for the Fellowship Programme by the Royal College of Physicians of Ireland. This Certificate will enable the participant's parent training body in their sponsoring home country to formally recognise and accredit their time spent training in Ireland.

The training programme offered will provide opportunities to fulfil all the requirements of the curriculum of training. There will be posts in both general hospitals and teaching hospitals. Each post within the programme will have a named trainer/educational supervisor and programmes will be under the direction of the National Specialist Director for the relevant medical speciality to be confirmed by the College. Programmes will be as flexible as possible consistent with curricular requirements, for example to allow the trainee to develop their sub-specialty interest.

### ePortfolio logbook

Each trainee is responsible for maintaining an up-to-date record of progress through training and compiling a portfolio of achievements for presentation at each annual assessment review. The trainee also has a duty to maximise opportunities to learn, supplementing the training offered with additional self-directed learning in order to fulfil all the educational goals of the curriculum.

Up-to-date training records and an ePortfolio of achievements will be maintained by the trainee throughout. The training records will be countersigned as appropriate by the trainers to confirm the satisfactory fulfilment of the required training experience and the acquisition of the competencies set out in the training plan. They will remain the property of the trainee and must be produced at their annual assessment review.

Trainees must co-operate with the College in completing their training plan.

It is in a trainee's own interest to maintain contact with the Royal College of Physicians of Ireland, and to respond promptly to all correspondence relating to training. At review, your ePortfolio will be examined.

**Review**

A consultant trainer/educational supervisor will be identified for each participant in the programme. He/she will be responsible for ensuring that the educational potential of the post is translated into effective training which is being fully utilized. Only departments approved for Training by the Royal College of Physicians of Ireland and its constituent training bodies will be used.

The training objectives to be secured should be agreed between each trainee and trainer at the commencement of each posting in the form of a written training plan. The trainer will be available throughout, as necessary, to supervise the training process. In each year trainees undergo a formal review by an appropriate panel. The panel will review in detail the training record, will explore with the trainee the range of experience and depth of understanding which has been achieved and consider individual trainer's reports. An opportunity is also given to the trainee to comment on the training being provided; identifying in confidence any deficiencies in relation to a particular post.

A quarterly and annual review of progress through training will be undertaken on behalf of the International Clinical Fellowship Programme (ICFP). These will include assessments and reports by educational supervisors, confirmation of achievements and the contents of the ePortfolio will be reviewed. At some or all of these annual reviews a non-specialty assessor will be present capable of addressing core competencies.

The award of a Certificate of completion will be determined by a satisfactory outcome after completion of the entire series of assessments.

## **Generic Components**

**This chapter covers the generic components which are relevant to trainees of all specialties but with varying degrees of relevance and appropriateness, depending on the specialty.**

**As such, this chapter needs to be viewed as an appropriate guide of the level of knowledge and skills required from all trainees with differing application levels in practice.**

## Standards of Care

**Objective:** To be able to consistently and effectively assess and treat patients' problems

**Medical Council Domains of Good Professional Practice:** Patient Safety and Quality of Patient Care; Relating to Patients; Communication and Interpersonal Skills; Collaboration and Teamwork; Management (including Self-Management); Clinical Skills.

### KNOWLEDGE

#### Diagnosing Patients

- How to carry out appropriate history taking
- How to appropriately examine a patient
- How to make a differential diagnosis

#### Investigation, indications, risks, cost-effectiveness

- The pathophysiological basis of the investigation
- Knowledge of the procedure for the commonly used investigations, common or/and serious risks
- Understanding of the sensitivity and specificity of results, artefacts, PPV and NPV
- Understanding significance, interpreting and explaining results of investigations
- Logical approach in choosing, sequencing and prioritising investigations

#### Treatment and management of disease

- Natural history of diseases
- Quality of life concepts
- How to accurately assess patient's needs, prescribe, arrange treatment, recognise and deal with reactions / side effects
- How to set realistic therapeutic goals, to utilise rehabilitation services, and use palliative care approach appropriately
- Recognising that illness (especially chronic and/or incapacity) has an impact on relationships and family, having financial as well as social effects e.g. driving

#### Disease prevention and health education

- screening for disease, (methods, advantages and limitations),
- health promotion and support agencies; means of providing sources of information for patients
- Risk factors, preventive measures, strategies applicable to smoking, alcohol, drug abuse, lifestyle changes
- Disease notification; methods of collection and sources of data

#### Notes, records, correspondence

- Functions of medical records, their value as an accurate up-to-date commentary and source of data
- The need and place for specific types of notes e.g. problem-orientated discharge, letters, concise out-patient reports
- Appreciating the importance of up-to-date, easily available, accurate information, and the need for communicating promptly e.g. with primary care

#### Prioritising, resourcing and decision taking

- How to prioritise demands, respond to patients' needs and sequence urgent tasks
- Establishing (clinical) priorities e.g. for investigations, intervention; how to set realistic goals; understanding the need to allocate sufficient time, knowing when to seek help
- Understanding the need to complete tasks, reach a conclusion, make a decision, and take action within allocated time
- Knowing how and when to conclude

**Handover**

- Know what are the essential requirements to run an effective handover meeting
  - Sufficient and accurate patients information
  - Adequate time
  - Clear roles and leadership
  - Adequate IT
- Know how to prioritise patient safety
  - Identify most clinically unstable patients
  - Use ISBAR (Identify, Situation, Background, Assessment, Recommendations)
  - Proper identification of tasks and follow-ups required
  - Contingency plans in place
- Know how to focus the team on actions
  - Tasks are prioritised
  - Plans for further care are put in place
  - Unstable patients are reviewed

**Relevance of professional bodies**

- Understanding the relevance to practice of standards of care set down by recognised professional bodies – the Medical Council, Medical Colleges and their Faculties, and the additional support available from professional organisations e.g. IMO, Medical Defence Organisations and from the various specialist and learned societies

**SKILLS**

- Taking and analysing a clinical history and performing a reliable and appropriate examination, arriving at a diagnosis and a differential diagnosis
- Liaising, discussing and negotiating effectively with those undertaking the investigation
- Selecting investigations carefully and appropriately, considering (patients') needs, risks, value and cost effectiveness
- Appropriately selecting treatment and management of disease
- Discussing, planning and delivering care appropriate to patient's needs and wishes
- Preventing disease using the appropriate channels and providing appropriate health education and promotion
- Collating evidence, summarising, recognising when objective has been met
- Screening
- Working effectively with others including
  - Effective listening
  - Ability to articulate and deliver instructions
  - Encourage questions and openness
  - Leadership skills
- Ability to prioritise
- Ability to delegate effectively
- Ability to advise on and promote lifestyle change, stopping smoking, control of alcohol intake, exercise and nutrition
- Ability to assess and explain risk, encourage positive behaviours e.g. immunisation and preventive measures
- Ability to enlist patients' involvement in solving their health problems, providing information, education
- Availing of support provided by voluntary agencies and patient support groups, as well as expert services e.g. detoxification / psychiatric services
- Valuing contributions of health education and disease prevention to health in a community
- Compiling adequate case notes, with results of examinations, investigations, procedures performed, sufficient to provide an accurate, detailed account of the diagnostic and management process and outcome, providing concise, informative progress reports (both written and oral)
- Maintaining legible records in line with the Guide to Professional Conduct and Ethics for Registered Medical Practitioners in Ireland
- Actively engaging with professional/representative/specialist bodies

**ASSESSMENT & LEARNING METHODS**

- Consultant feedback
- Workplace based assessment e.g. Mini-CEX, DOPS, CBD
- Educational supervisor's reports on observed performance (in the workplace)
- Audit
- Medical Council Guide to Professional Conduct and Ethics

## Dealing with & Managing Acutely Ill Patients in Appropriate Specialties

**Objectives:** To be able to assess and initiate management of patients presenting as emergencies, and to appropriately communicate the diagnosis and prognosis. Trainees should be able to recognise the critically ill and immediately assess and resuscitate if necessary, formulate a differential diagnosis, treat and/or refer as appropriate, elect relevant investigations and accurately interpret reports.

**Medical Council Domains of Good Professional Practice:** Patient Safety and Quality of Patient Care, Clinical Skills.

### KNOWLEDGE

#### Management of acutely ill patients with medical problems

- Presentation of potentially life-threatening problems
- Indications for urgent intervention, the additional information necessary to support action (e.g. results of investigations) and treatment protocols
- When to seek help, refer/transfer to another specialty
- ACLS protocols
- Ethical and legal principles relevant to resuscitation and DNAR in line with National Consent Policy
- How to manage acute medical intake, receive and refer patients appropriately, interact efficiently and effectively with other members of the medical team, accept/undertake responsibility appropriately
- Management of overdose
- How to anticipate / recognise, assess and manage life-threatening emergencies, recognise significantly abnormal physiology e.g. dysrhythmia and provide the means to correct e.g. defibrillation
- How to convey essential information quickly to relevant personnel: maintaining legible up-to-date records documenting results of investigations, making lists of problems dealt with or remaining, identifying areas of uncertainty; ensuring safe handover

#### Managing the deteriorating patient

- How to categorise a patients' severity of illness using Early Warning Scores (EWS) guidelines
- How to perform an early detection of patient deterioration
- How to use a structured communication tool (ISBAR)
- How to promote an early medical review, prompted by specific trigger points
- How to use a definitive escalation plan

#### Discharge planning

- Knowledge of patient pathways
- How to distinguish between illness and disease, disability and dependency
- Understanding the potential impact of illness and impairment on activities of daily living, family relationships, status, independence, awareness of quality of life issues
- Role and skills of other members of the healthcare team, how to devise and deliver a care package
- The support available from other agencies e.g. specialist nurses, social workers, community care
- Principles of shared care with the general practitioner service
- Awareness of the pressures/dynamics within a family, the economic factors delaying discharge but recognise the limit to benefit derived from in-patient care

**SKILLS**

- BLS/ACLS (or APLS for Paediatrics)
- Dealing with common medical emergencies
- Interpreting blood results, ECG/Rhythm strips, chest X-Ray, CT brain
- Giving clear instructions to both medical and hospital staff
- Ordering relevant follow up investigations
- Discharge planning
- Knowledge of HIPE (Hospital In-Patient Enquiry)
- Multidisciplinary team working
- Communication skills
- Delivering early, regular and on-going consultation with family members (with the patient's permission) and primary care physicians
- Remaining calm, delegating appropriately, ensuring good communication
- Attempting to meet patients'/ relatives' needs and concerns, respecting their views and right to be informed in accordance with Medical Council Guidelines
- Establishing liaison with family and community care, primary care, communicate / report to agencies involved
- Demonstrating awareness of the wide ranging effects of illness and the need to bridge the gap between hospital and home
- Categorising a patients' severity of illness
- Performing an early detection of patient deterioration
- Use of structured communication tool (e.g. ISBAR)

**ASSESSMENT & LEARNING METHODS**

- ACLS course
- Record of on call experience
- Mini-CEX (acute setting)
- Case based discussions
- Consultant feedback

## Good Professional Practice

**Objective:** Trainees must appreciate that medical professionalism is a core element of being a good doctor and that good medical practice is based on a relationship of trust between the profession and society, in which doctors are expected to meet the highest standards of professional practice and behaviour.

**Medical Council Domains of Good Professional Practice:** Relating to Patients, Communication and Interpersonal Skills, Professionalism, Patient Safety and Quality of Patient Care.

## KNOWLEDGE

### Effective Communication

- How to listen to patients and colleagues
- Disclosure – know the principles of open disclosure
- Knowledge and understanding of valid consent
- Teamwork
- Continuity of care

### Ethics

- Respect for autonomy and shared decision making
- How to enable patients to make their own decisions about their health care
- How to place the patient at the centre of care
- How to protect and properly use sensitive and private patient information according to Data Protection Act and how to maintain confidentiality
- The judicious sharing of information with other healthcare professionals where necessary for care following Medical Council Guidelines
- Maintaining competence and assuring quality of medical practice
- How to work within ethical and legal guideline when providing clinical care, carrying research and dealing with end of life issues

### Honesty, openness and transparency (mistakes and near misses)

- When and how to report a near miss or adverse event
- Knowledge of preventing and managing near misses and adverse events. Incident reporting; root cause and system analysis
- Understanding and learning from errors
- Understanding and managing clinical risk
- Managing complaints
- Following open disclosure practices
- Knowledge of national policy and National Guidelines on Open Disclosure

### Raising concerns about patient safety

- The importance of patient safety relevance in health care setting
- Standardising common processes and procedures – checklists, vigilance
- The multiple factors involved in failures
- Safe healthcare systems and provision of a safe working environment
- The relationship between ‘human factors’ and patient safety
- Safe working practice, role of procedures and protocols in optimal practice
- How to minimise incidence and impact of adverse events
- Knowledge and understanding of Reason’s Swiss cheese model
- Understanding how and why systems break down and why errors are made
- Health care errors and system failures
- human and economic costs

**SKILLS**

- Effective communication with patients, families and colleagues
- Co-operation and collaboration with colleagues to achieve safe and effective quality patient care
- Being an effective team player
- Ability to learn from errors and near misses to prevent future errors
- Using relevant information from complaints, incident reports, litigation and quality improvement reports in order to control risks
- Minimising errors during invasive procedures by developing and adhering to best-practice guidelines for safe surgery
- Minimising medication errors by practicing safe prescribing principles
- Using the Open Disclosure Process Algorithm
- Managing errors and near-misses
- Managing complaints
- Ethical and legal decision making skills

**ASSESSMENT & LEARNING METHODS**

- Consultant feedback at annual assessment
- Workplace based assessment e.g. Mini-CEX, DOPS, CBD
- Educational supervisor's reports on observed performance (in the workplace): prioritisation of patient safety in practice
- Patient Safety (on-line) – recommended
- Leadership in Clinical Practice III
- Quality improvement methodology course - recommended
- RCPI Ethics programmes (I-IV)
- Medical Council Guide to Professional Conduct and Ethics
- Reflective learning around ethical dilemmas encountered in clinical practice

## Infection Control

**Objective:** To be able to appropriately manage infections and risk factors for infection at an institutional level, including the prevention of cross-infections and hospital acquired infection

**Medical Council Domains of Good Professional Practice:** Patient Safety and Quality of Patient Care; Management (including Self-Management).

### KNOWLEDGE

#### Within a consultation

- The principles of infection control as defined by the HIQA
- How to minimise the risk of cross-infection during a patient encounter by adhering to best practice guidelines available (including the 5 Moments for Hand Hygiene guidelines)
- The principles of preventing infection in high risk groups e.g. managing antibiotic use to prevent *Clostridium difficile*
- Knowledge and understanding the local antibiotic prescribing policy
- Awareness of infections of concern, e.g. MRSA, *Clostridium difficile*
- Best practice in isolation precautions
- When and how to notify relevant authorities in the case of infectious disease requiring notification
- In surgery or during an invasive procedure, understanding the increased risk of infection in these patients and adhering to guidelines for minimising infection in such cases
- The guidelines for needle-stick injury prevention and management

#### During an outbreak

- Guidelines for minimising infection in the wider community in cases of communicable diseases and how to seek expert opinion or guidance from infection control specialists where necessary
- Hospital policy/seeking guidance from occupational health professional regarding the need to stay off work/restrict duties when experiencing infections the onward transmission of which might impact on the health of others

### SKILLS

- Practicing aseptic techniques and hand hygiene
- Following local and national guidelines for infection control and management
- Prescribing antibiotics according to antibiotic guidelines
- Encouraging staff, patients and relatives to observe infection control principles
- Communicating effectively with patients regarding treatment and measures recommended to prevent re-infection or spread
- Collaborating with infection control colleagues to manage more complex or uncommon types of infection including those requiring isolation e.g. transplant cases, immunocompromised host
- In the case of infectious diseases requiring disclosure:
  - Working knowledge of those infections requiring notification
  - Undertaking notification promptly
  - Collaborating with external agencies regarding reporting, investigating and management of notifiable diseases
  - Enlisting / requiring patients' involvement in solving their health problems, providing information and education
  - Utilising and valuing contributions of health education and disease prevention and infection control to health in a community

**ASSESSMENT & LEARNING METHODS**

- Consultant feedback at annual assessment
- Workplace based assessment e.g. Mini-CEX, DOPS, CBD
- Educational supervisor's reports on observed performance (in the workplace): practicing aseptic techniques as appropriate to the case and setting, investigating and managing infection, prescribing antibiotics according to guidelines
- Completion of infection control induction in the workplace
- Healthcare Associated Infections (on-line) – recommended

## Therapeutics and Safe Prescribing

**Objective:** To progressively develop ability to prescribe, review and monitor appropriate therapeutic interventions relevant to clinical practice in specific specialities including non-pharmacological therapies and preventative care.

**Medical Council Domains of Good Professional Practice:** Patient Safety and Quality of Patient Care.

### KNOWLEDGE

- Pharmacology, therapeutics of treatments prescribed, choice of routes of administration, dosing schedules, compliance strategies; the objectives, risks and complications of treatment cost-effectiveness
- Indications, contraindications, side effects, drug interaction, dosage and route of administration of commonly used drugs
- Commonly prescribed medications
- Adverse drug reactions to commonly used drugs, including complementary medicines
- Identifying common prescribing hazards
- Identifying high risk medications
- Drugs requiring therapeutic drug monitoring and interpretation of results
- The effects of age, body size, organ dysfunction and concurrent illness or physiological state e.g. pregnancy on drug distribution and metabolism relevant to own practice
- Recognising the roles of regulatory agencies involved in drug use, monitoring and licensing e.g. IMB, and hospital formulary committees
- Procedure for monitoring, managing and reporting adverse drug reaction
- Effects of medications on patient activities including potential effects on a patient's fitness to drive
- The role of The National Medicines Information Centre (NMIC) in promoting safe and efficient use of medicine
- Differentiating drug allergy from drug side effects
- Good Clinical Practice guidelines for seeing and managing patients who are on clinical research trials

### SKILLS

- Writing a prescription in line with guidelines
- Appropriately prescribing for the elderly, children and pregnant and breast feeding women
- Making appropriate dose adjustments following therapeutic drug monitoring, or physiological change (e.g. deteriorating renal function)
- Reviewing and revising patients' long term medications
- Anticipating and avoiding defined drug interactions, including complementary medicines
- Advising patients (and carers) about important interactions and adverse drug effects including effects on driving
- Providing comprehensible explanations to the patient, and carers when relevant, for the use of medicines
- Being open to advice and input from other health professionals on prescribing
- Participating in adverse drug event reporting
- Taking a history of drug allergy and previous side effects

### ASSESSMENT & LEARNING METHODS

- Consultant feedback
- Workplace based assessment e.g. Mini-CEX, DOPS, CBD
- Educational supervisor's reports on observed performance (in the workplace): prioritisation of patient safety in prescribing practice
- Principles of Antibiotics Use (on-line) – recommended
- Guidance for health and social care providers - Principles of good practice in medication reconciliation (HIQA)

## Self-Care and Maintaining Well-Being

### Objective:

1. To ensure that trainees understand how their personal histories and current personal lives, as well as their values, attitudes, and biases affect their care of patients so that they can use their emotional responses in patient care to their patients' benefit
2. To ensure that trainees care for themselves physically and emotionally, and seek opportunities for enhancing their self-awareness and personal growth

**Medical Council Domains of Good Professional Practice:** Patient Safety and Quality of Patient Care, Relating to Patients, Communication and Interpersonal Skills, Collaboration and Teamwork, Management (including self-management).

### KNOWLEDGE

- Self knowledge – understand own psychological strengths and limitations
- Understand how own personality characteristics (such as need for approval, judgemental tendencies, needs for perfection and control) affect relationships with patients and colleagues
- Knowledge of core beliefs, ideals, and personal philosophies of life, and how these relate to own goals in medicine
- Know how family-of-origin, race, class, religion and gender issues have shaped own attitudes and abilities to discuss these issues with patients
- Understand the difference between feelings of sympathy and feelings of empathy for specific patients
- Know the factors between a doctor and patient that enhance or interfere with abilities to experience and convey empathy
- Understanding of own attitudes toward uncertainty and risk taking and own need for reassurance
- How own relationships with certain patients can reflect attitudes toward paternalism, autonomy, benevolence, non-maleficence and justice
- Recognise own feelings (love, anger, frustration, vulnerability, intimacy, etc) in “easy” and difficult patient-doctor interactions
- Recognising the symptoms of stress and burn out

### SKILLS

- Exhibiting empathy and showing consideration for all patients, their impairments and attitudes irrespective of cultural and other differences
- Ability to create boundaries with patients that allow for therapeutic alliance
- Challenge authority appropriately from a firm sense of own values and integrity and respond appropriately to situations that involve abuse, unethical behaviour and coercion
- Recognise own limits and seek appropriate support and consultation
- Work collaboratively and effectively with colleagues and other members of health care teams
- Manage effectively commitments to work and personal lives, taking the time to nurture important relationship and oneself
- Ability to recognise when falling behind and adjusting accordingly
- Demonstrating the ability to cope with changing circumstances, variable demand, being prepared to re-prioritise and ask for help
- Utilising a non-judgemental approach to patient's problem
- Recognise the warning signs of emotional ill-health in self and others and be able to ask for appropriate help
- Commitment to lifelong process of developing and fostering self-awareness, personal growth and well being
- Be open to receiving feedback from others as to how attitudes and behaviours are affecting their care of patients and their interactions with others
- Holding realistic expectations of own and of others' performance, time-conscious, punctual
- Valuing the breadth and depth of experience that can be accessed by associating with professional colleagues

### **ASSESSMENT & LEARNING METHODS**

- Occupational Stress course
- On-going supervision
- Ethics courses
- Leadership in Clinical Practice III

## Communication in Clinical and Professional Setting

**Objective:** To demonstrate the ability to communicate effectively and sensitively with patients, their relatives, carers and with professional colleagues in different situations.

**Medical Council Domains of Good Professional Practice:** Relating to Patients; Communication and Interpersonal Skills.

### KNOWLEDGE

#### Within a consultation

- How to effectively listen and attend to patients
- How to structure an interview to obtain/convey information; identify concerns, expectations and priorities; promote understanding, reach conclusions; use appropriate language.
- How to empower the patient and encourage self-management

#### Difficult circumstances

- Understanding of potential areas for difficulty and awkward situations, knowing how and when to break bad news, how to negotiate cultural, language barriers, dealing with sensory or psychological and/or intellectual impairments, how to deal with challenging or aggressive behaviour
- How to communicate essential information where difficulties exist, how to appropriately utilise the assistance of interpreters, chaperones, and relatives.
- How to deal with anger, frustration in self and others
- Selecting appropriate environment; seeking assistance, making and taking time

#### Dealing with professional colleagues and others

- How to communicate with doctors and other members of the healthcare team; how to provide concise, problem-orientated statement of facts and opinions (written, verbal or electronic)
- Knowledge of legal context of status of records and reports, of data protection (confidentiality), Freedom of Information (FOI) issues
- Understanding of the relevance to continuity of care and the importance of legible, accessible, records
- Knowing when urgent contact becomes necessary and the appropriate place for verbal, telephone, electronic, written communication
- Recognition of roles and skills of other health professionals
- Awareness of own abilities/limitations and when to seek help or give assistance, advice to others; when to delegate responsibility and when to refer

#### Maintaining continuity of care

- Understanding the relevance to outcome of continuity of care, within and between phases of healthcare management
- The importance of completion of tasks and documentation (e.g. before handover to another team, department, specialty), of identifying outstanding issues and uncertainties
- Knowledge of the required attitudes, skills and behaviours which facilitate continuity of care such as maintaining (legible) records, being available and contactable, alerting others to avoid potential confusion or misunderstanding through communications failure

**Giving explanations**

- The importance of possessing the facts, and of recognising uncertainty and conflicting evidence on which decisions have to be based
- How to secure, retain attention avoid distraction
- Understanding how adults receive information best, the relative value of the spoken, written, visual means of communication, use of reinforcement to assist retention
- Knowledge of risks of information overload
- Interpreting results, significance of findings, diagnosis, explaining objectives, limitations, risks of treatment, using communication adjusted to recipients' ability to comprehend
- Ability to achieve level of understanding necessary to gain co-operation (compliance, informed choice, acceptance of opinion, advice, recommendation)

**Responding to complaints**

- Value of hearing and dealing with complaints promptly; the appropriate level, the procedures (departmental and institutional); sources of advice, assistance available
- The importance of obtaining and recording accurate and full information, seeking confirmation from multiple sources
- Knowledge of how to establish facts, identifying issues and responding quickly and appropriately to a complaint received

**SKILLS**

- Ability to elicit facts, using a mix of open and closed-ended questions appropriately
- Using "active listening" techniques such as nodding and eye contact
- Giving information clearly, avoiding jargon, confirming understanding, ability to encourage co-operation, compliance; obtaining informed consent
- Showing consideration and respect for other's culture, opinions, patient's right to be informed and make choices
- Respecting another's right to opinions and to accept or reject advice
- Valuing perspectives of others contributing to management decisions
- Conflict resolution
- Dealing with complaints
- Communicating decisions in a clear and thoughtful manner
- Presentation skills
- Maintaining (legible) records
- being available, contactable, time-conscious
- Setting (and attempting to reach) realistic objectives, identifying and prioritising outstanding problems
- Using language, literature (leaflets) diagrams, educational aids and resources appropriately
- Ability to establish facts, identify issues and respond quickly and appropriately to a complaint received
- Accepting responsibility, involving others, and consulting appropriately
- Obtaining informed consent
- Discussing informed consent
- Giving and receiving feedback

**ASSESSMENT & LEARNING METHODS**

- Mastering Communication course
- Consultant feedback at annual assessment
  - Workplace based assessment e.g. Mini-CEX, DOPS, CBD
  - Educational supervisor's reports on observed performance (in the workplace): communication with others e.g. at handover. ward rounds, multidisciplinary team members
- Presentations
- Ethics courses
- Leadership in Clinical Practice III

## Leadership

**Objective:** To have the knowledge, skills and attitudes to act in a leadership role and work with colleagues to plan, deliver and develop services for improved patient care and service delivery.

**Medical Council Domains of Good Professional Practice:** Patient Safety and Quality of Patient Care; Communication and Interpersonal Skill; Collaboration and Teamwork; Management (including Self-Management); Scholarship.

## KNOWLEDGE

### Personal qualities of leaders

- Knowledge of what leadership is in the context of the healthcare system appropriate to training level
- The importance of good communication in teams and the role of human interactions on effectiveness and patient safety

### Working with others

- Awareness of own personal style and other styles and their impact on team performance
- The importance of good communication in teams and the role of human interactions on effectiveness and patient safety

### Managing services

- The structure and function of Irish health care system
- Awareness of the challenges of managing in healthcare
  - Role of governance
  - Clinical directors
- Knowledge of planning and design of services
- Knowledge and understanding of the financing of the health service
  - Knowledge of how to prepare a budget
  - Defining value
  - Managing resources
- Knowledge and understanding of the importance of human factors in service delivery
  - How to manage staff training, development and education
- Managing performance
  - How to perform staff appraisal and deal effectively with poor staff performance
  - How to rewards and incentivise staff for quality and efficiency

### Setting direction

- The external and internal drivers setting the context for change
- Knowledge of systems and resource management that guide service development
- How to make decisions using evidence-based medicine and performance measures
- How to evaluate the impact of change on health outcomes through ongoing service evaluation

**SKILLS**

- Effective communication with patients, families and colleagues
- Co-operation and collaboration with others; patients, service users, carers colleagues within and across systems
- Being an effective team player
- Ability to manage resources and people
- Managing performance and performance indicators

**Demonstrating personal qualities**

- Efficiently and effectively managing one-self and one's time especially when faced with challenging situations
- Continues personal and professional development through scholarship and further training and education where appropriate
- Acting with integrity and honesty with all people at all times
- Developing networks to expand knowledge and sphere of influence
- Building and maintaining key relationships
- Adapting style to work with different people and different situations
- Contributing to the planning and design of services

**ASSESSMENT & LEARNING METHODS**

- Mastering Communication course
- Leadership in Clinical Practice III
- Consultant feedback at annual assessment
- Workplace based assessment e.g. Mini-CEX, DOPS, CBD
- Educational supervisor's reports on observed performance (in the workplace): on management and leadership skills
- Involvement in hospital committees where possible e.g. Division of Medicine, Drugs and Therapeutics, Infection Control etc.

## Quality Improvement

**Objective:** To demonstrate the ability to identify areas for improvement and implement basic quality improvement skills and knowledge to improve patient safety and quality in the healthcare system.

**Medical Council Domains of Good Professional Practice:** Patient Safety and Quality of Patient Care; Communication and Interpersonal Skills; Collaboration and Teamwork; Management; Relating to Patients; Professionalism

## KNOWLEDGE

### Personal qualities of leaders

- The importance of prioritising the patient and patient safety in all clinical activities and interactions

### Managing services

- Knowledge of systems design and the role of microsystems
- Understanding of human factors and culture on patient safety and quality

### Improving services

- How to ensure patient safety by adopting and incorporating a patient safety culture
- How to critically evaluate where services can be improved by measuring performance, and acting to improve quality standards where possible
- How to encourage a culture of improvement and innovation

### Setting direction

- How to create a 'burning platform' and motivate other healthcare professionals to work together within quality improvement
- Knowledge of the wider healthcare system direction and how that may impact local organisations

**SKILLS**

- Improvement approach to all problems or issues
- Engaging colleagues, patients and the wider system to identify issues and implement improvements
- Use of quality improvement methodologies, tools and techniques within every day practice
- Ensuring patient safety by adopting and incorporating a patient safety culture
- Critically evaluating where services can be improved by measuring performance, and acting to raise standards where possible
- Encouraging a culture of improvement and innovation

**Demonstrating personal qualities**

- Encouraging contributions and involvement from others including patients, carers, members of the multidisciplinary team and the wider community
- Considering process and system design, contributing to the planning and design of services

**ASSESSMENT & LEARNING METHODS**

- Leadership in Clinical Practice III
- Consultant feedback at annual assessment
- Involvement in hospital committees where possible e.g. Division of Medicine, Drugs and Therapeutics, Infection Control etc.

## Scholarship

**Objective:** To develop skills in personal/professional development, teaching, educational supervision and research

**Medical Council Domains of Good Professional Practice:** Scholarship

### KNOWLEDGE

#### Teaching, educational supervision and assessment

- Principles of adult learning, teaching and learning methods available and strategies
- Educational principles directing assessment methods including, formative vs. summative methods
- The value of regular appraisal / assessment in informing training process
- How to set effective educational objectives and map benefits to learner
- Design and delivery of an effective teaching event, both small and large group
- Use of appropriate technology / materials

#### Research, methodology and critical evaluation

- Designing and resourcing a research project
- Research methodology, valid statistical analysis, writing and publishing papers
- Ethical considerations and obtaining ethical approval
- Reviewing literature, framing questions, designing a project capable of providing an answer
- How to write results and conclusions, writing and/or presenting a paper
- How to present data in a clear, honest and critical fashion

#### Audit

- Basis for developing evidence-based medicine, kinds of evidence, evaluation; methodologies of clinical trials
- Sources from which useful data for audit can be obtained, the methods of collection, handling data, the audit cycle
- Means of determining best practice, preparing protocols, guidelines, evaluating their performance
- The importance of re-audit

### SKILLS

- Bed-side undergraduate and post graduate teaching
- Developing and delivering lectures
- Carrying out research in an ethical and professional manner
- Performing an audit
- Presentation and writing skills – remaining impartial and objective
- Adequate preparation, timekeeping
- Using technology / materials

### ASSESSMENT & LEARNING METHODS

- Health Research – An Introduction
- Effective Teaching and Supervising Skills course - recommended
- Educational Assessment Skills course - recommended
- Performing audit course
- Health Research Methods for Clinicians - recommended

## Management

**Objective:** To understand the organisation, regulation and structures of the health services, nationally and locally, and to be competent in the use and management of information on health and health services, to develop personal effectiveness and the skills applicable to the management of staff and activities within a healthcare team.

**Medical Council Domains of Good Professional Practice:** Management.

### KNOWLEDGE

#### Health service structure, management and organisation

- The administrative structure of the Irish Health Service, services provided in Ireland and their funding and how to engage with these for best results
- Department of Health, HSE and hospital management structures and systems
- The national regulatory bodies, health agencies and patient representative groups
- Understanding the need for business plans, annual hospital budgets, the relationship between the hospital and PCCC

#### The provision and use of information in order to regulate and improve service provision

- Methods of collecting, analysing and presenting information relevant to the health of a population and the apportionment of healthcare resources
- The common ways in which data is presented, knowing of the sources which can provide information relevant to national or to local services and publications available

#### Maintaining medical knowledge with a view to delivering effective clinical care

- Understanding the contribution that current, accurate knowledge can make to establishing clinical effectiveness, best practice and treatment protocols
- Knowledge of sources providing updates, literature reviews and digests

#### Delegation skills, empowerment and conflict management

- How to assess and develop personal effectiveness, improve negotiating, influencing and leadership skills
- How to manage time efficiently, deal with pressure and stress
- How to motivate others and operate within a multidisciplinary team

### SKILLS

- Chairing, organising and participating in effective meetings
- Managing risks
- Managing time
- Delegating tasks effectively
- Managing conflicts
- Exploring, directing and pursuing a project, negotiating through the relevant departments at an appropriate level
- Ability to achieve results through an understanding of the organisation and its operation
- Ability to seek / locate information in order to define an issue needing attention e.g. to provide data relevant to a proposal for change, establishing a priority, obtaining resources
- Ability to make use of information, use IT, undertake searches and obtain aggregated data, to critically evaluate proposals for change e.g. innovative treatments, new technologies
- Ability to adjust to change, apply management, negotiating skills to manage change
- Appropriately using management techniques and seeking to improve these skills and personal effectiveness

### ASSESSMENT & LEARNING METHODS

- Mastering Communication course
- Performing Audit course
- Leadership in Clinical Practice III
- Annual audit
- Consultant feedback on management and leadership skills

Involvement in hospital committees



## **Specialty Section**

## Out-of-Hours' Working

**Objective:** Provision of a consultative service for medical microbiology outside of routine laboratory working hours is a vital part of training in medical microbiology. It develops decision-making skills and enables prioritisation. It is essential that such experience is acquired throughout the whole training period as this will ensure that the necessary depth and breadth of experience and progression from supervised to competent independent practice is acquired by the time training is complete. The amount of time allotted to out-of-hours will be dependent on local factors. The point at which trainees begin out-of-hours working will be determined by previous experience and individual competence as assessed by the educational supervisor but would generally be after the initial three month introductory period is complete.

### KNOWLEDGE

- Increasing familiarity with laboratory and clinical aspects (including control of infection, public and occupational health) aspects of bacterial, viral and related infections
- Knowledge of what is urgent and what can be left for the next working day

### SKILLS

- Recognise one's own limitations in knowledge
- Liaise and respond to ensure continuity of care
- Refer to seniors as appropriate
- Prioritise regarding urgency
- Deal with difficult situations independently

### ASSESSMENT & LEARNING METHODS

- Participation on the out of hours rota
- Review of and feedback regarding cases with colleagues at hand over
- Case based discussion
- FRCPATH

## Laboratory Aspects of Microbiology

**Objective:** To be competent in the management of the microbiology laboratory.

### KNOWLEDGE

- Understanding of appropriate staining and culture techniques
- Susceptibility testing
  - Understanding current techniques for susceptibility testing including disc diffusion, gradient strip MIC methods, broth dilution and automated methodologies with appropriate quality control
  - Understand and be able to apply the concepts of wild type distribution, and interpretive breakpoints and be familiar with the principal bodies that set breakpoint interpretive criteria
  - Understand the use and limitations of the antibiogram for subtyping isolates of a given species during outbreak investigation
- Understand serologic and antigen-based diagnostic techniques
- Molecular diagnostic techniques
  - Have knowledge of the principles of molecular diagnostic techniques
- Knowledge of automated and semi-automated methodologies in microbiology. Near-patient testing
  - Be aware of automated culture and identification methodologies
- Knowledge of typing methods available
  - Understand the principles, advantages and limitations of various phenotypic and genotypic methods
  - Understand the role of typing in incident/outbreak investigations
- Reference centres
  - Ability to determine or comply with the indications for referral of specimens to reference facilities
  - Understands regulations on transportation of samples
- Principles of laboratory management. External bodies/Institutions relevant to service and their role. Familiarity with
  - staff performance management and appraisals
  - team working
  - time management
  - decision making and prioritisation skills
  - negotiation skills
  - managing underperformance
  - wider organisational issues, e.g. restructuring of laboratory services
- Knowledge of laboratory accreditation
- Familiar with:
  - external quality control including
  - National External Quality Assessment Service (NEQAS) schemes
  - Irish National Accreditation Board
  - International Standards Organisation ISO 15189 document (accreditation of medical laboratories)
  - internal quality control and internal quality assurance
  - commercially available laboratory computer systems

**SKILLS**

- Process common samples received in the laboratory and carry out further tests necessary for full identification of pathogens
- Provide clinical advice based on interpretation of susceptibility testing
- Ability to perform and interpret results serological tests for infectious disease
- Be able to select appropriate tests and interpret (advantages and limitations) molecular diagnostic techniques
- Ability to recommend appropriate typing methods for clinical situations and interpret the results.

**ASSESSMENT & LEARNING METHODS**

- FRCPATH
- Attendance at weekly Senior Laboratory Management meetings

## Knowledge of Health and Safety

### Objective:

- to obtain an in-depth understanding of health and safety issues both locally and nationally in order to practise safely in a laboratory and in a clinical or other setting and to advise on safe practice
- to obtain an understanding of risk assessment for dealing with category 3 and 4 pathogens and be familiar with the requirements for handling of such pathogens

### KNOWLEDGE

- Be aware of the current legislative framework underpinning health and safety (H&S) at work, including:
  - Health and Safety at Work Act (2005) (Ireland)
  - Genetically Modified Organisms (Contained Use)

### SKILLS

- Be able to perform an infection-control oriented risk assessment when required for all procedures undertaken in the hospital, including the laboratory, for all categories of worker, including the pregnant and immunocompromised.

### ASSESSMENT & LEARNING METHODS

- Case based discussion: Infection control risk assessment
- FRCPATH

## Clinical Microbiology

**Objective:** By the end of the educational programme, trainees would be expected to be able to advise on diagnosis, treatment and prevention of the following clinical problems:

- Common infections in the community
- Health care associated infection and infection prevention and control
- Infection in immunocompromised patients – transplantation, haematology & oncology
- Infection in critical care
- Outbreaks of infection in hospital
- Infection in the returning traveller
- Food and water borne infection
- Intra-abdominal infection
- Bone and joint infection
- Infections in patients with Cystic Fibrosis
- Neurosurgery

## Infection in the Community

**Objective:** understanding of infection in primary care, with reference to epidemiology, diagnosis, treatment and prevention.

### KNOWLEDGE

- A broad knowledge of the aetiology and clinical presentation of infectious diseases
- Knowledge of the pathophysiology of the disease process, with particular reference to common and important infections such as urinary tract infection and respiratory tract infection
- Knowledge of the optimum treatment of infections and how to access current guidelines
- Knowledge of the epidemiological consequences of different diseases and of the systems available for disease control with reference to: tuberculosis (TB), viral hepatitis, genitourinary disease, immunisation strategies
- Knowledge of structures of local and national organisation of Public Health Medicine

### SKILLS

- Assimilate clinical, laboratory and epidemiological information and to use this to differentiate between infections and other conditions
- Select and interpret appropriate tests
- Achieve a specific or differential diagnosis
- Selection of the appropriate therapeutic antimicrobial in the clinical setting
- Liaison between clinicians and laboratory
- Make accurate risk assessment
- Recognise when urgent epidemiological action is required

### ASSESSMENT & LEARNING METHODS

- Study Day
- Case Based Discussion
- FRCPATH

## Health Care Associated Infection and Infection Prevention and Control

**Objective:** Understanding of specific problems related to healthcare-associated infections (HCAs).

### KNOWLEDGE

- The reservoirs, sources, routes of transmission and portals of entry of common health care associated infections
- The interactions between the microbe, the patient risk factors and others in the environment, e.g. device and antimicrobial exposure
- The importance of the colonised patient and infected or colonised staff
- Epidemiology and control of common and important multi-resistant organisms, e.g. methicillin-resistant *Staphylococcus aureus* (MRSA), glycopeptide-resistant enterococci (GRE), *Clostridium difficile*, *Extended-spectrum beta-lactamase (ESBL)* and *carbapenemase producing Enterobacteriaceae*
- Disinfection and sterilisation in the hospital and primary care settings
- Knowledge and definitions of site, organism and specialty specific infections
- Common infections associated with particular surgical procedures, device-associated infections
- HCAs in the dialysis unit.
- Understanding of the evidence base behind current recommendations on management in specific clinical situations
- Surveillance:
  - Definitions of infections, methods of data collection and validation, approaches to analysis of data, interpretation of data
  - Understand surveillance by objective, problems of methodology
- Evidence base for effectiveness of local, national and international standards guidelines, protocols for infection and antimicrobial prescribing control and prevention, including screening and isolation strategies and antimicrobial stewardship
- The audit cycle and interaction with surveillance cycles
- Importance of health care associated infections in total quality management, controls assurance, review body inspections, e.g. Health Information and Quality Authority (HIQA)
- The roles and responsibilities of and the ability to describe the infection control team and committee
- Clinical waste, laundry and kitchen: their relevance and importance in HCAI prevention and control
  - Ability to describe these, including audit approaches
- Ventilation: importance of this in the theatre, isolation rooms and other areas, e.g. pharmacy and laboratory
- An understanding of ward, departmental and operating theatre design & layout
- Understanding of HCAI in the community, and community institutions

**SKILLS**

- Describe the dynamics of common HCAs
- Distinguish infection from colonisation
- Recommend antimicrobial treatment or prophylaxis appropriate to the clinical situation
- Describe the development and execution of infection and prescribing control policies and processes in the hospital setting
- Describe the processes and evidence of interactions with, for example, controls assurance assessments
- Describe the principles and importance of ventilation, e.g. in surgical site infection, prevention of spread of TB
- Interpret regulations with regard to hospital design and function
- Describe the various processes of disinfection and sterilisation in the hospital and primary care settings, their indications advantages and limitations
- Manage non-compliance with sterilisation procedure in RMID

**ASSESSMENT & LEARNING METHODS**

- Site visit to HPSC
- Attendance at weekly infection prevention and control team meetings & quarterly infection control committee meetings
- Study Day
- Case Based Discussion each year
- FRCPath

**Immunocompromised Patients – Transplantation, haematology & oncology**

**Objective:** Understanding of specific problems related to opportunistic infection including preventative diagnostic and therapeutic strategies.

**KNOWLEDGE**

- Pathophysiology and clinical signs and symptoms of infection in compromised hosts
- Knowledge of iatrogenic and other causes of immunodeficiency
- Knowledge of available diagnostic techniques and their limitations
- Knowledge of available therapeutic option and preventative measures
- Prevention of infection in kidney/pancreas transplant patients & haematology/oncology patients
- Management approaches to the kidney/pancreas transplant patients & haematology/oncology patients presenting with sepsis

**SKILLS**

- Recognise clinical and laboratory manifestations of immunodeficiency
- Understand the causes and risk factors and perform a risk assessment
- Perform and interpret investigations relevant to the patient and achieve specific or differential diagnosis and initiate appropriate treatment
- Awareness of risk-benefit analyses
- Rational use of resources

**ASSESSMENT & LEARNING METHODS**

- Site visit to the NVRL
- Weekly haematology team meeting
- Case based discussion
- Journal clubs
- Case conferences
- FRCPath

**Infection in Critical Care and Sepsis**

**Objective:** Understand the specific infection problems related to the ICU and the consequences of infection including sepsis syndrome.

**KNOWLEDGE**

- Common infection problems in the ICU setting, e.g. ventilator-associated pneumonia, line-infections, septicaemia
- Outcomes of infection
- Evidence-base for diagnosis and management
- Pathophysiology of serious sepsis
- Rationale for interventions
- Knowledge of surviving sepsis guidelines

**SKILLS**

- Recognition and management of specific infection problems in the critically ill
- Justify a course of action
- Communication skills
- Recognition of the consequences of severe infection including disseminated intravascular coagulation (DIC) and sepsis syndrome
- Ability to advise on appropriate therapy for sepsis

**ASSESSMENT & LEARNING METHODS**

- Participation in ICU rounds
- Case Based Discussion
- FRCPath

## Outbreaks of Infection in Hospitals

**Objective:** To be able to recognise and deal effectively with outbreaks of infection.

### KNOWLEDGE

- General principles of outbreak investigation and control
- Understand fully local (including out-of-hours) procedures for the prevention and control of infectious diseases
  - Ability to access other sources of information and support when appropriate
  - Use of appropriate IT methodologies and statistics

### SKILLS

- Ability to identify an outbreak
- Use of surveillance to identify incidents/outbreaks
- Recognition of abnormal patterns of infection
- Ability to initiate investigation and control measures
- Recognition of the role of others in outbreak management:
  - Public health
  - HPSC
  - Occupational health department
  - Reference laboratories
  - Infection prevention and control nurses
  - Surveillance scientists
- Ability to deal with the unexpected
- Ability to communicate (both in writing and verbally) with colleagues, patients and the media

### ASSESSMENT & LEARNING METHODS

- FRCPATH
- Case Based Discussion - Management of an outbreak infection
- Communications training

## Infection in the Returning Traveller

**Objective:** to understand the burden of infectious disease associated with travel to low income countries and/or tropical climates. , Be able to advise on appropriate investigation and management of patients who have recently returned from travelling outside of Ireland / Europe..

### KNOWLEDGE

- Knowledge of the common causes of infection in returning travellers
- Knowledge of common measures for preventing infection in travellers
- Malaria - Diagnosis, prevention and treatment
- Viral haemorrhagic fever
- Aware of emerging or imported infections, e.g. West Nile virus,
- Epidemiology and distribution of common tropical infections, e.g. malaria, schistosomiasis, onchocerciasis, filariasis, trypanosomiasis, gastro-intestinal GIT parasites, dengue, yellow fever, TB, HIV, enteric fever, cholera, dysentery

### SKILLS

- Basic skills in the diagnosis of the above infections
- Investigation and diagnosis of travellers with specific presentations, e.g. diarrhoea, fever, lymphadenopathy, soft tissue involvement
- Principles of travel vaccination, malaria prophylaxis
- Clinical and epidemiological assessment and initial management of viral haemorrhagic fever and other imported infections

### ASSESSMENT & LEARNING METHODS

- FRCPATH
- Study Day
- Case based discussion
- Journal clubs
- Case conference
- National and international society meetings

## Food-and Water-Borne Infection

**Objective:** basic understanding of food and waterborne infection and the public health and infection control requirements of such infections.

### KNOWLEDGE

- Knowledge of the common pathogens involved in food- and water-borne infections and the laboratory methods used to test for them, including the use of indicator organisms
- Understand the role of the HPSC, Public health laboratories and Health Protection Surveillance Centre, Food Safety Authority of Ireland and environmental health colleagues
- Basic knowledge of the current legislation and guidelines on the microbiological testing of food and water. (Food includes milk and dairy products; water includes potable and bathing waters)
- Knowledge of the prevention and control of legionella/pseudomonas in water supplies
- Knowledge of the requirements for testing endoscopy rinse water and renal unit water and the results that should be achieved

### SKILLS

- Ability to select the appropriate tests and interpret their results.

### ASSESSMENT & LEARNING METHODS

- Study Day
- FRCPATH
- Journal clubs
- Bench time in food and water microbiology laboratories

## Neurosurgery

**Objective:** Understanding of specific problems related to infection in neurosurgery including preventative diagnostic and therapeutic strategies.

### KNOWLEDGE

- Pathophysiology and clinical signs and symptoms of infection in neurosurgery
- Knowledge of available diagnostic techniques and their limitations
- Knowledge of available therapeutic option and preventative measures

### SKILLS

- Recognition and management of specific infection problems in neurosurgery
- Justify a course of action
- Communication skills
- Interpret investigations relevant to the patient and achieve specific or differential diagnosis and initiate appropriate treatment
- Awareness of risk-benefit analyses

### ASSESSMENT & LEARNING METHODS

- Case based discussion
- Journal clubs
- Case conferences
- FRCPATH



## Health Protection and Epidemiology

**Objective:** to understand the importance of control of communicable diseases and be able to evaluate effectiveness of services to prevent, diagnose and treat infection.

### KNOWLEDGE

- Understand principles and practice of surveillance of infectious disease
- Routine and enhanced surveillance systems
- Understand the role of others in the prevention and control of infection
  - Ability to liaise and communicate with specialists in public health, HPSC
- Understand the general principles involved in immunisation programmes
  - Awareness of methods of vaccine delivery, surveillance of immunisation programmes and evaluation of vaccine efficacy
- Occupational health and travel health procedures
  - Able to give basic health and travel advice and refer to other sources of information and support
- Understand the role and function of reference laboratories
- Use the expertise of reference laboratories to inform local practice
- Understand the importance of new and emerging infectious diseases

### SKILLS

- Laboratory reporting and monitoring trends (e.g. in antimicrobial resistance)
- Data handling and interpretation
- Recognition of value and limitations of surveillance systems for community and HCAI
- Recognition of abnormal patterns of infection
- Ability to deal with the unexpected including emerging infectious diseases
- Able to liaise with others to initiate a clinical and managerial response and institute remediation, including defining, establishing and maintaining the appropriate levels of laboratory security to ensure due diligence in the prevention of criminal misuse of organisms
- Awareness of the need for timely referral of material to reference laboratories

### ASSESSMENT & LEARNING METHODS

- Site visit to HPSC
- Case based discussion
- National and international society conferences
- Personal learning
- FRCPATH

## **Mycology**

**Objective:** understanding of superficial and deep infection caused by yeasts and moulds including diagnostic, therapeutic and preventative strategies.

### **KNOWLEDGE**

- Superficial fungal infection
- Systemic fungal infection
- Understanding of appropriate antifungal prevention and treatment strategies
- Understanding of the methods available for susceptibility testing and their limitations
- Understanding of diagnostic methods including serology and molecular testing

### **SKILLS**

- Recognise clinical features of superficial and systemic fungal infection
- Understand how to examine skin, hair, nails and other relevant samples for presence of fungal elements
- Understand how to identify yeast, dermatophyte fungi and other common moulds from clinical material
- Recommend appropriate treatment
- Identification of patients at risk of systemic infection
- Request appropriate specimens for diagnosis including appropriate serological and molecular test as available
- Recognise when susceptibility testing is required

### **ASSESSMENT & LEARNING METHODS**

- Study Day
- Case based discussion
- National and international society conferences
- Personal learning
- FRCPATH

## Communication and Management Issues in Microbiology

**Objectives:** to develop necessary management, communication and leadership skills to take administrative responsibility for a laboratory and deliver a high-quality clinical service.

### KNOWLEDGE

- Laboratory management
  - Awareness of organisation and structure of a microbiology/virology laboratory including:
  - staffing and financial issues
  - planning
  - implementation of policies and rotas.
  - Concepts of good laboratory practice
  - Understand the process of management and being managed
- Laboratory accreditation and the role of accreditation bodies such as INAB
- Understand the criteria for accreditation
  - Able to implement these criteria
- Appraisal
  - Constructive listening, mentoring, appraisal skills.
- Clinical audit - Ability to audit and evaluate:
  - personal and departmental activities
  - existing and new tests, techniques and services
- Delivery of service
  - Able to present microbiological and virological data to clinicians and other healthcare workers in an effective manner
- Standards of professional practice and clinical governance
  - Understand importance of clinical governance and delivery of high-quality standards in microbiology and virology
  - Understand concept of clinical risk management and procedures designed to minimise risks
  - Understand importance of patient consent to use data or specimens for ethically approved research or teaching
- Up to date knowledge of the organisation of HSE, HIQA and allied organisations
- Understanding of role of HPA and HPSC
  - Awareness of healthcare structures (including primary care teams).
- Knowledge of teaching methods, assistance and resources available
  - Good presentation skills, good public speaking and organisation
- Information technology:
  - working knowledge of laboratory data entry and retrieval and surveillance systems
  - understanding of aspects of the Data Protection Act relevant to laboratory and clinical practice
- Apply the principles of confidentiality and their implementation in terms of clinical practice

### SKILLS

- Ability to search electronic databases and use the Internet as a learning and communication resource.
- Demonstrate basic use of database, word processing and statistics programmes.
- To develop and manage a microbiology laboratory
- Develop a business plan for a new service
- Implement accreditation
- Carry out appraisal
- Carry out Audit

**ASSESSMENT & LEARNING METHODS**

- FRCPATH
- Participation in vertical and horizontal audits in the laboratory whenever possible

## Quality Improvement

**Objective:** to develop necessary skills in quality improvement methodology to incorporate into infection prevention and antimicrobial stewardship programmes

### KNOWLEDGE

- Knowledge of patient safety issues in relation to infection prevention and antimicrobial stewardship
- Knowledge of QI tools including the model for improvement, process mapping, driver diagrams, measurement for improvement
- Understand the difference between tasks and tests

### SKILLS

- Develop a SMART aim, measurement plan, driver diagram, process map and project charter for selected QI project
- Formulate and execute several PDSA cycles to test changes as outlined in the project charter
- Communicate progress on an ongoing basis to the project team

### ASSESSMENT & LEARNING METHODS

- Weekly QI learning session
- Undertake a QI project

Quality improvement course

## Minimum Requirements for Training

- These are minimum **tracking** requirements. This generally means that in practice, trainees will perform above the stated requirements; however, for record tracking purpose, the following figures have been allocated.
- Where the minimum requirement state “1”, there is no allocated minimum – eLogbook will automatically default to “1”

Curriculum Requirement	Required/Desirable	Minimum Requirement	Reporting Period	Form Name
<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 Post	Form 052
<b>Personal Goals Review</b>	Required	1	Training Post	Form 137
<b>Weekly Timetable</b> (Sample Weekly Timetable for Post/Clinical Attachment)	Required	1	Training Post	Form 045
<b>Section 2 - Training Activities</b>				
<b>Ward Rounds - Ward based clinical liaison</b> (One entry per week on average)	Required	40	Year of Training	Form 096
<b>Liaison with other specialties</b> (Record one entry per week on average)	Required	40	Year of Training	Form 084
<b>Procedures/Practical Laboratory Bench Skills</b> (min 90 minute sessions)		10	Year of Training	Form 004
Sample preparation	Desirable	1	Year of Training	Form 004
Microscopy (light/electron)	Desirable	1	Year of Training	Form 004
Culture (bacteria, fungi, mycobacteria) and reading of plates	Desirable	1	Year of Training	Form 004
Identification	Desirable	1	Year of Training	Form 004
Antimicrobial susceptibility testing	Desirable	1	Year of Training	Form 004
Nucleic acid detection	Desirable	1	Year of Training	Form 004
Serological testing	Desirable	1	Year of Training	Form 004
Other	Desirable	1	Year of Training	Form 004
<b>Laboratory experience other than Bench Skills</b>				
Interpreting/reporting preliminary results e.g. Gram stain/culture/serology/susceptibility/other results	Required	40	Year of Training	Form 018
Interpreting/reporting/authorizing final results e.g. Gram	Required	1	Year of Training	Form 018

Curriculum Requirement	Required/ Desirable	Minimum Requirement	Reporting Period	Form Name
stain/culture/serology/susceptibility/other results				
Safe disposal of waste (containment/disinfection/disposal)	Required	1	Year of Training	Form 018
Health and safety policy and practice	Required	1	Year of Training	Form 018
Laboratory application of information technology	Required	1	Year of Training	Form 018
<b>Management Experience</b>				
Workload management	Required	1	Year of Training	Form 110
Laboratory accreditation	Required	1	Year of Training	Form 110
Complaints	Required	1	Training Post	Form 110
Systems (Root Cause) Analysis	Required	1	Training Programme	Form 110
<b>Details of cases/clinical experience/specialised rounds</b>				
Medical	Required	1	Year of Training	Form 085
Surgical	Required	1	Year of Training	Form 085
Haematology/Oncology	Required	1	Year of Training	Form 085
Neurosurgery	Required	1	Year of Training	Form 085
Transplant	Required	1	Year of Training	Form 085
Critical Care	Required	1	Year of Training	Form 085
Public Health/Outbreaks	Required	1	Year of Training	Form 085
<b>Relatively Unusual Cases</b>	Desirable	1	Year of Training	Form 019
<b>Records of on call for pathology</b> (Record work outside of normal working hours, Monday to Friday). Briefly document the nature of the commitment (on site or off site, immediate consultant support or telephone support) and the experience gained.	Desirable	1	Year of Training	Form 086
<b>Record Guidelines/Policies</b> – Involved in a minimum of 1 policy or guideline per year. A record of contribution to review or development of guideline or policy documents e.g. antimicrobial use, infection control.	Required	1	Year of Training	Form 087
<b>Infection Control</b> (Record a minimum of 1 entry per category per month and cover a broad range of activities over the period of your training, 10 in total from the list below)	Required	10	Year of Training	Form 088
Outbreaks	Required	1	Year of Training	Form 088

Curriculum Requirement	Required/ Desirable	Minimum Requirement	Reporting Period	Form Name
Sterilization	Required	1	Year of Training	Form 088
Disinfection	Required	1	Year of Training	Form 088
Inoculation injury	Required	1	Year of Training	Form 088
Infection control meetings	Required	1	Year of Training	Form 088
Other	Required	1	Year of Training	Form 088
<b>Record of Offsite Activities</b> (In general record 1 episode per week – it is accepted that in general this engagement will be by telephone but opportunities to participate in person are encouraged. Aim to cover as broad a range of activities as possible)	Required	40	Year of Training	Form 082
Engagement with Public Health/HPSC	Required	1	Year of Training	Form 082
Visit to Virus Reference laboratory	Required	1	Year of Training	Form 082
Other	Required	1	Year of Training	Form 082
<b>Section 3 - Educational Activities</b>				
<b>Mandatory Courses</b>	Required		Training Programme	Form 006
<b>Non – Mandatory Courses</b>				
<b>Study days</b> (Minimum of 4 study days per year)	Required	4	Year of Training	Form 008
<b>In-house activities</b> Minimum of 1 per month	Required	10	Year of Training	Form 011
<b>Examinations</b>				
FRCPATH Examinations	Required	1	Training Programme	Form 012
<b>Formal Teaching Activity</b>	Required	3	Year of training	Form 013
<b>Research</b>	Desirable	1	Training Programme	Form 014
<b>Audit activities and Reporting</b> (1 per year either to start or complete, Quality Improvement (QI) projects can be uploaded against audit)	Required	1	Year of Training	F135/F152
<b>Publications</b>	Desirable	1	Training Programme	Form 016
<b>Presentations</b>	Required	4	Training Programme	Form 017

Curriculum Requirement	Required/ Desirable	Minimum Requirement	Reporting Period	Form Name
<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	1	Year of Training	Form 063
<b>Section 4 - Work Place Based Assessments</b>				
<b>CBD</b> (one per year from the following list) Infection control risk assessment Health care associated infection and infection prevention and control Infection in critical care sepsis Infection in neurosurgery Infection in kidney/pancreas transplantation Infection in heamatology/oncology Management of an outbreak infection	Required	1	Year of Training	Form 020
<b>Mini-CEX</b> (At least two Mini-CEX assessments should take place in each year of training on average - one Mini CEX related to infection control and one clinical / patient-centred Mini-CEX per year)	Required	2	Year of Training	Form 023
<b>Quarterly assessments</b>	Required	4	Year of Training	Form 092
<b>End-of-post/End-of-Year Assessment</b>	Required	1	Year of Training	Form 092