

UNIT SPECIFICATION

FOR TAUGHT MB ChB UNITS



Name of Unit		Infection and Immunity					
Parent School/Dept		Medical School					
Programmes where module is offered		MB ChB					
Status (compulsory, optional, free choice)		Compulsory		Pre-Requisite Modules or Qualifications		n/a	
FHEQ Level	7	Unit Value	Component of integrated programme	Unit Code (where applicable)		Unit Coordinator	Dr Jacqueline O'Dowd
Terms Taught		Term 4		Applicable From		2016	

Educational Aims of the Unit

The unit aims to enable students to develop towards meeting the learning outcomes described in outcomes for graduates (2015) relevant to the Doctor as Scholar and Scientist.

Students will develop an understanding of the scientific basis of bacterial, viral, fungal and parasitic infections by exploring the host/pathogen relationships and the mechanisms of action of key microorganisms in important clinical syndromes. Building upon this knowledge the students will then learn about infection prevention, control and management, especially in a Health care environment.

At the end of the unit the students will understand the principles of laboratory practice in Microbiology, virology and serology, and gain appreciation of actions and limitations of anti-microbial and anti-viral agents used. Finally the student should be able to connect the themes discussed within the unit to a clinical context, and be aware of the ethical and public health issues surrounding it.

Learning Outcomes From Outcomes for Graduates (2015)

Outcomes 1 - The doctor as a scholar and a scientist

8. The graduate will be able to apply to medical practice biomedical scientific principles, method and knowledge relating to: anatomy, biochemistry, cell biology, genetics, immunology, microbiology, molecular biology, nutrition, pathology, pharmacology and physiology. The graduate will be able to:

- (a) Explain normal human structure and functions.
- (b) Explain the scientific bases for common disease presentations.
- (c) Justify the selection of appropriate investigations for common clinical cases.
- (d) Explain the fundamental principles underlying such investigative techniques.
- (e) Select appropriate forms of management for common diseases, and ways of preventing common diseases, and explain their modes of action and their risks from first principles.
- (f) Demonstrate knowledge of drug actions: therapeutics and pharmacokinetics; drug side effects and interactions, including for multiple treatments, long-term conditions and non-prescribed medication; and also including effects on the population, such as the spread of antibiotic resistance.
- (g) Make accurate observations of clinical phenomena and appropriate critical analysis of clinical data.

9. Apply psychological principles, method and knowledge to medical practice.

- (b) Discuss psychological concepts of health, illness and disease.

10. Apply social science principles, method and knowledge to medical practice.

- (b) Discuss sociological concepts of health, illness and disease.
- (c) Apply theoretical frameworks of sociology to explain the varied responses of individuals, groups and societies to disease.
- (d) Explain sociological factors that contribute to illness, the course of the disease and the success of treatment including issues relating to health inequalities, the links between occupation and health and the effects of poverty and affluence.
- (e) Discuss sociological aspects of behavioural change and treatment compliance.

11. Apply to medical practice the principles, method and knowledge of population health and the improvement of health and health care.

- (a) Discuss basic principles of health improvement, including the wider determinants of health, health inequalities, health risks and disease surveillance.
- (b) Assess how health behaviours and outcomes are affected by the diversity of the patient population.
- (e) Explain and apply the basic principles of communicable disease control in hospital and community settings.
- (f) Evaluate and apply epidemiological data in managing healthcare for the individual and the community.
- (g) Recognise the role of environmental and occupational hazards in ill-health and discuss ways to mitigate their effects.
- (i) Discuss the principles and application of primary, secondary and tertiary prevention of disease.
- (j) Discuss from a global perspective the determinants of health and disease and variations in health care delivery and medical practice.

12. Apply scientific method and approaches to medical research.

- (a) Critically appraise the results of relevant diagnostic, prognostic and treatment trials and other qualitative and quantitative studies as reported in the medical and scientific literature.
- (b) Formulate simple relevant research questions in biomedical science, psychosocial science or population science, and design appropriate studies or experiments to address the questions.
- (c) Apply findings from the literature to answer questions raised by specific clinical problems.
- (d) Understand the ethical and governance issues involved in medical research.

Outcomes 2 - The doctor as a practitioner

14. Diagnose and manage clinical presentations.

November 2015 (d) Interpret the results of investigations, including growth charts, x-rays and the results of the diagnostic procedures in Appendix 1.

- (e) Synthesise a full assessment of the patient's problems and define the likely diagnosis or diagnoses.

Outcomes 3: The Doctor as a Professional

20. The graduate will be able to behave according to ethical and legal principles. The graduate will be able to:

- e) Recognise the rights and the equal value of all people and how opportunities for some people may be restricted by others' perceptions.

21. Reflect, learn and teach others.

- b) Establish the foundations for lifelong learning and continuing professional development, including a professional development portfolio containing reflections, achievements and learning needs.
- c) Continually and systematically reflect on practice and, whenever necessary, translate that reflection into action, using

Teaching and Learning Strategies

Principles will be introduced in formal lectures, and learning will be re-inforced in practical classes and facilitator led small-group work immediately afterwards. Student will work in the same teams throughout Phase I to encourage team-working.

Some concepts will be discussed in more detail in tutorials, and Moodle- based tests and coursework will allow for formative assessment. Students will be provided with workbooks describing structured tasks to direct independent learning throughout the unit, and ongoing use of an e-portfolio will nurture and encourage reflective practice.

Unit Outline/Syllabus

Session 1:
 Lecture: Introduction to Clinical Microbiology
 Group Work: Diagnostic Procedures
 Lecture: Anatomy of the Immune System

Session 2:
 Lecture: Immune System
 Group Work: Immunity Group Work
 Lecture: Bacterial Pathogenesis

Session 3:
 Lecture: Skin, Wounds and Trauma
 Group Work:
 Lecture: The Upper Respiratory Tract

Session 4:
 Lecture: The Lower Respiratory Tract
 Group Work: Respiratory Tract Infections
 Lecture: Vaccinations

Session 5:
 Lecture: Sexual Transmitted Diseases.
 Group Work: Urinary and STI
 Lecture: Blood Borne Diseases

Session 6:
 Lecture: HIV.
 Group Work: Case Study HIV
 Lecture: Gastrointestinal infection

Session 7:
 Lecture: Travel Diseases
 Group Work: Gastrointestinal diseases/travel
 Lecture: Nervous System

Session 8:
 Lecture: Childhood Diseases
 Group Work
 Lecture: Surface Infections

Session 9:
 Lecture: Antibiotics
 Group Work: Formative Assessment
 Lecture: MRSA and antibiotic Stewardship

Session 10:
 Lecture: Infection Control 1
 Group Work:
 Lecture: Hospital Acquired diseases

Session 11:
 Lecture: Infection Control 2
 Group Work: Group Presentation

Session 12: Revision
 Informal revision session

Lecture: Introduction to the module

Student Engagement Hours (Exclusive of Scheduled Revision and Exam Time)

Type (Lectures, Tutorials, Seminars, Guided/Independent Learning Time, Other)	Number per term (e.g. 10)	Duration of each (e.g two hours)	Total Time
Lectures	22	1 hour	22
Group Work	11	2 hours	22
Guided self-directed Learning	11	4 hours	44
Total Guided/Independent Learning Hours	44		
<i>Total Contact Hours:</i>			44
Total Engagement Hours			88

Assessment Method Summary*

Type (Examination, Test, Coursework, Presentation, Practical, Other)	TDs Outcomes	Duration (e.g. 1 hour, 4,000 words)	Timing
Written examinations (a combination of single best answer, constructed response or extending matching questions)	Doctor as Scholar/Scientist	2 hours (2x2 hours from term 3)	End of each term in Phase I. Intermediate professional exam (IPE), Final Professional Exam (FPE)
Objective Structured Clinical Examinations	Doctor as a Scholar/Scientist	12 stations	End of each year in Phase I, component of IPE and FPE.
Workbook	Formative in Phase I, summative in Phase II		Completed throughout unit
E-portfolio [†]	Doctor as a Professional		Formative during phase I, summative at end of Phase II

*All learning outcomes described will be tested to a sufficient standard in Phase I to satisfy the requirements of an exit degree.

Secondary Learning Outcomes

In addition to meeting the outcomes described in Outcomes for Graduates, at the completion of the unit students will be able to:

1. Understand the scientific basis of bacterial, viral, fungal and parasitic infections
2. Describe the principles of the infection model
3. Understand the anatomy of the immune system
4. Describe the response of the body to infection utilising the innate and acquired (adaptive) immune system in a range of clinical infections.
5. To further describe the infective consequences of an immune system that functions inappropriately, including patients who are immunocompromised.
6. Describe a clinical approach to gathering information to evaluate a patient with a possible infection and to use the principles of pathogen/patient/person/place to consider a diagnosis of infection.
7. Describe the patient-pathogen interaction for a range of clinically important infections
8. Describe the use of laboratory investigations to aid in the diagnosis of infection, and to interpret common and important results for a patient with a possible infection
9. Outline the principles of the epidemiology of infective diseases and contrast infections acquired in different settings, including travel-acquired infections.
10. Describe the principles of managing a patient with infection, with reference public health issues.
11. Understand the principle of infection management including:
 - Clinical use of antimicrobial agents for prophylaxis and treatment
 - Antimicrobial resistance
 - Antimicrobial stewardship and control
 - Outpatient Parenteral Antibiotic Therapy (OPAT)
 - Use of agents active against viruses
 - Management of Health-care Associated Infections (HCAI)
12. Describe important issues linked with hospital-acquired infections; including how these are investigated

and managed.

Key Texts and/or Other Learning Materials

Essential

Lippincott's Illustrated Reviews: Microbiology. (Third Edition 2013), Harvey, RA, Cornelissen, CN, Fisher, BD.

Background

Medical microbiology and infection at a glance – Stephen Gillespie and Kathleen Bamford
(for a quick overview of the subject)

- **Medical microbiology – a guide to microbial infections** – David Greenwood, Richard Slack, John Peutherer and Mike Barer (for more depth)
- **The viral storm** – Nathan Wolfe (for entertainment as well as education)
- **Principles and practice of infectious diseases** – Gerald Mandell, John Bennett, Raphael Dolin
(just to glance at to get an idea of the range of infectious diseases and the approach to understanding and managing them)

Please note: This specification provides a concise summary of the main features of the unit and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning and assessment methods can be found in the support documents via Moodle. The accuracy of the information contained in this document is subject to ongoing review by the University of Buckingham and forms part of the Medical School's annual return to the General Medical Council.

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Date approved by School Board of Study

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