



**INSTITUTE  
OF MEDICINE**

ROYAL COLLEGE OF  
PHYSICIANS OF IRELAND

HIGHER SPECIALIST TRAINING IN

# INFECTIOUS DISEASES



**This curriculum of training in Infectious Diseases was developed in 2010 and undergoes an annual review by Dr Catherine Fleming and Dr Eoin Feeney National Specialty Directors, Dr Ann O’Shaughnessy, Head of Education, and by the Infectious Diseases Training Committee. The curriculum is approved by the Institute of Medicine.**

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## Introduction

Infectious Diseases is a clinical specialty of internal medicine focusing on the assessment, diagnosis and management of acute and chronic infections.

Besides these specialty specific elements, trainees in Infectious Diseases must also acquire certain core competencies which are essential for good medical practice. These comprise the generic components of the curriculum.

### Aims

Upon satisfactory completion of specialist training in Infectious Diseases, the doctor will be **competent** to undertake comprehensive medical practice in that specialty in a **professional** manner, unsupervised and independently and/or within a team, in keeping with the needs of the healthcare system.

**Competencies**, at a level consistent with practice in the specialty of Infectious Diseases, 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.
- The ability to function as a supervisor, trainer and teacher in relation to colleagues, medical students and other health professionals.
- Capability to be a scholar, contributing to development and research in the field of Infectious Diseases.
- Professionalism.
- Knowledge of public health and health policy issues: awareness and responsiveness in the larger context of the health care system, including e.g. the organisation of health care, partnership with health care providers and managers, the practice of cost-effective health care, health economics and resource allocations.
- Ability to understand health care and identify and carry out system-based improvement of care.

### Professionalism

Being a good doctor is more than technical competence. It involves values – putting patients first, safeguarding their interests, being honest, communicating with care and personal attention, and being committed to lifelong learning and continuous improvement. Developing and maintaining values are important; however, it is only through putting values into action that doctors demonstrate the continuing trustworthiness with the public legitimately expect. According to the Medical Council, Good Professional Practice involves the following aspects:

- Effective communication
- Respect for autonomy and shared decision-making
- Maintaining confidentiality
- Honesty, openness and transparency (especially around mistakes, near-misses and errors)
- Raising concerns about patient safety
- Maintaining competence and assuring quality of medical practice

**Entry Requirements**

Applicants for Higher Specialist Training (HST) in Infectious Diseases must have a certificate of completion Basic Specialist Training (BST) in General Internal Medicine and obtained the MRCPI.

Those who do not hold a BST certificate and MRCPI must provide evidence of equivalency.

Entry on the training programme is at year 1. Deferrals are not allowed on entry to Higher Specialist Training.

## Duration & Organisation of Training

The duration of Higher Specialist Training in Infectious Diseases and General Internal Medicine is five years, one year of which **may** be gained from a period of full-time research.

### Essential:

- Microbiology +/- Virology
- Management of Sexually Transmitted Infections
- Management of Complex Nosocomial Infections
- Management of Community-Acquired Infections
- Management of HIV Infection
- Management of the Immunosuppressed Host
- Infection in the returning traveller & International Health
- Hospital Epidemiology (Infection Control and Outbreak Management)
- Committee Memberships

### Desirable:

- Public Health
- Travel Clinic
- TB clinics
- Hepatology Clinics
- Immunology Clinics
- Paediatric ID Experience

Trainees must spend the first two years of training in clinical posts in Ireland before undertaking any period of research or Out of Programme Clinical Experience (OCPE). The earlier years will usually be directed towards acquiring a broad general experience of Infectious Diseases under appropriate supervision. An increase in the content of hands-on experience follows naturally, and, as confidence is gained and abilities are acquired, the trainee will be encouraged to assume a greater degree of responsibility and independence.

If an intended career path would require a trainee to develop further an interest in a sub-specialty within Infectious Diseases (e.g. Hospital Epidemiology) this should be accommodated as far as possible within the training period, re-adjusting timetables and postings accordingly.

Trainees on HST programme in Infectious Diseases are given a rotation of posts at the start of the programme. Each rotation will provide the trainee with experience in different hospitals so as to acquire the broad range of training required. A degree of flexibility to meet the individuals training needs is possible especially towards the end of the training programme following discussion with the NSDs.

“Generic” knowledge, skills and attitudes support competencies which are common to good medical practice in all-the Medical and related specialties. It is intended that all Specialist Registrars should re-affirm those competencies during Higher Specialist Training. No time-scale of acquisition is offered, but failure to make progress towards meeting these important objectives **at an early stage** would cause concern about a SpR’s suitability and ability to become independently capable as a specialist.

## Training Programme

The training programme offered will provide opportunities to fulfil all the requirements of the curriculum of training for Infectious Diseases in approved training hospitals. Each post within the programme will have a named trainer/educational supervisor and programmes will be under the direction of the National Specialty Director for Infectious Diseases or, in the case of GIM, the Regional Specialty Advisor. Programmes will be as flexible as possible consistent with curricular requirements, for example to allow the trainee to develop a sub-specialty interest.

The experience gained through rotation around different departments is recognised as an essential part of HST. A Specialist Registrar may **not** remain in the same unit for longer than 2 years of clinical

training; or with the same trainer for more than 1 year. At least one clinical year of Infectious Diseases training must be outside of Dublin.

Where an essential element of the curriculum is missing from a programme, access to it should be arranged, by day release for example, or if necessary by secondment.

## Dual Specialty Training

GIM training is expected to be completed in the first 3 years of the programme. One of these years is a GIM specific year. During the other 2 years trainees must complete their GIM training as per the minimum requirements.

Each post must include general medicine on-call commitment for acute unscheduled/emergency care with attendance at relevant post-take rounds.

### Acute Medicine:

There must be evidence of direct supervision of the activity of the more junior members of the “on-take” team and a minimum of 10 (480 per year) new acute medical assessments and admissions during the 24-hour period are expected. In addition, the trainee will be expected to have ongoing care/responsibility for a proportion of the patients for the duration of the clinical inpatient journey as well as follow up post discharge. In this capacity you should develop skills in non-technical aspects of care including discharge planning and end of life care.

### Inpatient Responsibilities:

The trainee will have front line supervisory responsibilities for general medical inpatients. This will require supervising the activities (e.g. being available for advice) of the more junior members (SHO/Intern) of the clinical team at all times. In addition to personal ward rounds, a minimum of two ward rounds with the consultant each week is expected for educational experience. Ongoing responsibility for shared care of the team’s inpatients whilst in the ITU/HDU/CCU is also essential. If this is not possible in a particular hospital/training institution then a period of secondment to the appropriate unit will be required.

### Outpatient Responsibilities:

The trainee is expected to have personal responsibilities for the assessment and review of general medicine outpatients with a minimum of at least one consultant led GIM clinic per week. The trainee should assess new patients; access to consultant opinion/supervision during the clinic is essential. In the event of clinics being predominantly subspecialty orientated, a trainee must attend other clinics to ensure comprehensive General Internal Medicine training.

### General Education in Training:

The trainee is expected to spend four hours per week, in formal general professional education for certification of training. In the types of experience noted below, time must be fairly distributed between GIM and the other specialty in dual training programmes. Review of all these activities will form part of the training record for each trainee.

All trainees are required to undergo training in management. This will take the form of day-to-day involvement in the administration of the team/firm and must include attendance at a management course during the training period.

Trainees are expected to be actively involved in audit throughout their training and should have experience of running the unit’s audit programme and presenting results of projects at audit meetings. They should also regularly attend other activities, journal clubs, X-ray conferences, pathology meetings etc.

Trainees should be expected to show evidence of the development of effective communication skills. This can be assessed from taking part in formal case presentations or in giving lectures/seminars to other staff or research/audit presentations at unit meetings.

All trainees must have a current ACLS certificate throughout their HST.

### Procedures:

During training the trainee should acquire those practical skills that are needed in the management of medical emergencies, particularly those occurring out of normal working hours. Some exposure to these skills may have occurred during the period of BST but experience must be consolidated and competencies reviewed during HST. The procedures, with which the trainee must be familiar and show competencies in, either as essential to acquire, or as additional procedural skills i.e. desirable to acquire.



**Essential & Additional Experience:**

The trainee will be expected to have had experience of/be familiar with the management of a wide range of cases presenting to hospitals as part of an unselected acute medical emergency “take”. Whilst trainees will not need to be expert in all of these areas they will be expected to be able to plan and interpret the results of immediate investigations, initiate emergency therapy and triage cases to the appropriate specialist care. These emergency situations have been considered under each specialty section and are indicative of what should be covered but are not prescriptive. It should form the basis of regular discussions between the trainee and trainers as training progresses. The various clinical situations listed for experience have been divided into those, which are considered “essential” and others, which are “additional”.

**Assessment Process**

The methods used to assess progress through training must be valid and reliable. The Infectious Diseases curriculum has been re-written, describing the levels of competence which can be recognised. The assessment grade will be awarded on the basis of direct observation in the workplace by consultant supervisors. Time should be set aside for appraisal following the assessment e.g. of clinical presentations, case management, observation of procedures. As progress is being made, the lower levels of competence will be replaced progressively by those that are higher. Where the grade for an item is judged to be deficient for the stage of training, the assessment should be supported by a detailed note which can later be referred to at annual review. The assessment of training may utilise the Mini-CEx, DOPS and Case Based Discussions (CBD) methods adapted for the purpose. These methods of assessment have been made available by HST for use at the discretion of the NSD and nominated trainer. They are offered as a means of providing the trainee with attested evidence of achievement in certain areas of the Curriculum e.g. competence in procedural skills, or in generic components. Assessment will also be supported by the trainee’s portfolio of achievements and performance at relevant meetings, presentations, audit, in tests of knowledge, attendance at courses and educational events.

The Infectious Diseases Society of America Fellows In-Training Exam is listed as one of the assessment methods in the specialty section of this curriculum. The purpose of this exam is not as a certifying or qualifying examination but to be used as a self- assessment tool designed to gauge knowledge of infectious diseases.

## **Generic Components**

**This chapter covers the generic components which are relevant to HST 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 HST trainees with differing application levels in practice.**

## 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
- 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 in accordance with data protection legislation 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)

- Preventing and managing near misses and adverse events.
- When and how to report a near miss or adverse event
- 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

- Safe working practice, role of procedures and protocols in optimal practice
- The importance of standardising practice through the use of checklists, and being vigilant
- Safe healthcare systems and provision of a safe working environment
- Awareness of the multiple factors involved in failures
- 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 in system failures
- The important of informing a person of authority of systems or service structures that may lead to unsafe practices which may put patients, yourself or other colleagues at risk
- Awareness of the Irish Medical Councils policy on raising concerns about safety in the environment in which you work

**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
- Ethical and legal decision making skills
- Minimising errors during invasive procedures by developing and adhering to best-practice guidelines for safe surgery
- Minimising medication errors by practicing safe prescribing principles
- Ability to learn from errors and near misses to prevent future errors
- Managing errors and near-misses
- Using relevant information from complaints, incident reports, litigation and quality improvement reports in order to control risks
- Managing complaints
- Using the Open Disclosure Process Algorithm

**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
- RCPI HST Leadership in Clinical Practice
- RCPI Ethics programmes
- Medical Council Guide to Professional Conduct and Ethics
- Reflective learning around ethical dilemmas encountered in clinical practice
- Quality improvement methodology course - recommended

## 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 of 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 notifiable infectious disease
- Understanding the increased risk of infection to patients in surgery or during an invasive procedure 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
- Personal Protective Equipment Training Course (In hospital)

## Self-Care and Maintaining Well-Being

### Objectives:

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-awareness including preferences and biases
- Personal psychological strengths and limitations
- Understand how personality characteristics, such as need for approval, judgemental tendencies, needs for perfection and control etc., affect relationships with patients and others
- 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
- 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 in straightforward and complex 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**

- On-going supervision
- RCPI Ethics programmes
- Wellness Matters Course
- RCPI HST Leadership in Clinical Practice course



## 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
- How to negotiate cultural, language barriers, dealing with sensory or psychological and/or intellectual impairments and how to deal with challenging or aggressive behaviour
- Knowing how and when to break bad news
- How to communicate essential information where difficulties exist, how to appropriately utilise the assistance of interpreters, chaperones, and relatives.
- How to deal with anger and 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 a concise, written, verbal, or electronic, problem-orientated statement of facts and opinions
- The legal context of status of records and reports, of data protection confidentiality
- Freedom of Information (FOI) issues
- Understanding of the importance of legible, accessible, records to continuity of care
- Knowing when urgent contact becomes necessary and the appropriate place for verbal, telephone, electronic, or 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 of continuity of care to outcome, within and between phases of healthcare management
- The importance of completion of tasks and documentation, e.g. before handover to another team, department, specialty, including identifying outstanding issues and uncertainties
- Knowledge of the required attitudes, skills and behaviours which facilitate continuity of care including, 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 and retain attention avoiding 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 the risks of information overload
- Tailoring the communication of information to the level of understanding of the recipient
- Strategies to achieve the level of understanding necessary to gain co-operation and partnership; 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, and assistance available
- The importance of obtaining and recording accurate and full information, seeking confirmation from multiple sources
- Knowledge of how to establish facts, identify issues and respond quickly and appropriately to a complaint received

**SKILLS**

- Ability to appropriately elicit facts, using a mix of open and closed-ended questions
- 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 realistic objectives, identifying and prioritising outstanding problems
- Using language, literature (e.g. leaflets) diagrams, educational aids and resources appropriately
- 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 (Year 1)
- 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
- RCPI Ethics programmes
- RCPI HST Leadership in Clinical Practice Course

## 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 (Year 1)
- RCPI HST Leadership in Clinical Practice (Year 3 – 5)
- 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

- RCPI HST Leadership in Clinical Practice
- 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

- An Introduction to Health Research (online)
- Performing audit course (online)
- Effective Teaching and Supervising Skills course (online) - recommended
- Educational Assessment Skills course - recommended
- 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 (online)
- RCPI HST Leadership in Clinical Practice
- Annual audit
- Consultant feedback on management and leadership skills
- Involvement in hospital committees



## 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
- Understand the clinical significance of reference ranges, positive and negative predictive value and potential risks of inappropriate tests
- The procedures for 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, and change strategies applicable to smoking, alcohol, drug abuse, and lifestyle
- 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
- An understanding of the need and appropriate use of problem-orientated discharge notes, letters, more detailed case reports, concise out-patient reports and focused reviews
- 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
- Involve patients' in solving their health problems, by providing information and education
- Availing of support provided by voluntary agencies and patient support groups, as well as expert services e.g. detoxification / psychiatric services
- Act in accordance with, up to date standards on palliative care needs assessment
- Valuing contributions of health education and disease prevention to health in a community
- Compile accurate and appropriate detailed medical notes and care reports including the 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)
- Transfer information in an appropriate and timely manner

- 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)
- Annual 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, including complex discharge
- 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 tools (e.g. ISBAR)

**ASSESSMENT & LEARNING METHODS**

- ACLS course
- Record of on call experience
- Mini-CEX (acute setting)
- Case Based Discussion (CBD)
- Consultant feedback

## 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
- Know the difference between an early and late drug allergy, and drug side-effects
- Good Clinical Practice guidelines for seeing and managing patients who are on clinical research trials
- Best practice in the pharmacological management of cancer pain
- The management of constipation in adult patients receiving palliative care

### 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
- Take and record an accurate drug allergy history and history of 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
- Guidance for health and social care providers - Principles of good practice in medication reconciliation (HIQA)

## General Internal Medicine Section

**Objective:** On completion of Higher Specialist Training the trainee will be able to identify and treat immediate life threatening causes of common medical presentations, form a differential diagnosis for non-life threatening cases and effectively manage the patient including further investigation and appropriate referral. They will have acquired a broad range of procedural and clinical skills to manage diverse presentations.



## Assessment and Learning Methods

Learning opportunities during HST are through:

- Self-Directed Learning
- Attendance at Study days
- Participation in In-house activities
- Unselected acute on call
- General Medicine outpatient clinics
- Department education sessions (black box, journal club, tutorials)
- Completion of Required courses
- Attendance at additional learning events such as recommended courses and masterclasses

Progress is assessed through:

- Case Based Discussion
- ePortfolio
- Annual assessment
- DOPS

## In the Acute setting

During the course of HST the trainee will encounter common acute presentations and demonstrate the following competencies:

- Recognising and assessing urgency
- Stabilising the patient
- Prioritising
  - Tasks
  - Investigations
- Managing co-existing morbidities
- Making appropriate referrals
- Decision making and appropriate delegation

The presentations listed in this section represent the most common acute presentations and conditions currently seen in Irish hospitals, accounting for over 95% of admissions. It is expected that HST trainees in general internal medicine will have a comprehensive knowledge of, and be able to provide a differential diagnosis for, these conditions.

## Presentations

1. Shortness of breath
2. Cough
3. Chest Pain
4. Blackout/ Collapse/ Dizziness
5. The frail older patient in the acute setting
6. Abdominal Pain
7. Fever
8. Alcohol and substance dependence or withdrawal
9. Falls and Decreased mobility
10. Weakness and Paralysis
11. Headache
12. Limb Pain and/or Swelling
13. Nausea and Vomiting
14. Seizure
15. Diarrhoea
16. Delirium/Acute confusion
17. Acute Psychological illness
18. Palpitations
19. Hepatitis or Jaundice
20. Gastrointestinal Bleeding
21. Haemoptysis
22. Rash
23. Acute Back Pain
24. Poisoning and Drug Overdose
25. Hyper-glycaemia

## Emergency management

Recognising and managing emergency cases including:

- Acute Coronary Syndrome
- Acute Kidney Injury
- Acute Respiratory Failure
- Acute Seizure
- Anaphylaxis / Angioedema
- Cardio-respiratory arrest
- Critical electrolyte abnormalities (calcium, sodium, potassium)
- Hypo- or Hyperglycaemia
- Sepsis and septic shock
- Stroke/ TIA
- The unconscious patient
- Unstable hypotensive patient

## Skills and Knowledge in the General Medicine Setting

On completion of HST the trainee should know life threatening causes, clinical feature, classifications, investigations and management, including indications for urgent referral, for common general medicine presentations. The following outlines commonly associated features, causes and/or routes of investigation for these presentations, both acutely and for ongoing case management, the trainee is expected to know and the competencies they are expected to demonstrate.

When a patient presents with a general medicine complaint the trainee should demonstrate an ability to:

- Assess their signs and symptoms; formulating a differential diagnosis
  - Take history as part of an investigation
  - Undertake primary assessment
  - Recognise and assess urgency
  - Undertake secondary assessment
- Initiate appropriate investigations
  - Interpret results for common investigations
- Initiate appropriate treatment, including stabilising the patient where necessary
- Manage co-existing morbidities
- Manage on-going cases including
  - confirming a diagnosis for those not requiring urgent referral
  - assessing response to initial treatment
  - recognising signs to escalate management when needed
- Appropriately refer based on:
  - Response to treatment
  - Local guidelines
  - Culture
  - Self-awareness of their own knowledge and ability
  - Services available
- Provide ongoing management of the case

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### Shortness of breath

When a patient presents with shortness of breath a trainee should demonstrate knowledge of the clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for common causes.

- Life threatening causes of breathlessness
  - Airway Obstruction
  - Acute severe asthma
  - Acute exacerbation of COPD
  - Pulmonary oedema
  - Tension pneumothorax
  - Acute presentations of Ischaemic heart disease
  - Acute severe left ventricular failure
  - Dysrhythmia
  - Pulmonary embolus
  - Cardiac tamponade
  - Metabolic acidosis

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### Cough

When a patient presents a cough a trainee should demonstrate knowledge of the clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for the common causes.

- Common causes of acute cough
  - Viral and Pertussis type cough
  - Acute bronchitis
  - Pneumonia
  - Tuberculosis
  - Lung cancer
  - Understand the relevance of subacute and chronic cough
  - Common causes (Asthma, Upper airway, GORD)
  - When to refer for assessment of lung cancer
  - Consideration of Interstitial lung disease

## Chest Pain

When a patient presents with chest pain a trainee should demonstrate knowledge of the clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for common causes.

- Life threatening causes of chest pain
  - Myocardial infarction
  - Dissecting aortic aneurysm
  - Pulmonary emboli
  - Tension pneumothorax
  - Oesophageal rupture
- Clinical features of:
  - Cardiac chest pain
  - Chest pain caused by respiratory disease and oesophageal rupture
  - Chest pain caused by gastrointestinal disease
  - Chest wall pain
  - Functional chest pain

## Blackout / Collapse / Dizziness

When a patient blacks out, collapses or presents with dizziness a trainee should demonstrate that they know the life threatening causes, clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for the common causes.

- Stroke
  - Cerebral infarction
  - Primary intracerebral haemorrhage
  - Subarachnoid haemorrhage
- Syncope
  - Cardiac causes (arrhythmia, cardiogenic shock)
  - Vasovagal syncope
  - Postural hypotension (e.g., drugs, neurocardiac, autonomic)
  - Localised vascular disease (posterior circulation)
  - Metabolic causes (e.g., hypoglycaemia)
- Seizures and epilepsy

### Management of the frail older patient in the acute setting

When a frail older patient presents a trainee should demonstrate knowledge of the appropriate approach to assessment, risk factors, appropriate investigations and necessary management, including indications for urgent referral, for this population.

- Understand the broad differential diagnosis and management of complex multi-morbid illness in older patients
- Approach to investigation and management of recurrent Falls
- Non-pharmacological and pharmacological management of behavioural complications of dementia
- Investigation of causes, non-pharmacological and pharmacological management of Delirium
- Polypharmacy and inappropriate prescribing in older patients (e.g. renal dose adjustment)
- Medical management of nursing home residents- identifying aspiration risk
- Palliative care and pain management in the acute setting
- Acute stroke thrombolysis delivery and criteria for referral for intravascular intervention
- Completion of NIHSS stroke scale

### Abdominal Pain

When a patient presents with abdominal pain a trainee should demonstrate knowledge of the life threatening causes, clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for the common causes.

- Initial assessment of abdominal pain
- Differential Diagnosis:
  - Intra-abdominal
    - Gastrointestinal
    - Vascular (aneurysm, ischemia)
    - Urological
    - Gynaecological
  - Extraabdominal causes of pain
- Ability to identify and initiate management of life threatening conditions causes of abdominal pain
- Indications for surgical consultation and urgent referral
- Identifying constipation and urinary retention in older patients

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## **Fever**

When a patient presents with fever a trainee should demonstrate knowledge of the life threatening causes, clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for the common causes.

- Recognize the symptoms and signs of sepsis
- Identify common causes of fever
  - Infection
  - Non-infectious including PE, Drugs, vasculitis,
- Delivery of initial management of septic patient
- Knowledge of the choice of empiric and infection targeted antibiotics

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## **Alcohol and substance dependence or withdrawal**

When a patient presents with dependence or withdrawal a trainee should demonstrate that they know the classifications and necessary management, including indications for referral.

- Recognition
- Psychosocial dysfunction
- Autonomic disturbances
- Stress and panic disorders
- Insomnia and sleep disturbance
- Understand the role of psychiatrist and referral to rehabilitation services

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## **Falls and Decreased mobility**

When a patient falls or presents with decreased mobility a trainee should demonstrate knowledge of the life threatening causes, clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for the common causes.

- Common medical and social causes of falls in medical patients
- Complications of falls
  - Fractures including the neck of the femur
  - Intracranial injury
  - Rib fracture and pneumothorax
  - Loss of mobility and independence



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### **Weakness and Paralysis**

When a patient presents with weakness or paralysis a trainee should demonstrate knowledge of the life threatening causes, clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for the common causes.

- Stroke/ space occupying lesion
- Spinal cord injury
- Underlying neurological causes: e.g. multiple sclerosis, Guillain-Barre syndrome
- Infections and disease causing weakness

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### **Headache**

When a patient presents with headache a trainee should demonstrate knowledge of the life threatening causes, clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for the common causes.

- Clinical classifications of headache
- Headache with altered neurological and focal signs
- Headache with features suggestive of raised intracranial pressure
- Headache with papilloedema
- Headache with fever
- Headache with extracranial signs
- Headache with no abnormal signs
- Drugs and toxins

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### **Limb Pain and/or Swelling**

When a patient presents with limb pain or swelling a trainee should demonstrate knowledge of the life threatening causes, clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for the common causes.

- As a result of injury
- As a result of an underlying medical condition
  - Undifferentiated inflammatory arthritis

## Nausea and Vomiting

When a patient with nausea and vomiting a trainee should demonstrate knowledge of the life threatening causes, clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for the common causes.

- Understanding of common causes
  - Abdominal
    - Acute Gastroenteritis
    - PUD
    - Pancreatitis
    - Acute hepatitis
    - Bowel obstruction
  - Central Causes (CNS)
  - Poisoning and Medications
- Management
  - Identification of underlying cause
  - Control of symptoms
  - Treating dehydration

## Seizure

When a patient presents with seizures a trainee should demonstrate knowledge of the life threatening causes, clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for the common causes.

- Causes
  - Unprovoked seizures/epilepsy
  - Seizures associated with metabolic, toxic and system illness
  - Cerebral hypoxia
  - Seizures associated with drugs and toxic substances
- Management
  - Emergency supportive treatment
  - Anticonvulsant treatment
  - Work up of first presentation with seizure
  - Understand driving implications for patients with seizures

## Diarrhoea

When a patient presents with diarrhoea a trainee should demonstrate knowledge of the life threatening causes, clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for the common causes.

- Classification
  - Osmotic
  - Secretary
  - Exudative
- Causes
  - Infectious
  - Inflammatory
  - Ischemic
  - Malignant
- Complications
- Management
  - Acute management
  - Knowledge of appropriate investigations
  - Recognition of associated complications
  - Role of antibiotics
  - When to refer to gastroenterology.

## Delirium/Acute confusion

When a patient presents with delirium or acute confusion a trainee should demonstrate knowledge of the life threatening causes, clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for the common causes.

- Clinical features of acute confused state- differentiating delirium, dementia, depression and psychosis
- Causes of delirium
- Use of screening instruments for delirium and/or cognitive impairment
- Clinical features of acute delirium
- Clinical features of acute functional psychosis
- Causes of confused state associated with alcohol abuse- delirium tremens, Wernicke's encephalopathy
- Drug induced/related confusion/delirium
- Bacterial meningitis, Viral encephalitis
- Subarachnoid haemorrhage/ subdural haematoma

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### Social issues

When a patient presents with social issues a trainee should demonstrate knowledge of the appropriate approach to assessment, risk factors, appropriate investigations and necessary management, including indications for urgent referral, for this population.

- Managing medical conditions with an uncooperative patient
- Identifying potential elder abuse
- Recognising substance abuse
- Basic principles of psychiatry
- Recognising an at risk patient

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### Palpitations

When a patient presents with palpitations a trainee should demonstrate knowledge of the life threatening causes, clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for the common causes.

- Anxiety
- Exercise induced
- In relation to pre-existing conditions including
  - Thyroid disease
  - Anaemia
  - Fever
  - Dehydration
  - Low blood sugar
  - Low blood pressure
- Resulting from medications or toxins
- Hormonal changes
- After prior myocardial infarct
- Coronary artery disease
- Other heart problems including congestive heart failure, heart valve or heart muscle problems

### Hepatitis or Jaundice

When a patient presents with hepatitis or jaundice a trainee should demonstrate knowledge of the life threatening causes, clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for the common causes.

- Incubation and prodromal phase
- Virus-specific
- Toxic hepatitis
- Autoimmune
- Acute liver failure

### Gastrointestinal Bleeding

When a patient presents with gastrointestinal bleeding a trainee should demonstrate knowledge of the life threatening causes, clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for the common causes.

- Understanding of the initial assessment and stabilization of patients with GI bleeding
- Understanding of haemovigilance and blood transfusion protocols
- Upper gastrointestinal bleeding including
  - Peptic ulcer Disease
  - Gastritis
  - Esophageal varices
  - Mallory-Weiss tears
  - Gastrointestinal cancers
  - Inflammation of the gastrointestinal lining from ingested material
- Lower gastrointestinal bleeding including
  - Diverticular disease
  - Gastrointestinal cancers
  - Inflammatory bowel disease (IBD)
  - Infectious diarrhoea
  - Angiodysplasia
  - Polyps
  - Haemorrhoids and anal fissures

## Haemoptysis

When a patient presents with haemoptysis a trainee should demonstrate knowledge of the life threatening causes, clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for the common causes.

- Recognition and Management of massive Haemoptysis
- Common causes of haemoptysis
  - Acute and chronic bronchitis
  - Tuberculosis
  - Lung cancer
  - Pneumonia
  - Bronchiectasis
  - Pulmonary Embolus
  - Alveolar Haemorrhage (vasculitis)

## Rash

When a patient presents with a rash a trainee should demonstrate knowledge of the life threatening causes, clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for the common causes.

- Urticaria
- Anaphylaxis and Angio Oedema
- Erythroderma and exfoliation
- Psoriasis and seborrhoeic/contact dermatitis
- Purpura and vasculitis
- Blistering eruptions
- Infections and the skin

## Acute Back Pain

When a patient presents with acute back pain a trainee should demonstrate knowledge of the life threatening causes, clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for the common causes.

- Non-specific acute back pain
- Causes of chronic low back pain
- Neurologic findings in back pain
- Identifying serious etiologies of back pain e.g.,
  - Cancer
  - Fracture
  - Infection
  - Cauda equina syndrome

## Poisoning and Drug Overdose

When a patient presents with poisoning or overdose a trainee should demonstrate knowledge of the life threatening causes, clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for the common causes.

- Diagnostic clues in the assessment of overdoses
- Identification of toxic agent (paracetamol, SSRI, benzodiazepines, opiates, amphetamines, TCAD)
- Immediate management
- Mental health assessment and definitive care

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### **Hyper-glycaemia**

When a patient presents with hyper-glycaemia a trainee should demonstrate knowledge of the life threatening causes, clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for the common causes.

- Symptoms of acute hyper-glycaemia
  - Recognition and Management of diabetic ketoacidosis
  - Recognition and management of Hyperosmolar non ketotic hyperglycemic states
-

## Procedures

**Objectives:** To develop proficiency in common procedures required for general internal medicine.

### Knowledge and Skills

#### Abdominal paracentesis under ultrasound

#### ECG Interpretation

#### Emergency DC cardioversion

- Up to date ACLS training to cover:
  - Necessity of Synchronised Shock
  - Starting voltage
  - Safe use of Defibrillator

#### Emergency care of tracheostomy

- In cases of:
  - Cardiac arrest
  - Dealing with a compromised airway

#### Femoral venous lines with ultrasound guidance

- Ultrasound guided femoral venous line placement
- Anatomical markers for femoral veins
- Safe cannulation of vein
- Secure line in place/review position on X-ray

#### Intercostal drain under ultrasound

- Anatomical markings
- Insertion of intercostal tube (small bore seldinger)
- Connection to underwater seal and secure in place
- Assessment and management of drain
- Safe removal of the tube

#### Joint aspiration

- Sterile field
- Fluid analysis
- Injectable compounds

#### Lumbar puncture

- Anatomical markers
- Cannula selection
- Safe puncture including appropriate preparation
- Measurement of CSF pressure
- Removal of samples and interpretation of results
- Management of post lumbar puncture headache

#### Non-invasive Ventilation

- Principles of BIPAP and CPAP
- Monitoring and limitations
- Mask fitting
- Understanding of pressures



**Pleural and ascitic fluid aspiration under ultrasound**

- Safe approach and role of ultrasound guidance
- Puncture pleural / peritoneal space
- Withdrawal of fluid

## Specialty Section

The Infectious Diseases Society of America Fellows In-Training Exam is listed as one of the assessment methods in the specialty section of this curriculum. The purpose of this exam is not as a certifying or qualifying examination but to be used as a self- assessment tool designed to gauge knowledge of infectious diseases.

## Clinical Competence

**Objective:** To obtain clinical competence in the assessment, investigation, diagnosis and management of community acquired infection at consultant level that is evidence based, including:

- Taking an appropriate history.
- Performing appropriate physical examination
- Performing appropriate investigator and specific skills including lumbar puncture
- Achieving an appropriate specific or differential diagnosis and initiate appropriate treatment.
- Developing clinical and administrative skills to develop ID services.
- Competency in the management of cross-specialty infections for example TB, hepatitis including B and C.

## KNOWLEDGE

### History

- Recognise symptom patterns
- Relevant, succinct and logical histories even when language, physical or mental impairment pose difficulties
- Appropriate use of interpreter
- Consider interaction of psychological and social wellbeing on the physical symptoms to show empathy with the patient
- Ability to compile and condense patient's history from different sources as required

### Physical Examination

- Knowledge of the path of and physiological basis of physical signs
- Explain the procedure to the patient, ensure that patient discomfort is minimised
- Elicit appropriate physical signs
- Skilfully use instruments of examination
- Be aware of patient dignity, confidentiality and ethnic issues
- The relative's rights and responsibilities
- The need for a chaperone

### Investigation and Specific Skills

- Knowledge of the Pathophysiological basis of tests
- Knowledge of its relevance
- Pathological basis of the test
- The cost and economy and safety of the investigation

### Differential Diagnosis

- A broad knowledge of clinical presentation of infectious diseases
- Knowledge of optimum treatment infections
- Knowledge of how to access up to date information
- Ability to assimilate clinical, laboratory and epidemiological information and to use this to differentiate between infections and other conditions
- Consideration of diagnostic issues in relation to fears of patient
- Ability to review and revise the diagnostic matrix

### Clinical acumen in the organisation and development of in-patient and out-patient services

- Awareness of differing models of health care delivery

### Interface with related infection disciplines

- Understand the different components and roles of infection services e.g. public health, microbiology, immunology, epidemiology, travel medicine.
- Awareness of pathophysiology and management of patients with diseases spanning different specialties.

**SKILLS**

- Provide consult service
- History taking
- Give targeted differential diagnosis
- Organise administrative and clinical services
- Initiate and co-ordinate an effective consultation service
- Capacity to work with multidisciplinary team members and colleagues
- Select appropriate tests
- Interpret results
- Perform interventions according to guidelines
- Establish close rapport and understanding with laboratory staff
- Recognise the need of a patient to understand procedures and results of tests
- Interpersonal skills
- Capacity to impart knowledge

**ASSESSMENT & LEARNING METHODS**

- Mini-CEX
- Infectious Diseases Society of America Fellows In-Training Exam
- Attending recognised international ID meetings

## Management of Immunocompromised Patients

**Objective:** To obtain clinical competence at consultant level in the management of immunocompromised patients including those suffering from HIV/AIDS, transplant patients and those with rheumatological or haematological /oncological disorders. Trainees must have the ability to recognise clinical manifestations in the immunocompromised patient including the ability to evaluate and take appropriate history, perform a physical examination and appropriately investigate an immune compromised patient. In addition, trainees should be able to assess the degree of immune compromise and demonstrate their ability to reach a specific or differential diagnosis and initiate appropriate treatment.

### KNOWLEDGE

- Knowledge of the pathophysiology and clinical symptoms and signs of infection in compromised host and understand their relevance
- Pathological basis of the tests
- The cost and economy and safety of the investigations in the immunocompromised
- Awareness and knowledge of patient support groups
- Biological and iatrogenic aetiology of immunodeficiency

#### Specific HIV Positive Patient cohorts

- Pregnancy and conception, co-infection (HBV, HCV, TB), non-nationals, injection drug users, end stage disease and palliative care
- Spectrum of professional and complementary therapies available
- Palliative medicine, nutrition, pain relief, psychology of dying
- Discernment in balancing a specific and caring approach to the problem

### SKILLS

- Assessment of level of immunodeficiency and infection risk
- Assessment of risk for and diagnose concurrent infection
- Immunodeficiency complications in specific patient cohorts – transplant patients, oncology patients, haematology patients, patients receiving biological modifiers
- Communication skills allowing patients to recognise risk activity and its management
- Recognise clinical and laboratory manifestations of immunodeficiency
- Explain the procedures to the patient, ensure that patient discomfort is minimised
- Elicit appropriate physical signs
- Skilfully use instruments of examination
- Consider interaction of psychological and social well being on the physical symptoms
- Establish close rapport and understanding with laboratory staff
- Delivery of effective pain and psychological management
- Commitment to continuity of care through physical illness to death
- Multidisciplinary team working
- Prepared to work with patient support groups
- Appropriate use and interpretation of investigations e.g. microbiology, radiology
- Knowledge of resources required in investigations
- Understanding of positive and negative predictive values

### ASSESSMENT & LEARNING METHODS

- SpR Clinical Club
- Ethics courses
- Infectious Diseases Society of America Fellows In-Training Exam

## **Viral Infections including HIV, Hepatitis B and Hepatitis C**

**Objective:** Trainees must be competent in the use of specific HIV, HCV and HBV diagnostics and have the ability to institute and manage antiretroviral therapy as relates specifically to HIV, HCV and HBV.

### **KNOWLEDGE**

- Understand currently used diagnostic techniques
- Use diagnostic techniques appropriately
- Rational use of resources
- Discernment of patient's desires
- Pharmacokinetics and mode of action of available antiretroviral therapy
- Mechanisms of resistance/cross resistance
- Knowledge on how to access further information e.g. current guidelines etc.
- Epidemiology and screening
- Diagnostics
- Clinical manifestations
- Management according to latest guidelines
- Counselling and reporting
- Pregnancy
- Co infections including TB, Hep B, Hep C

### **SKILLS**

- Interpret resistance profiles - Hep B, Hep C, HIV
- Counselling
- Understand resistance/cross resistance
- Understand evidence based guidelines
- Facilitate patient decision-making based on knowledge and understanding of the issues
- Recommend appropriate drug regimens
- Appropriate use of guidelines
- Monitor and recognise side effects
- Involve the patient in the process
- Unbiased application of knowledge to the clinical situation

### **ASSESSMENT & LEARNING METHOD**

- Infectious Diseases Society of America Fellows In-Training Exam

## Management of Community Acquired Infections

**Objective:** The trainee should be able to diagnose, investigate and manage community acquired infection based on current evidence.

### KNOWLEDGE

- Epidemiology of community acquired infections
- Knowledge of regional antimicrobial resistance data
- Close liaison with the laboratory and understanding of laboratory data including interpretation of resistance patterns
- Programme development – OPD services, home antibiotic services

### SKILLS

- Evaluate patient and assess risk
- Manage patient based on evidence
- Awareness of need for the involvement of other infection disciplines e.g. community outbreaks
- Triage patients for in-patient vs. out-patient care appropriately
- Identify the need to involve more senior colleagues appropriately
- Interpret Gram Stains
- Interpret Malaria smear
- Develop or expand ID programme

### ASSESSMENT & LEARNING METHOD

- Infectious Diseases Society of America Fellows In-Training Exam

**Community Infections/Public Health**

**Objective:** The Trainee should be able to demonstrate knowledge and understanding of the public health aspects of vaccine-preventable infections and the benefits of vaccination.

**KNOWLEDGE**

- Early years – understand the components of the childhood immunisation programme in Ireland/ importance of vaccination as public health measure/ role in preventing transmission of infection
- Later years – understand the roles of different bodies in immunisation guidance/ international (ECDC) other guidance and rationale for development of an immunisation strategy

**SKILLS**

- Advise appropriately on the use of active and passive immunisation, including in immunocompromised patients and in outbreaks
- Understand principles of active and passive immunisation in different patient scenarios; describe role of these in specific case examples in their clinical experience

**ASSESSMENT & LEARNING METHOD**

- Study day - joint with Public Health



## Management of Hospital Acquired Infection

**Objective:** To acquire the skills necessary at consultant level to recognise and manage Hospital Acquired Infection and institute control systems, including postoperative in surgical patients and intensive care related illness specific to ICU.

## Management of Infection

### Particularly complex nosocomial infections in specific patients group

**Objective:** Trainees must have the ability to use the following skills in the context of hospital acquired infection: clinical history taking; appropriate examination; institute relevant investigations. Reach a satisfactory management plan.

### KNOWLEDGE

- Symptom patterns
- Pathophysiology and origin of physical signs
- Common/typical problems
- Hospital acquired infection
- Confidentiality and consent issues in the unconscious patient

### SKILLS

- Discern the relevant features of a case whether or not the history is available
- Examination skills appropriate to the clinical situation
- Rational use of laboratory facilities
- Differentiate colonization from active infection
- Working sensitivity surrounding hospital acquired infection and appropriately dealing with patients, relatives, colleagues and hospital management

### ASSESSMENT & LEARNING METHOD

- Grand round presentation
- Infectious Diseases Society of America Fellows In-Training Exam

## Antimicrobial Stewardship

**Objective:** To provide the trainee with the knowledge and skills necessary to rationally use antibiotics such that they can provide leadership at an institutional level with the goal of appropriate antibiotic use.

### KNOWLEDGE

- Understanding of differentiation of colonisation and infection
- Understanding of microbiology laboratory data
- Management of resistant infections
- Knowledge of new antimicrobials
- Local/national/international antibiotic resistance patterns
- Local/national/international clinical standards, guidelines and protocols
- Mechanisms of resistance

#### Management of antimicrobial use

- Antimicrobial Prescribing
- Knowledge of antimicrobial agents, their spectrum of activity, mode of action, toxicity and appropriate use

#### Pharmacology and Toxicology

- Knowledge of pharmacology, toxicity and side effects of antimicrobial agents
- Recognition of limitations of individual agents and combination therapies

#### Antibiotic Control Policies

- Understanding of the importance of resource utilisation in relation to antimicrobials
- Knowledge of the relative costs of different agents

#### Understanding of prophylactic, pre-emptive and therapeutic prescribing

- Knowledge of the microbial agents likely to cause infection in different settings and their antimicrobial susceptibilities
- Understanding the principles underlying pre-operative prophylaxis

#### Resistant organisms: understanding the pharmacology of new agents

- Knowledge of infection control principles and policies

### SKILLS

- Differentiation between colonisation and infection
- Understand laboratory data including interpretation of resistance patterns
- Appropriate antibiotic prescribing in simple and complex clinical settings
- Understand economics of antibiotic prescribing
- Interact collaboratively with medical, laboratory and nursing colleagues and understand the patient's concerns relating to the use of more toxic agents
- Teach appropriate antimicrobial prescribing
- Use of the knowledge to apply prophylaxis in the light of local epidemiological and individual clinical issues e.g. allergy
- Understand principles of prophylaxis and communicate same to colleagues and patients
- Multidisciplinary team working

### ASSESSMENT & LEARNING METHODS

- Grand Round presentations
- Audit
- Infectious Diseases Society of America Fellows In-Training Exam

## Infections in ICU Including Sepsis

**Objective:** Trainees must be able to recognise and manage infection and colonization by multi-resistant organisms in the setting of the ICU. Recognise and manage sepsis, manage infection including MDR infection in ICU and distinguish between colonisation and infection in ICU.

### KNOWLEDGE

- Common infection problems in the intensive care setting
- Pathophysiology of serious sepsis
- Management of infections with evidence base
- Outcomes of infection in ICU setting

### SKILLS

- Prompt, relevant and appropriate decision-making based on current evidence
- Understand laboratory data including interpretation of resistance patterns and close liaison with microbiology lab
- Clear communication skills with other carers and relatives
- Caring and consistent attitude to the seriously ill and dying patient
- Responsible and appropriate attitude to the withdrawal of care
- Appropriate Antibiotic use (see also Antimicrobial Stewardship chapter)

### ASSESSMENT & LEARNING METHOD

- Infectious Diseases Society of America Fellows In-Training Exam

## Infection Prevention and Control

**Objective:** The development of and execution of infection control policies in the hospital setting through the infection control committee.

### KNOWLEDGE

- Demonstrates knowledge and understanding of Standard Precautions in Infection Prevention and Control (IP&C) and ability to advise on the appropriate use of Personal Protective Equipment (PPE).
- Demonstrates knowledge and understanding of Transmission based Precautions (TBP) in IP&C, including appropriate patient isolation and cohorting.
- Demonstrates knowledge and understanding of the healthcare environment and equipment as potential sources of infection.
- Demonstrates knowledge and understanding of microbiological surveillance including patient screening methods, organism typing and genome sequencing methodologies.
- Applies knowledge and understanding of microbiological surveillance to prevention and control of Healthcare Associated Infection (HCAI).
- Demonstrates knowledge and understanding of public health implications of specific communicable diseases and the importance of appropriate public health notification and intervention.
- Demonstrates ability to participate in managing outbreaks or significant cross-infection incidents in the healthcare setting.

### SKILLS

- Can advise on components of standard precautions and Transmission based precautions, adopts them in practice, and demonstrate their use.
- Attendance at outbreak meeting with specific role and action/s to completion; could include post infection reviews of healthcare associated infection; contributes to the post outbreak report
- Understanding of how to do microbiological surveillance including discussion with patients and colleagues and liaison with laboratory to establish process

### ASSESSMENT & LEARNING METHOD

- SHEA online course
- Participation in institutional infection control committees.
- ID week

## Imported Infections and Fevers Including Malaria and their prevention

**Objective 1:** Trainees must have the ability to recognise and treat imported infections, to diagnose and manage imported infections.

**Objective 2:** Trainees must have the ability to provide health advice for travellers (prevention)

### KNOWLEDGE

- Clinical and epidemiological features of imported diseases, especially manifestations and differential diagnosis of malaria, typhoid, dengue, rickettsial infections
- Knowledge of strengths and limitations of specialised diagnostic tests
- Knowledge of on line and clinical specialist resources
- Management of imported infections
- Knowledge of vaccines including availability, efficacy and safety
- Problems of special groups of travellers, e.g. elderly, immunosuppressed
- Use and safety of anti-malarial prevention measures

### SKILLS

- Elicit and record appropriate travel history
- Recognise symptoms and signs of imported disease
- Select and interpret appropriate diagnostic tests
- Synthesise epidemiological, clinical and lab data into differential diagnosis
- Close liaison with the laboratory
- Manage common imported infections
- Recognise the need for interpreter services
- Review and revise the diagnostic considerations appropriately
- Prepare and interpret malaria smear
- Risk assessment for the individual traveller
- Take and record pre-travel medical and travel history
- Formulate and communicate appropriate verbal and written advice for traveller
- Administer immunisations and prescribe anti-malarials as necessary

### ASSESSMENT & LEARNING METHOD

- Study day
- Clinical SpR Club
- Infectious Diseases Society of America Fellows In-Training Exam

## Dealing with High Security Risk Infections

**Objective:** Trainees must have the ability to identify sources of specialist advice for unusual infections.

### KNOWLEDGE

- Knowledge of location and availability of tertiary care and advice lines
- Knowledge of printed and electronic information sources
- Knowledge of High Security Unit Mater
- Knowledge of unusual infections

### SKILLS

- Recognise when tertiary level care/advice is needed and to seek it
- Use printed and electronic information sources
- Awareness of own limitations and needs for specialist advice

### ASSESSMENT & LEARNING METHOD

- Study day: Unusual infections (National Isolation Unit, Mater Hospital)
- Infectious Diseases Society of America Fellows In-Training Exam

## Infection and Immigrants

**Objective:** Trainees should acquire relevant knowledge of infections in immigrants and demonstrate their ability to assess, manage, record and effectively communicate with immigrants with acute and chronic infections

### KNOWLEDGE

- Knowledge of health needs of different immigrant groups
- Epidemiological and clinical features of imported infection in immigrant groups
- Knowledge of the relative's rights and responsibilities
- Knowledge of population shifts
- Awareness of vaccine preventable disease in delayed entrance to the Irish Health Care system

### SKILLS

- Work with interpreters and patient support groups
- Recognise both acute and chronic infections in immigrants
- Consider interactions of psychological and social well-being on the physical symptoms and show empathy with the patient
- Awareness of patient dignity, confidentiality, ethnic issues, need for an interpreter
- Update disease surveillance

### ASSESSMENT & LEARNING METHOD

- Communication
- Ethics
- Infectious Diseases Society of America Fellows In-Training Exam

**Interface with Related Infection Disciplines Particularly Public Health Medicine**

**Objective:** Trainees must have the ability to interact with the community infection team

**KNOWLEDGE**

- Knowledge of risks of community or different imported disease, including rare situations that require urgent public health intervention
- Knowledge of epidemiological systems available for the control of disease and how to access them
- Epidemiological control

**SKILLS**

- Make accurate risk assessment
- Recognise when urgent epidemiological action is required
- Recognise who must be involved in epidemiological control in different settings
- Co-operative working in the multidisciplinary team

**ASSESSMENT & LEARNING METHOD**

- Study day - joint with Public Health
- Optional EPT-ET
- Infectious Diseases Society of America Fellows In-Training Exam



## Laboratory Medicine

**Objective:** To obtain an understanding of the role of the Microbiologist and Virologist and the importance of Microbiological techniques in ID and to understand the process and constraints around the microbiological report. Trainees must be competent to carry out basic microbiological bench work including critical interpretation of laboratory procedures in relation to laboratory diagnosis

### KNOWLEDGE

#### Basic microbiological bench work

- Knowledge of microbiological basis of disease
- Knowledge of the pathological basis of tests and the laboratory factors affecting their interpretation

#### Microbiological reporting

- Knowledge of the pathways of microbiological reporting
- Knowledge of the boundaries of use of microbiological information in the context of clinical information

#### Knowledge of appropriate testing and interpretation of results

- Knowledge of the diagnostic tests available in the routine laboratory with understanding of further tests available at specialised centres
- Knowledge of antibiotic modes of action, side effects and interactions
- Knowledge of other interventions (e.g. abscess drainage) useful in management of infected patients
- Antibiotic grams
- Understanding of positive cytology results
- Knowledge of new developments in molecular diagnostics

### SKILLS

- Perform laboratory tests identifying microorganisms
- Interpret the findings of microbiological investigations and recognise their limitations
- Establish close rapport and understanding with laboratory staff
- Communicate with colleagues and other doctors in different disciplines and enable them to appreciate the relevance of the data
- Interpret laboratory data in the context of clinical information
- Provide appropriate antibiotic and other management advice at the bedside and over the telephone when based in the lab
- Awareness of patient dignity, confidentiality and ethnic issues
- Consideration of interaction of psychological and social well being on the physical symptoms and demonstration of empathy to patients
- Interpret molecular diagnostics appropriately

### ASSESSMENT & LEARNING METHOD

- One month in Microbiology laboratory
- Gram stain identification
- Study day - Link with Microbiology - Plate rounds - gram stains etc
- Infectious Diseases Society of America Fellows In-Training Exam

## Management and Health and Safety Procedures

**Objective:** In addition to general health and safety procedures, trainees should be aware of the requirement to link with occupational medicine and laboratory management including health and safety procedures.

### KNOWLEDGE

- Knowledge of the main health and safety procedures in the diagnostic laboratory and in category 3 isolation facilities
- Knowledge of regulations for handling of pathogens
- Knowledge of appropriate infection control policies

### SKILLS

- Link with occupational health services for assessment and management of needlestick injuries
- Perform laboratory work in a safe manner consistent with local rules and national guidelines
- Understand and be sympathetic to the safety concerns of other laboratory staff

### ASSESSMENT & LEARNING METHODS

- Infectious Diseases Society of America Fellows In-Training Exam

**Understanding of Prophylactic, Pre-Emptive and Therapeutic Prescribing**

**Objective:** Trainees must demonstrate competence in the use of pre-operative antibiotic prophylaxis.

**KNOWLEDGE**

- Knowledge of the microbial agents likely to cause infection in different settings and their antimicrobial susceptibilities
- Understanding the principles underlying pre-operative prophylaxis

**SKILLS**

- Use of the knowledge to apply prophylaxis in the light of local epidemiological and individual clinical issues e.g. allergy
- Understand the needs and problems of the doctors managing the patient
- Be prepared to explain the issues of prophylaxis to patients
- Multidisciplinary team working

**ASSESSMENT & LEARNING METHODS**

- Antimicrobial stewardship committee membership

## Research Methodology and Epidemiology

**Objective:** Trainees must demonstrate competence in research methodology including basic statistics.

### KNOWLEDGE

#### Research

- Research methods
- Clinical trial design
- Statistical analysis and common statistical errors

#### Epidemiology

- Knowledge and understanding basic concepts/principles of epidemiology such as:
  - Measures of disease occurrence
  - Measures of disease frequency
  - Measures of effect
- Knowledge of different types of epidemiological study (case control, cohort)
- Knowledge of principles of surveillance
- Knowledge of the components of surveillance system from data collection to action
- Knowledge of principle of outbreak investigation – involvement in and understanding of process
- Field methods in epidemiology – undertaking an epidemiological study using appropriate instruments, questionnaires etc.
- Data analysis – ability to analyse data using basic software programmes, and using appropriate statistical tests
- Collaborative research with Departments of Public Health and/or Health Protection Surveillance Centre should be considered
- Appreciates the place of epidemiology in disease prevention and control

#### Mathematical models in infection

- Detailed knowledge of mathematical models
- Handling, interpretation and application of mathematical models
- Curiosity and an inquiring mind

### SKILLS

- To know how to initiate appropriate clinical studies
- Research Ethics
- Experimental design, writing up
- Statistical analysis
- Appropriately assess importance of published work
- Curiosity and spirit of enquiry but healthy cynicism
- Be prepared to change practice in the light of published evidence
- Audit

### ASSESSMENT & LEARNING METHODS

- Ethics
- Research Skills course
- Audit
- Publications
- Presentations at local, national or international meetings

**Additional (Optional) Training**

**Objective:** To have the opportunity for additional (optional) enhanced training in specific areas related to ID including: - clinical virology; clinical pharmacology; public health medicine and epidemiology; GU medicine; vaccinology; overseas practice.

**Subject Matter**

**Clinical Virology**  
**Clinical Pharmacology**  
**Public Health and Epidemiology**  
**GU Medicine**  
**Vaccinology**  
**Overseas Practice**

- As appropriate to the needs of the individual trainee
- Enhancement of skills in the specific area of study
- Recognition of “added value” of the additional targeted training

## 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 speciality coordinator

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	Personal Goals Form
<b>On Call Rota</b> <b>Unselected Admissions for General Internal Medicine (Completed within first 3 years)</b>		1		Clinical Activities
<b>GIM Year</b>	Required	480	Training Programme	
<b>Dual Specialty Year</b>	Required	480	Training Programme	
<b>Section 2 - Training Activities</b>				
<b>Outpatient Clinics</b> (please enter number of clinics as per timetable on a weekly basis)				Clinics
Hepatitis B	Required	10	Training Programme	
Hepatitis C	Required	10	Training Programme	
ID Clinics	Required	40	Training Programme	
TB Clinics	Required	10	Training Programme	
STI Clinics	Required	20	Training Programme	
HIV Clinics	Required	40	Training Programme	
<b>Ward Rounds/Consultations</b>				Clinical Activities

Curriculum Requirement	Required/Desirable	Minimum Requirement	Reporting Period	Form Name
Consultant Led (minimum 1 per week)	Required	40	Year of Training	
SpR Led (minimum 1 per week)	Required	40	Year of Training	
Consultations (OPAT – Outpatient Parental Antibiotic Therapy)	Required	10	Year of Training	
Participation in AMS Rounds	Required	10	Training Programme	
<b>Procedures/Practical Skills/Surgical Skills</b>				Procedures, Skills & DOPS
Gram Stain interpretation	Required	10	Training Programme	
Malaria Smear interpretation	Required	5	Training Programme	
<b>Additional/Special Experience Gained</b>				Cases
Epidemiology, Public Health (A period of interface is desirable to enable the trainee to become familiar with principles and practicalities of immunization, vaccination, and the investigation and control of notifiable diseases and outbreaks in the community)	Desirable	1	Training Programme	
Genito-Urinary Medicine (6 months experience in recognised Genito-Urinary Medicine is desirable)	Desirable	1	Training Programme	
Paediatric Infectious Diseases	Desirable	1	Training Programme	
Other: (Tropical Medicine, Paediatrics etc. Arrangements should be made to attend if possible, Hepatology and Pulmonary/TB clinics (for 6 months))	Desirable	1	Training Programme	
<b>Laboratory Experience</b> (Medical Microbiology - period of 2 months is essential (of which 1 month must be spent in microbiology and 1 month in virology, and up to 6 months at an appropriate level can be recognized)  During this period the trainee should develop expertise in providing advice on the appropriate use of the laboratory and on antimicrobial chemotherapy to clinicians)				Laboratory Activities
Microbiology (minimum required 1 month in microbiology, 1 month virology or similar (such as viral hepatitis clinic))	Required	1	Training Programme	

<b>Curriculum Requirement</b>	<b>Required/Desirable</b>	<b>Minimum Requirement</b>	<b>Reporting Period</b>	<b>Form Name</b>
Molecular Diagnostics (1 month in Virology or Molecular Diagnostics) or similar clinical experience	Desirable	1	Training Programme	
<b>ICU/CCU Cases</b>				Cases
Intensive Care (Experience of Management of patients in an ITU is essential. A period spent in this environment should provide experience in the prevention and treatment of nosocomial infection, and include participation in ward rounds.)	Required	1	Training Programme	
<b>Management Experience</b>	Required	1	Training Programme	Management Experience
<b>General Internal Medicine Procedures/Practical Skills/Surgical Skills</b>	Required	1	Training Programme	Procedures, Skills & DOPS
BIPAP/CPAP	Required	1	Training Programme	
Emergency DC cardioversion	Required	1	Training Programme	
ECG interpretation	Required	1	Training Programme	
Joint aspiration	Required	1	Training Programme	
Lumbar puncture	Required	1	Training Programme	
Abdominal paracentesis – under ultrasound	Desirable	1	Training Programme	
Femoral venous line placement – under ultrasound	Desirable	1	Training Programme	
Pleural aspiration – under ultrasound	Desirable	1	Training Programme	
Intercostal drain Insertion – under ultrasound	Desirable	1	Training Programme	
<b>Mandatory Courses</b>				Teaching Attendance
ACLS	Required	1	Training Programme	
Ethics Foundation	Required	1	Training Programme	



Curriculum Requirement	Required/Desirable	Minimum Requirement	Reporting Period	Form Name
Ethics for General Medicine	Required	1	Training Programme	
An Introduction to Health Research Methods	Required	1	Training Programme	
HST Leadership in Clinical Practice (Year 3+)	Required	1	Training Programme	
Performing Audit (Year 1)	Required	1	Training Programme	
Mastering Communications (Year 1)	Required	1	Training Programme	
Wellness Matters	Required	1	Training Programme	
US Board Review Course	Desirable	1	Training Programme	
SHEA course	Required	1	Training Programme	
<b>General Internal Medicine Mandatory Courses</b>				Teaching Attendance
NIHSS Stroke Scale	Required	1	Training Programme	
Delirium Recognition and Response (Online)	Required	1	Training Programme	
Bedside Ultrasound (POCUS) for GIM	Required	1	Training Programme	
<b>Non – Mandatory Courses</b>	Desirable	1	Training Programme	Teaching Attendance
<b>Examinations</b> (can be logged against an ID study day)				Examinations
Infectious Diseases Society of America Fellows In-Training Exam	Required	2	Training Programme	
<b>Study Days</b>	Required	6	Year of Training	Teaching Attendance
General Internal Medicine Specialty Year (Minimum of 6 GIM study days: 3 'core' and 3 'non-core')				
Years 1-3 for non-GIM Years (Minimum of 3 GIM study days per year: 2 core and 1 'non-core')				

Curriculum Requirement	Required/Desirable	Minimum Requirement	Reporting Period	Form Name
During GIM Year Trainees must attend 3 GIM study days per year and 3 ID study days per year During Dual years Trainees must attend 6 ID study days per year Notes: Each study day can only be counted once. Infectious Diseases Society of America Fellows In-Training Exam – counted as one study day.				
<b>National/International Meetings (minimum attend 1 per year)</b> during High Intensity ID year, this can be recorded as ID study day.	Required	1	Year of Training	Additional Professional Experience
<b>Participation at in-House Activities</b> minimum of 1 per month from the categories below:				Attendance at Hospital Based Learning
Grand Rounds (minimum 1 per month)	Required	10	Year of Training	
Journal Clubs	Required	20	Year of Training	
MDT meetings	Required	20	Year of Training	
Radiology Conferences	Desirable	20	Year of Training	
Lecture	Required	20	Year of Training	
Seminar	Required	20	Year of Training	
<b>Delivery of Teaching</b>	Required	10	Year of Training	Delivery of Teaching
<b>Research</b>	Desirable	1	Training Programme	Research Activities
<b>Audit Activities and Reporting</b> (1 per year either to start or complete, Quality Improvement (QI) project can be uploaded against audit)	Required	1	Year of Training	Audit Activities and Reporting
<b>Publications</b>	Desirable	1	Year of Training	Additional Professional Experience

Curriculum Requirement	Required/Desirable	Minimum Requirement	Reporting Period	Form Name
<b>Presentations</b>	Required	1	Year of Training	Additional Professional Experience
<b>Committee Attendance</b>	Required	1	Training Programme	Additional Professional Experience
<b>Additional Qualifications</b>	Desirable	1	Training Programme	Additional Professional Experience
<b>Section 4 - Assessments</b>				
<b>CBD (to discuss acutely unwell patient)</b>	Required	1	Year of Training	Case Based Discussion
<b>Mini-CEX (At least two Mini-CEX assessments)</b>	Required	2	Year of Training	Mini CEX
<b>General Internal Medicine DOPS</b>				Procedures, Skills & DOPS
BIPAP/CPAP	Required	1	Training Programme	
Communication e.g. charing care planning meeting for complex discharge, procedure consent	Required	1	Training Programme	
DC cardioversion	Required	1	Training Programme	
ECG interpretation	Required	1	Training Programme	
Joint aspiration	Required	1	Training Programme	
Lumbar puncture	Required	1	Training Programme	
Abdominal paracentesis under ultrasound	Desirable	1	Training Programme	
Femoral venous line placement under ultrasound	Desirable	1	Training Programme	
Pleural aspiration under ultrasound	Desirable	1	Training Programme	
<b>Quarterly Assessments/End-of-Post Assessments</b>	Required	4	Year of Training	Quarterly Assessments/End-

<b>Curriculum Requirement</b>	<b>Required/Desirable</b>	<b>Minimum Requirement</b>	<b>Reporting Period</b>	<b>Form Name</b>
				of-Post Assessments
<b>End of Year Evaluation</b>	Required	1	Year of Training	End of Year Evaluation